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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2022 Missile Defense Agency **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400: Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)	<b>R-1 Program Element (Number/Name)</b> PE 0603890C I BMD Enabling Programs
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	3,179.754	630.196	616.455	595.301	-	595.301	-	-	-	-	-	-
MD24: System Engineering & Integration	1,205.752	168.022	174.753	167.118	-	167.118	-	-	-	-	-	-
MD21: Homeland Cruise Missile Defense Architecture	-	0.000	3.000	13.921	-	13.921	-	-	-	-	-	-
MT23: Enabling - Test	112.912	58.143	49.293	41.576	-	41.576	-	-	-	-	-	-
MD28: Intelligence & Security	279.811	42.554	42.501	39.550	-	39.550	-	-	-	-	-	-
MD30: BMD Information Management Systems	565.001	86.992	84.753	92.729	-	92.729	-	-	-	-	-	-
MC30: Cyber Operations	159.570	115.404	64.659	78.248	-	78.248	-	-	-	-	-	-
MD31: Modeling & Simulation	347.084	82.344	107.710	87.068	-	87.068	-	-	-	-	-	-
MC31: Engineering Cyber Operations	30.822	23.322	35.709	22.462	-	22.462	-	-	-	-	-	-
MD32: Quality, Safety, and Mission Assurance	294.540	29.780	30.269	29.527	-	29.527	-	-	-	-	-	-
MD40: Program-Wide Support	184.262	23.635	23.808	23.102	-	23.102	-	-	-	-	-	-

**Program MDAP/MAIS Code:** 362

**Note**  
 Decrease from FY 2021 to FY 2022 reflects transition from development to implementation of the initial Enterprise digital Models and Simulations (M&S) product, completion of the Joint Emergent Operational Need (JEON) in FY 2021, and consolidation of Cyber Engineering activities within Systems Engineering processes.

Beginning in FY 2021, this Program Element includes Cruise Missile Defense of the Homeland architecture design and fire control demonstration, in response to USNORTHCOM requirements.

**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 counter existing threats and provide new defensive capabilities against emerging threats. Specifically, the Enabling Programs:  
 - Assess architecture alternatives and new technologies 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

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<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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- Provide System-level engineering required to develop and demonstrate Cruise Missile Defense of the Homeland
- Provide validated models and simulations for System assessment
- Assess and document 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 an MDS architecture more capable of identifying 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 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
Previous President's Budget	634.449	599.380	552.815	-	552.815
Current President's Budget	630.196	616.455	595.301	-	595.301
Total Adjustments	-4.253	17.075	42.486	-	42.486
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	17.075			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	4.675	0.000			
• SBIR/STTR Transfer	-12.537	0.000			
• Missile Defeat and Defense Enhancement	0.000	0.000	0.000	-	0.000
• Other Adjustment	3.609	0.000	42.486	-	42.486

**Change Summary Explanation**

FY 2020 does not include the enacted rescission of \$2.031 million to BMD Enabling.

Increase in FY 2021 provides Congressional adds for architecture reactive target simulation development, cruise missile defense for homeland indications and warning, and a portion of the undistributed Congressional add to restore DWR Missile Defense Agency manpower reduction.

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<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> / BA 4: <i>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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Increase in FY 2022 provides for Cruise Missile Defense engineering, Layered Homeland Defense engineering, System-level engineering support for the Ground-based Midcourse Defense Next Generation Interceptor, and Information Technology improvements.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity					R-1 Program Element (Number/Name)			Project (Number/Name)				
0400 / 4					PE 0603890C / BMD Enabling Programs			MD24 / System Engineering & Integration				
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
MD24: System Engineering & Integration	1,205.752	168.022	174.753	167.118	-	167.118	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**Note**

Decrease from FY 2021 to FY 2022 reflects completion of both the JEON effort and the architecture-reactive target simulation development effort (FY 2021 Congressional adjustment).

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

System Engineering & Integration (SE&I) defines, designs, tests and integrates the MDS, 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, medium, and long range advanced missile threats
- 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 MDS capabilities and limitations
- Develop performance assessment requirements, verify MDS performance through testing, and conduct assessments to form the basis for technical capability declarations in support of fielding decisions
- Identify critical conditions and data required to develop test campaigns to demonstrate MDS performance
- Define the test objectives necessary to anchor System-level models and simulations and enable independent verification and validation
- Identify System issues occurring in ground and flight tests and lead the effort to resolve them
- Ensure the MDS is complementary to and interoperable with North Atlantic Treaty Organization (NATO) and other theater systems
- Develop anti-tamper approaches to enable international fielding

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency	<b>Date:</b> May 2021
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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> MD24 / System Engineering & Integration
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The MDS threat 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.

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

	FY 2020	FY 2021	FY 2022
<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 Missile Defense System (MDS) level requirements and specifications and drives the integration of the MDS. Requirements and Design allocates requirements to MDS Elements and adjudicates Element level specifications to provide required capabilities for the Warfighter.</p> <ul style="list-style-type: none"> <li>- Define MDS 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 MDS element engineers</li> <li>- Maintain and update Phased Implementation Plan to document integrated requirements for improvements to, or augmentations of, current system capabilities</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 to assess compliance with MDS design</li> <li>- Develop Specification Change Notices (SCN) for future requirements changes, to include mitigation strategies to address discrepancy reports</li> <li>- Ensure accurate reporting of Element functionality and software / hardware integration in the Missile Defense System Accountability Report (MDAR) 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 MDS Lethality Program Plan</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2021 Plans:</b></p> <ul style="list-style-type: none"> <li>- Develop System-level requirements to address advanced threats</li> </ul> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Provide System-level engineering support for Next Generation Interceptor (NGI) development:</li> <li>-- Ensure NGI designs meet lethality requirements and conduct risk reduction activities: Develop and conduct lethality modeling and simulation, plan and conduct Light Gas Gun testing, collect data to anchor and validate developed models, and conduct analysis</li> </ul>	37.908	33.133	47.623
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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p>- Conduct System-level engineering in support of Layered Homeland Defense (LHD), including requirements definition and Post-Intercept Debris analysis</p> <p>-- Develop requirements for C2BMC integrated battle management capability and updates to current sensor and weapon systems to enable the Mid-term LHD capability. Develop functional, interface requirements, and geographic specific performance requirements.</p> <p>-- Develop tailored Homeland Defense Radar functional, interface, design suitability, and performance requirements, to include discriminating radars</p> <p>-- Update analytical tools</p> <p>-- Develop digital prototype to predict initial Post Intercept Debris (PID) environments resulting from hit-to-kill missile defense engagements</p> <p>-- Initiate PID algorithm development and high fidelity intercept modeling to inform MDS system requirements</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Increase in funding from FY 2021 to FY 2022 provides System-level engineering required to incorporate LHD and NGI capabilities into the MDS.</p>			
<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, development of technical and interface control requirements and documents, definition of candidate Joint IAMD increments, model improvements, 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 Joint Integrated Fire Control (IFC) and the development of a Joint IFC network to enable the capability to provide fire control quality data from the right sensor to the right shooter to engage the right target.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <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 Ballistic Missile Defense (BMD) and IAMD wargames/exercises</li> <li>- Continue engineering activities supporting critical Joint Command and Control and interoperability needs:</li> </ul>	15.092 -	17.052 -	17.991 -

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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> MD24 / System Engineering & Integration
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
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<p>-- 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</p> <p>-- 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</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue engineering investigations and evaluation of Advanced Association Algorithms to improve overall joint IAMD Tracking Capabilities to include radar and Electro-Optical / Infrared (EO/IR) data and start transition efforts to realize functionality</li> <li>- Conduct analysis into existing and emerging IAMD capabilities to ensure they are appropriately represented during BMD and IAMD wargames/exercises. Continue to expand use of representative wargames and exercises</li> <li>- Enhance Models and Simulations (M&amp;S) to support participation in annual Nimble Fire exercises</li> <li>- Continue engineering activities supporting critical Joint Command and Control and interoperability needs:</li> </ul> <p>-- Continue to advance improvements in combat identification integration and interoperability among Joint Integrated Air and Missile Defense systems and to start the implementation of these advanced capabilities across the Army, Navy, Air Force and Marine Corps systems</p> <p>-- Working with JIAMDO, continue to analyze, assess and translate identified Engagement Coordination Initial Capability Document requirements in 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</p> <ul style="list-style-type: none"> <li>- Working within the various Joint All Domain Command and Control (JADC2) Working Groups and Integrated Product Teams, ensure IAMD Technical Authority efforts are in alignment and compatible with the direction of the other Services with respect to JADC2 capabilities</li> <li>- Start working with the Army and USCENTCOM in support of the analysis, assessment and development of Counter - Unmanned Aerial Systems (C-UAS) capabilities</li> </ul> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A</p>			
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<p><b>Title:</b> System-Level Verification and Assessment</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> This activity funds Missile Defense System Assessment and Verification, Validation, and Accreditation (VV&amp;A) activities to support Operational Capacity Baseline (OCB) delivery decisions and Technical Capability Declarations (TCDs), and anchor System modeling and simulation.</p>	24.680	23.082	25.703
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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<ul style="list-style-type: none"> <li>- Develop and manage assessment plans and requirements for MDS capability increments:                             <ul style="list-style-type: none"> <li>-- Map assessment requirements to data collection venues (i.e., ground tests, flight tests, and exercises)</li> <li>-- Evaluate current Modeling &amp; Simulation (M&amp;S) capability to address assessment requirements, and provide recommendations for new or improved M&amp;S</li> </ul> </li> <li>- Maintain assessment documentation per the R-4 summary</li> <li>- Conduct extensive analysis of data collected in MDS ground and flight test events to characterize MDS 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 Missile Defense System capabilities and limitations prior to capability delivery decisions</li> <li>- Produce independent assessments of each incremental MDS Capability Delivery to support fielding readiness determinations</li> <li>- Verify MDS performance against specified requirements, and produce MDS verification reports</li> <li>- Maintain M&amp;S VV&amp;A database and toolkit</li> <li>- Maintain verification data for 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 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 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Conduct VV&amp;A of MDS Core Truth Models, to include debris and plume modeling.</li> </ul> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b></p> <p>Increase from FY 2021 to FY 2022 provides for additional System-level verification activities to support accreditation and increase Warfighter confidence in deployed capabilities.</p>				
<b>Title:</b> Knowledge Centers		13.380	14.319	12.679
		<b>Articles:</b>	-	-
<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.				

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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> MD24 / System Engineering & Integration		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p>- 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:</p> <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> </ul> <p>- Perform independent technical assessments of critical System and Element program issues:</p> <ul style="list-style-type: none"> <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 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Decrease in funding from FY 2021 to FY 2022 reflects consolidation of Knowledge Center FFRDC/UARC resources.</p>				
<p><b>Title:</b> Future Concepts and Planning</p> <p align="right"><b>Articles:</b></p> <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 architecture overviews, capability evolution plans, integrated system schedules, and top-level requirements</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> </ul>		14.024 -	23.632 -	13.451 -

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<ul style="list-style-type: none"> <li>- Update concept capability documentation based on architectural options, trade studies, and technology development experiments</li> <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 MDS</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2021 Plans:</b></p> <ul style="list-style-type: none"> <li>- Conduct architecture-reactive target simulation development for design and assessment of architecture alternatives.</li> </ul> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- SEE ABOVE.</li> </ul> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b></p> <p>Decrease from FY 2021 to FY 2022 reflects completion of Congressionally-added architecture-reactive target simulation development effort.</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 MDS Architecture options:</li> <li>-- Analyze and predict the performance of future MDS capabilities</li> <li>-- Provide technical assessments, and collaborate with MDS Elements to define and track technical performance measures</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 2021 Plans:</b></p>		10.016 -	11.300 -	11.061 -

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
- SEE ABOVE.				
<b>FY 2022 Plans:</b> - SEE ABOVE.				
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A				
<b>Title:</b> Discrimination		21.716	23.553	20.462
<b>Articles:</b>		-	-	-
<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. SE&I will lead and integrate the Threat Discrimination program across the entire MDS, establish performance goals for the product development phase, and develop functional, performance, and interface requirements to address the threat. SE&I will establish threat discrimination and countermeasures mitigation ground and flight test requirements, and develop updated high fidelity threat models to support analysis and testing activities. Other activities include: - Perform systems engineering support for threat discrimination and counter-countermeasures analysis and assessments - Provide technical support for fielding improved threat discrimination capabilities				
Specific and/or unique accomplishments to each FY are as follows:				
<b>FY 2021 Plans:</b> - Perform discrimination systems engineering support for counter-countermeasures analysis, and assessments - Provide technical support for fielding improved discrimination capability - Conduct analysis on predicted performance of advanced algorithm development for definition of initial requirements - Develop Electronic Attack models to support MDS requirements definition for Electronic Protection techniques - Define operational concepts for improved counter-countermeasure techniques and technologies - Assess discrimination planning and reporting for MDS Increment 6C Technical Capability Declaration - Develop models and simulations for reactive/responsive Electronic Attack, objective debris mitigation, electro-optical/infrared improvements, advanced/dynamic threat, and high fidelity scene generation - Develop updated high fidelity threat models - 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				
<b>FY 2022 Plans:</b>				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<ul style="list-style-type: none"> <li>- Conduct Threat Discrimination Program integration across the entire MDS</li> <li>- Perform threat discrimination systems engineering support for counter-countermeasures analysis and assessments</li> <li>- Provide technical support for fielding improved discrimination capability</li> <li>- Conduct analysis on predicted performance of advanced capability development for definition of initial requirements for MDS</li> <li>- Develop Electronic Attack and Electronic Protection models to support MDS requirements definition for Electronic Protection techniques</li> <li>- Define operational concepts for improved counter-countermeasure techniques and technologies</li> <li>- Support Ground/Flight test data collection planning efforts to enable MDS Increment 6C assessment</li> <li>- Develop models and simulations for Electronic Attack, Electronic Protection, Objective Debris Mitigation, electro-optical/infrared improvements, advanced/dynamic threat, and high fidelity scene generation to support test planning and execution</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 threat discrimination improvements, Electronic Protection, and Objective Debris Mitigation</li> </ul> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Decrease from FY 2021 to FY 2022 reflects ramp-down in requirements definition and integration planning to align with current discrimination improvements implementation schedule.</p>				
<b>Title:</b> Risk Management		8.076	7.820	7.901
<b>Articles:</b>		-	-	-
<p><b>Description:</b> The Risk Management task identifies MDS 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 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b></p>				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021			
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	
N/A					
<p><b>Title:</b> Anti-Tamper &amp; Engineering Manufacturing Readiness Level Development</p> <p align="right"><b>Articles:</b></p> <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 MDS 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 MDS 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 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A</p>		4.849	5.269	5.367	
		-	-	-	
<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> </ul>		5.132	4.914	4.880	
		-	-	-	

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<ul style="list-style-type: none"> <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> <li>-- Provide element/program scorecard data to support reliability evaluations/assessments</li> <li>- With Logistics Support, develop MDA Reliability and Logistic Policies/Plans to promote integrated sustainability efforts</li> <li>- 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</li> <li>- Provide updates to MDA RAM policy and guidance</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A</p>				
<p><b>Title:</b> 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 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> <ul style="list-style-type: none"> <li>- Develop threat updates to inform requirements</li> <li>- Develop functional, performance, and interface requirements</li> <li>- Develop test requirements</li> <li>- Update Modeling and Simulation (M&amp;S) frameworks and core truth models</li> <li>- Provide M&amp;S integration for testing, and provide Wargame and training support</li> <li>- Develop requirements for capability assessments</li> <li>- Provide test and performance analysis</li> <li>- Perform Element integration</li> </ul>		13.149 -	10.679 -	0.000 -

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**Exhibit R-2A, RDT&E Project Justification:** PB 2022 Missile Defense Agency **Date:** May 2021

<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>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2020	FY 2021	FY 2022
Specific and/or unique accomplishments to each FY are as follows:  <b>FY 2021 Plans:</b> - SEE ABOVE.  <b>FY 2022 Plans:</b> No funding is requested for this activity in FY 2022.  <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Decrease from FY 2021 to FY 2022 reflects completion of the JEON effort.			
<b>Accomplishments/Planned Programs Subtotals</b>	168.022	174.753	167.118

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603881C: Ballistic Missile <i>Defense Terminal Defense Segment</i>	295.312	312.317	277.949	-	277.949	-	-	-	-	-	-
• 0603882C: Ballistic <i>Missile Defense Midcourse</i> <i>Defense Segment</i>	1,275.414	1,219.261	745.144	-	745.144	-	-	-	-	-	-
• 0603884C: Ballistic <i>Missile Defense Sensors</i>	348.356	265.803	224.750	-	224.750	-	-	-	-	-	-
• 0603892C: AEGIS BMD	722.582	877.336	732.512	-	732.512	-	-	-	-	-	-
• 0603896C: Ballistic Missile <i>Defense Command and</i> <i>Control, Battle Management</i> <i>&amp; Communication</i>	550.513	645.741	603.448	-	603.448	-	-	-	-	-	-
• 0603914C: Ballistic <i>Missile Defense Test</i>	398.939	365.208	362.906	-	362.906	-	-	-	-	-	-
• 0604181C: Hypersonic Defense	386.528	272.632	247.931	-	247.931	-	-	-	-	-	-

**Remarks**

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency	<b>Date:</b> May 2021
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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> MD24 / <i>System Engineering &amp; Integration</i>
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**D. Acquisition Strategy**

In order to optimize the performance of the MDS, 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 2022 Missile Defense Agency												Date: May 2021			
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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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 - Lethality Spt - FFRDC/UARC	MIPR	Various : CA	3.906	0.963	Nov 2019	0.978	Nov 2020	0.995	Nov 2021	-		0.995	Continuing	Continuing	Continuing
Requirements and Design - Reqs & Design - Layered Homeland Defense Post Intercept Debris Analysis	Various	Various : AL, CO, VA, MA	0.000	0.000		0.000		6.084	Nov 2021	-		6.084	Continuing	Continuing	Continuing
Requirements and Design - Reqs & Design - Lethality Spt - CSS	C/CPFF	TEAMS : NC	2.328	0.604	Nov 2019	0.672	Nov 2020	0.686	Nov 2021	-		0.686	Continuing	Continuing	Continuing
Requirements and Design - Previous Year Reqs & Design Content No Longer in FYDP	Various	Various : Various	47.805	0.000		0.000		0.000		-		0.000	0.000	47.805	0.000
Requirements and Design - Reqs & Design	C/CPFF	TEAMS : AL, VA	44.181	8.211	Nov 2019	6.126	Nov 2020	6.753	Nov 2021	-		6.753	Continuing	Continuing	Continuing
Requirements and Design - Reqs & Design - FFRDC/UARC 1	MIPR	ORNL : TN	1.828	0.406	Nov 2019	0.415	Nov 2020	0.423	Nov 2021	-		0.423	Continuing	Continuing	Continuing
Requirements and Design - Reqs & Design - FFRDC/UARC 2	MIPR	MITRE : VA	5.376	1.219	Nov 2019	1.245	Nov 2020	0.423	Nov 2021	-		0.423	Continuing	Continuing	Continuing
Requirements and Design - Reqs & Design - HAENS Spt	MIPR	NSWC Crane : IN	3.735	0.498	Nov 2019	0.508	Nov 2020	0.518	Nov 2021	-		0.518	Continuing	Continuing	Continuing
Requirements and Design - Reqs & Design - Industry	C/CPFF	Boeing : AL	122.597	7.136	Nov 2019	6.742	Nov 2020	5.440	Nov 2021	-		5.440	Continuing	Continuing	Continuing
Requirements and Design - Reqs & Design - Layered Homeland Defense Systems Engineering and Requirements Definition	Various	Various : AL, CO, VA	0.000	0.000		0.000		5.556	Nov 2021	-		5.556	Continuing	Continuing	Continuing
Requirements and Design - Reqs & Design - MDA	Allot	MDA : AL, VA	62.871	8.289	Oct 2019	7.716	Nov 2020	7.946	Oct 2021	-		7.946	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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 - NGI CSS support	Various	Various : AL	0.000	0.000		0.000		2.247	Nov 2021	-		2.247	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - NGI Lab support	Various	Various : NM, CA, TX	0.000	0.000		0.000		5.091	Nov 2021	-		5.091	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - NGI OGA support	MIPR	Various : AL, TN	0.000	0.000		0.000		2.700	Nov 2021	-		2.700	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - OGA	MIPR	CCDC : AL	11.087	2.275	Nov 2019	2.376	Nov 2020	0.461	Nov 2021	-		0.461	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - Post Intercept Assessment	Various	Various : Various	10.834	8.307	Nov 2019	6.355	Nov 2020	2.300	Nov 2021	-		2.300	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - MDA	Allot	MDA : AL, VA, CO	0.000	0.000		0.000		0.774	Oct 2021	-		0.774	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - OGA	MIPR	CCDC : AL	14.864	4.442	Nov 2019	4.862	Nov 2020	0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - Support	C/CPFF	TEAMS : AL, VA, CO	6.288	0.898	Nov 2019	1.609	Nov 2020	1.301	Nov 2021	-		1.301	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - Various	MIPR	DoD Activities : Various	52.165	9.752	Nov 2019	10.581	Nov 2020	15.916	Nov 2021	-		15.916	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	12.236	0.000		0.000		0.000		-		0.000	0.000	12.236	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 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>			
System-Level Verification and Assessment - Sys V&A - CSS	C/CPFF	TEAMS : AL	12.291	3.532	Nov 2019	2.685	Nov 2020	3.642	Nov 2021	-		3.642	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 1	MIPR	Aerospace : CA	21.574	1.800	Nov 2019	1.825	Nov 2020	1.251	Nov 2021	-		1.251	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 2	MIPR	JHU/APL : MD, VA	12.058	0.000		1.245	Nov 2020	1.270	Nov 2021	-		1.270	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 3	MIPR	GTRI : AL	1.461	1.150	Nov 2019	1.175	Nov 2020	1.175	Nov 2021	-		1.175	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 6	MIPR	MIT/LL : MA	21.298	1.450	Nov 2019	1.000	Nov 2020	0.829	Nov 2021	-		0.829	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 7	MIPR	MITRE : VA	21.310	1.623	Nov 2019	1.641	Nov 2020	1.645	Nov 2021	-		1.645	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - M&S Accreditation	Various	CCDC : AL	14.244	6.873	Dec 2019	2.836	Nov 2020	5.518	Nov 2021	-		5.518	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - MDA	Allot	MDA : VA, AL	12.251	4.806	Oct 2019	6.326	Oct 2020	5.809	Oct 2021	-		5.809	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - OGA	MIPR	CCDC : AL	14.255	2.490	Nov 2019	2.375	Nov 2020	4.090	Nov 2021	-		4.090	Continuing	Continuing	Continuing
System-Level Verification and Assessment - V&A Industry Support	C/CPFF	Boeing : AL	20.228	0.956	Nov 2019	1.974	Nov 2020	0.474	Nov 2021	-		0.474	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 5	MIPR	Draper : VA	0.579	0.652	Nov 2019	0.665	Nov 2020	0.665	Nov 2021	-		0.665	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 1	MIPR	Aerospace : CA	15.262	1.865	Nov 2019	1.902	Nov 2020	1.732	Nov 2021	-		1.732	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
Knowledge Centers - KC - FFRDC/UARC 2	MIPR	MIT/LL : MA	10.011	1.069	Nov 2019	1.090	Nov 2020	1.090	Nov 2021	-		1.090	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 3	FFRDC	MITRE : VA	10.440	1.084	Nov 2019	1.106	Nov 2020	1.106	Nov 2021	-		1.106	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 4	FFRDC	JHU/APL : VA	8.914	0.714	Nov 2019	0.728	Nov 2020	0.728	Nov 2021	-		0.728	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 7	MIPR	GTRI : GA	5.132	0.377	Nov 2019	0.385	Nov 2020	0.386	Nov 2021	-		0.386	Continuing	Continuing	Continuing
Knowledge Centers - KC - MDA	Various	MDA : AL, VA	39.376	3.800	Oct 2019	3.315	Oct 2020	2.359	Oct 2021	-		2.359	Continuing	Continuing	Continuing
Knowledge Centers - KC - TEAMS	C/CPFF	TEAMS : AL	5.908	2.414	Nov 2019	2.144	Nov 2020	0.000		-		0.000	Continuing	Continuing	Continuing
Knowledge Centers - KC - Various	MIPR	Various : Various	9.836	1.405	Dec 2019	2.984	Dec 2020	4.613	Dec 2021	-		4.613	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	17.969	5.212	Nov 2019	4.987	Nov 2020	6.313	Nov 2021	-		6.313	Continuing	Continuing	Continuing
Future Concepts and Planning - Architecture target simulation development	C/CPFF	Parsons : AL	0.000	0.000		10.000	Apr 2021	0.000		-		0.000	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Architecture Support	Various	Various : VA, AL	12.392	1.000	Nov 2019	1.000	Nov 2020	0.000		-		0.000	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 1	MIPR	SNL : CA	3.486	0.406	Nov 2019	0.415	Nov 2020	0.212	Nov 2021	-		0.212	Continuing	Continuing	Continuing
Future Concepts and Planning - Future	MIPR	MIT/LL : MA	4.699	0.406	Nov 2019	0.415	Nov 2020	0.000		-		0.000	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Concepts - FFRDC / UARC 3															
Future Concepts and Planning - Future Concepts - FFRDC / UARC 5	MIPR	MITRE : VA	4.101	0.488	Nov 2019	0.498	Nov 2020	0.423	Nov 2021	-		0.423	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 6	MIPR	Aerospace : CA	5.032	0.406	Nov 2019	0.415	Nov 2020	0.423	Nov 2021	-		0.423	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Support	Allot	MDA : VA / AL	20.195	6.106	Oct 2019	5.902	Oct 2020	6.080	Oct 2021	-		6.080	Continuing	Continuing	Continuing
Future Concepts and Planning - Previous Year Future Concepts - No Longer in FYDP	Various	Various : Various	82.988	0.000		0.000		0.000		-		0.000	0.000	82.988	0.000
System Engineering, Engineering Analysis and Quick Response Team - Previous Year Sys Engrg, QRT - No Longer In FYDP	Various	Various : Various	6.253	0.000		0.000		0.000		-		0.000	0.000	6.253	0.000
System Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - CSS	C/CPFF	TEAMS : AL	40.420	2.003	Nov 2019	2.680	Nov 2020	2.485	Nov 2021	-		2.485	Continuing	Continuing	Continuing
System Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - CSS 2	C/CPFF	SAIC : VA, AL	31.623	7.421	Nov 2019	7.956	Nov 2020	8.115	Nov 2021	-		8.115	Continuing	Continuing	Continuing
System Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - Industry Spt	C/CPFF	Boeing : VA, AL	0.492	0.592	Nov 2019	0.664	Nov 2020	0.461	Nov 2021	-		0.461	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency												Date: May 2021			
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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
Discrimination - Discrimination - CSS	C/CPFF	TEAMS : AL	23.345	6.103	Nov 2019	5.771	Nov 2020	5.635	Nov 2021	-		5.635	Continuing	Continuing	Continuing
Discrimination - Discrimination - Industry	C/CPAF	Boeing : AL, VA	48.302	13.777	Nov 2019	11.906	Nov 2020	12.971	Nov 2021	-		12.971	Continuing	Continuing	Continuing
Discrimination - Discrimination - Support	Allot	MDA : AL, VA	32.735	1.836	Oct 2019	5.876	Oct 2020	1.856	Oct 2021	-		1.856	Continuing	Continuing	Continuing
Discrimination - Prior Year Discrimination Improvements no longer funded in FYDP	Various	Various : Various	61.423	0.000		0.000		0.000		-		0.000	0.000	61.423	0.000
Risk Management - Risk Mgt - Analysis	Various	MDA : VA, AL	32.032	7.164	Oct 2019	6.929	Oct 2020	7.042	Oct 2021	-		7.042	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - Analysis Spt	C/CPAF	TEAMS : AL	3.972	0.302	Nov 2019	0.268	Nov 2020	0.273	Nov 2021	-		0.273	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - FFRDC/UARC	MIPR	MITRE : VA	6.412	0.610	Nov 2019	0.623	Nov 2020	0.586	Nov 2021	-		0.586	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	0.000
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - Anti-Tamper	Various	Various : AL, VA, CO	1.048	0.881	Dec 2019	0.237	Dec 2020	0.190	Dec 2021	-		0.190	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - Anti-Tamper OGA Support	MIPR	CCDC : AL	0.000	0.261	Dec 2019	0.264	Nov 2020	0.269	Nov 2021	-		0.269	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - Anti-Tamper Support	MIPR	NSWC Crane : IN	7.211	0.256	Dec 2019	0.264	Nov 2020	0.269	Nov 2021	-		0.269	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness	Allot	MDA : AL, VA	30.488	3.451	Nov 2019	4.504	Oct 2020	4.639	Oct 2021	-		4.639	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Level Development - AT & EMRL - MDA															
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	6.024	1.653	Nov 2019	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility	Allot	MDA : AL	5.619	0.819	Nov 2019	3.152	Oct 2020	3.247	Oct 2021	-		3.247	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility - CSS	C/CPFF	TEAMS : AL, VA	1.503	0.944	Nov 2019	0.967	Nov 2020	1.095	Nov 2021	-		1.095	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility - OGA Support	MIPR	CCDC : AL	11.162	1.716	Nov 2019	0.645	Nov 2020	0.538	Nov 2021	-		0.538	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility - Various	Various	Various : AL	1.889	0.000		0.150	Nov 2020	0.000		-		0.000	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
JEON Capability - CSS	C/CPFF	TEAMS : VA, AL	3.565	0.920	Dec 2019	1.340	Nov 2020	0.000		-		0.000	0.000	5.825	0.000
JEON Capability - FFRDC/UARC	MIPR	MITRE : VA	0.934	0.407	Dec 2019	0.415	Nov 2020	0.000		-		0.000	0.000	1.756	0.000
JEON Capability - Framework, Truth Models	Various	Various : CO, AL	2.367	1.391	Dec 2019	0.622	Nov 2020	0.000		-		0.000	0.000	4.380	0.000
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

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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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Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JEON Capability - Industry Support - IRES	C/CPAF	Northrop Grumman : AL, VA	4.808	2.335	Dec 2019	1.818	Nov 2020	0.000		-		0.000	0.000	8.961	0.000
JEON Capability - OGA	MIPR	CCDC : AL	3.036	1.232	Dec 2019	1.443	Nov 2020	0.000		-		0.000	0.000	5.711	0.000
JEON Capability - Systems Engineering	Various	MDA Various : VA, AL, CO	3.450	1.979	Dec 2019	1.025	Nov 2020	0.000		-		0.000	0.000	6.454	0.000
JEON Capability - Test & Performance Analysis	Various	Various : VA, AL	4.058	4.210	Dec 2019	3.200	Nov 2020	0.000		-		0.000	0.000	11.468	0.000
JEON Capability - UARC	MIPR	JHU / APL : MD, VA	3.974	0.675	Dec 2019	0.816	Nov 2020	0.000		-		0.000	0.000	5.465	0.000
<b>Subtotal</b>			1,205.752	168.022		174.753		167.118		-		167.118	Continuing	Continuing	N/A

**Remarks**

N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	1,205.752	168.022	174.753	167.118	-	167.118	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 2022 Missile Defense Agency** **Date:** May 2021

<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 ▲		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 2020			FY 2021			FY 2022			FY 2023			FY 2024			FY 2025			FY 2026		
Update to BMD SDD - FY 2020	▲																				
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2020		▲																			
SEP Update - FY 2020		▲																			
BMD SS - FY 2020		▲																			
Update Achievable Capabilities List - FY 2020		▲																			
BMDS Engineering Review - FY 2020			▲																		
Update to IMAP - 3Q FY 2020			▲																		
Update MIP - FY 2020				▲																	
SS - FY 2021						▲															
MDS Engineering Review - FY 2021							△														
Update MIP - FY 2021							△														
Update to SDD - FY 2021								△													
Update to IMAP - FY 2021								△													
E/CCA - 4Q FY 2021								△													
Update MIP - FY 2022									△												
Update to SDD - FY 2022										△											
Updates to IMAP -FY 2022											△										
SEP Update FY 2022												△									
Update Achievable Capabilities List - FY 2022													△								
SS - FY 2022														△							
MDS Engineering Review - FY 2022															△						
E/CCA - 4Q FY 2022																△					

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2022 Missile Defense Agency **Date:** May 2021

<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 - FY 2020	1	2020	1	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
Update Achievable Capabilities List - 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
SS - FY 2021	3	2021	3	2021
MDS Engineering Review - FY 2021	3	2021	3	2021
Update MIP - FY 2021	3	2021	3	2021
Update to SDD - FY 2021	4	2021	4	2021
Update to IMAP - FY 2021	4	2021	4	2021
E/CCA - 4Q FY 2021	4	2021	4	2021
Update MIP - FY 2022	1	2022	1	2022
Update to SDD - FY 2022	2	2022	2	2022
Updates to IMAP -FY 2022	2	2022	2	2022
SEP Update FY 2022	2	2022	2	2022
Update Achievable Capabilities List - FY 2022	2	2022	2	2022
SS - FY 2022	2	2022	2	2022
MDS Engineering Review - FY 2022	3	2022	3	2022
E/CCA - 4Q FY 2022	4	2022	4	2022

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2022 Missile Defense Agency **Date:** May 2021

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

**Note**  
Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2022 Missile Defense Agency **Date:** May 2021

<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> MD21 / Homeland Cruise Missile Defense Architecture			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
MD21: <i>Homeland Cruise Missile Defense Architecture</i>	-	0.000	3.000	13.921	-	13.921	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Increase from FY 2021 to FY 2022 provides for Cruise Missile Defense of the Homeland architecture design and fire control demonstration, in response to USNORTHCOM requirements.

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

In response to USNORTHCOM's requirements for Cruise Missile Defense of the Homeland (CMD-H), the Missile Defense Agency (MDA) will develop systems architecture and conduct a Joint Tactical Integrated Fire Control (JTIFC) demonstration. The effort includes developing systems engineering requirements, software modifications, models and simulations, and integration of joint sensors and shooters into a fire control network for the demonstration of cruise missile defense capability.

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

	FY 2020	FY 2021	FY 2022
<b>Title:</b> Homeland Cruise Missile Defense Architecture	0.000	3.000	13.921
<b>Articles:</b>	-	-	-
<b>Description:</b> Perform architecture and systems engineering activities required to evolve Cruise Missile Defense of the Homeland, to include architecture analysis, capability roadmap development, and initial requirements analysis. An initial Joint Tactical Integrated Fire Control (JTIFC) demonstration is planned.			
<b>FY 2021 Plans:</b> - Conduct system architecture and engineering analysis to integrate Sensors, Command & Control, Battle Management and Engagement systems for Cruise Missile Defense.			
<b>FY 2022 Plans:</b> - Conduct architecture definition and systems engineering, including system requirements analysis and modeling and simulation -- Conduct the engineering and design of a JTIFC demonstration to integrate Joint sensors and weapons into an integrated fire control network -- Obtain hardware critical to capability demonstration, including Integrated Air and Missile Defense (IAMD) Battle Command System (IBCS) radios and dismounted Engagement Operations Center (EOC), and Cooperative Engagement Capability (CEC) hardware -- Build software adaptive layers for sensors and weapons to integrate into composite tracking / integrated fire control networks			
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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> MD21 / <i>Homeland Cruise Missile Defense Architecture</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
Increase from FY 2021 to FY 2022 provides for architecture design, requirements analysis, design, and modeling to support Cruise Missile Defense development efforts building to a fire control demonstration, in response to USNORTHCOM requirements.			
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	3.000	13.921

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

N/A

**Remarks**

**D. Acquisition Strategy**

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 2022 Missile Defense Agency** **Date:** May 2021

<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> MD21 / Homeland Cruise Missile Defense Architecture
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<b>Product Development (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Homeland Cruise Missile Defense Architecture - CMD-H Architecture Design	Various	Various : VA, MD, MA, CO	0.000	0.000		3.000	Jan 2021	3.521	Dec 2021	-		3.521	Continuing	Continuing	Continuing
Homeland Cruise Missile Defense Architecture - CMD-H Demonstration (Prime-1)	C/CPFF	Raytheon : MD, FL, CA, MA	0.000	0.000		0.000		7.800	Dec 2021	-		7.800	Continuing	Continuing	Continuing
Homeland Cruise Missile Defense Architecture - CMD-H Demonstration (Prime-2)	C/CPFF	Numerica : CO	0.000	0.000		0.000		1.000	Dec 2021	-		1.000	Continuing	Continuing	Continuing
Homeland Cruise Missile Defense Architecture - CMD-H Demonstration (Prime-3)	C/CPFF	Northrop Grumman : AL	0.000	0.000		0.000		0.400	Dec 2021	-		0.400	Continuing	Continuing	Continuing
Homeland Cruise Missile Defense Architecture - CMD-H Demonstration (Prime-4)	C/CPFF	Leidos : VA	0.000	0.000		0.000		1.200	Dec 2021	-		1.200	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	0.000		3.000		13.921		-		13.921	Continuing	Continuing	N/A

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

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	0.000	0.000	3.000	13.921	-	13.921	Continuing	Continuing	N/A

**Remarks**  
N/A

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**Exhibit R-4, RDT&E Schedule Profile: PB 2022 Missile Defense Agency** **Date:** May 2021

<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> MD21 / Homeland Cruise Missile Defense Architecture
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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 2020		FY 2021			FY 2022			FY 2023		FY 2024		FY 2025		FY 2026		
IFC CMD-H Demonstration									◇	◇	◇	◇	◇	◇							
CMD-H Increment 1 System Architecture											◇	◇	◇	◇							

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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> MD21 / <i>Homeland Cruise Missile Defense Architecture</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
IFC CMD-H Demonstration	2	2021	4	2022
CMD-H Increment 1 System Architecture	1	2022	4	2022

**Note**

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency										<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MT23: <i>Enabling - Test</i>	112.912	58.143	49.293	41.576	-	41.576	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**Note**

Decrease from FY 2021 to FY 2022 is in accordance with the current Integrated Master Test Plan (IMTP).

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

The Enabling Test project includes the System Engineering & Integration (SE&I) that drives Missile Defense System (MDS) 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 MDS events to ensure the incremental capability being transferred to the Warfighter will be operationally effective, suitable, and survivable. The resulting data ensures MDS 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 MDS 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 system-of-systems. MDA validates and accredits System-level models and simulations to support accurate and comprehensive assessments. M&S System and product 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 most current version of the IMTP.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<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 M&amp;S integration test cases</li> <li>- Conduct M&amp;S Integration Benchmarking and integrate the MDS M&amp;S framework with MDA and non-MDA Elements into the event architectures that support assessment activities</li> <li>- Integrate, test, and deliver end-to-end System-level simulations supporting ground test missions</li> <li>- Deploy and maintain M&amp;S Simulation Interface Units (SIUs) for testing, including cybersecurity compliance, configuration management authority, and sustainment of the SIU fleet</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>- Perform event architecture certification</li> <li>- Provide Federation reporting for VV&amp;A of M&amp;S architectures</li> <li>- Document test observations for System-level test anomalies and coordinate the resulting 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 2021 Plans:</b></p> <ul style="list-style-type: none"> <li>- SEE ABOVE.</li> </ul> <p><b>FY 2022 Plans:</b></p>	35.243	31.725	24.569
	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
- SEE ABOVE.				
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Decrease from FY 2021 to FY 2022 is in accordance with the current IMTP.				
<b>Title:</b> Continuous Integration and Agile Test (CI/CAT)		13.599	11.263	11.323
		<b>Articles:</b>	-	-
<b>Description:</b> Provide test planning, analysis, M&S integration, M&S execution, threat development, and post-event analysis for integrated ground testing, M&S Continuous Developmental Integration, and M&S engineering activities. Execute agency ground test plan in accordance with approved IMTP and maintain integration across concurrent ground test and flight test activities				
Specific and/or unique accomplishments to each FY are as follows:				
<b>FY 2021 Plans:</b> - SEE ABOVE.				
<b>FY 2022 Plans:</b> - SEE ABOVE.				
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A				
<b>Title:</b> Continuous Development & Integration (CDI) Environment		9.301	6.305	5.684
		<b>Articles:</b>	-	-
<b>Description:</b> Provide M&S integration technical expertise and risk reduction process for MDS Element integration activities and event planning within a Continuous Development and Integration (CDI) environment, to include support to IMTP testing and M&S engineering activities; a venue for integrating new Elements, interfaces, connectivity and functionality to support MDS capability increment upgrades; and cybersecurity monitoring and automation to the CDI environment. It also supports Element modeling capabilities for advance concept analysis in CDI architectures. This is a critical enabler to achieve the Ground Test Concept of Operations. Conduct Early Integration activities such as scenario refinement and early checkout of Element software for Ground Test sprints.				
<b>FY 2021 Plans:</b> - SEE ABOVE.				
<b>FY 2022 Plans:</b>				

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**Exhibit R-2A, RDT&E Project Justification:** PB 2022 Missile Defense Agency **Date:** May 2021

<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>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
- SEE ABOVE.			
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	58.143	49.293	41.576

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603914C: <i>Ballistic Missile Defense Test</i>	398.939	365.208	362.906	-	362.906	-	-	-	-	-	-
• 0604878C: <i>Aegis BMD Test</i>	167.364	71.498	117.055	-	117.055	-	-	-	-	-	-

**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 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	6.745	5.131	Nov 2019	5.229	Nov 2020	3.773	Nov 2021	-		3.773	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - FFRDC	MIPR	Aerospace : AL	1.426	0.406	Nov 2019	0.415	Nov 2020	0.000		-		0.000	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Industry	C/CPAF	Boeing : VA, AL	19.008	7.201	Nov 2019	7.314	Nov 2020	3.926	Nov 2021	-		3.926	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Integration Support CSS	C/CPAF	COLSA : AL, CO	21.744	0.000		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	1.838	7.111	Nov 2019	3.651	Nov 2020	2.137	Nov 2021	-		2.137	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - OGA Support	MIPR	CCDC : AL	45.118	14.856	Nov 2019	14.567	Nov 2020	13.753	Nov 2021	-		13.753	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - OGA Support - NME	MIPR	LTPO : AL	4.287	0.000		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	5.554	0.000		0.000		0.000		-		0.000	0.000	5.554	0.000
Engineering and Analysis - Engineering & Analysis - Test Engineering Support	Various	Various : AL, CO, VA	3.541	0.538	Nov 2019	0.549	Nov 2020	0.980	Nov 2021	-		0.980	Continuing	Continuing	Continuing
Continuous Integration and Agile Test (CI/CAT) - CI/CAT Analysis (OGA)	MIPR	CCDC : AL	0.000	0.000		0.000		2.990	Dec 2021	-		2.990	Continuing	Continuing	Continuing
Continuous Integration and Agile Test (CI/CAT) - CI/CAT M&S Integration	Various	Various : AL, CO	0.000	7.979	Dec 2019	6.113	Dec 2020	5.708	Dec 2021	-		5.708	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Continuous Integration and Agile Test (CI/CAT) - CI/ CAT Test & Performance Analysis	Various	Various : AL, CO	0.000	4.567	Dec 2019	4.076	Dec 2020	0.000		-		0.000	0.000	8.643	0.000
Continuous Integration and Agile Test (CI/CAT) - CI/ CAT Test Requirements Engineering	C/CPFF	TEAMS : AL, CO	0.000	1.053	Nov 2019	1.074	Nov 2020	2.625	Nov 2021	-		2.625	Continuing	Continuing	Continuing
Continuous Integration and Agile Test (CI/CAT) - CSS	Various	Various : Various	1.962	0.000		0.000		0.000		-		0.000	0.000	1.962	0.000
Continuous Integration and Agile Test (CI/CAT) - Hardware	C/CPFF	TBE : AL	1.689	0.000		0.000		0.000		-		0.000	0.000	1.689	0.000
Continuous Development & Integration (CDI) Environment - Continuous Development and Integration Environment	MIPR	CCDC : AL, CO	0.000	9.301	Dec 2019	6.305	Dec 2020	5.684	Dec 2021	-		5.684	Continuing	Continuing	Continuing
<b>Subtotal</b>			112.912	58.143		49.293		41.576		-		41.576	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	112.912	58.143	49.293	41.576	-	41.576	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 2022 Missile Defense Agency** **Date: May 2021**

<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 2020			FY 2021			FY 2022			FY 2023			FY 2024			FY 2025			FY 2026			
	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 2020	▲																					
IMTP Engineering Inputs - 3Q - FY 2020			▲																			
IMTP Engineering Inputs - 1Q - FY 2021				▲																		
GTI-09 Sprint 1 (E/C) (MDS Ground Test)									◇													
IMTP Engineering Inputs - 3Q - FY 2021						△																
GTI-09 Sprint 2 (E/C) (MDS Ground Test)									◇	◇												
IMTP Engineering Inputs - 1Q - FY 2022									△													
IMTP Engineering Inputs - 3Q - FY 2022										△												

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2022 Missile Defense Agency **Date:** May 2021

<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 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) (MDS Ground Test)	1	2022	1	2022
IMTP Engineering Inputs - 3Q - FY 2021	3	2021	3	2021
GTI-09 Sprint 2 (E/C) (MDS Ground Test)	2	2022	3	2022
IMTP Engineering Inputs - 1Q - FY 2022	1	2022	1	2022
IMTP Engineering Inputs - 3Q - FY 2022	3	2022	3	2022

**Note**

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency										<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD28: <i>Intelligence &amp; Security</i>	279.811	42.554	42.501	39.550	-	39.550	-	-	-	-	-	-
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 MDS 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 MDS 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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<b>Title:</b> Intelligence	10.527	8.771	7.983
<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 liaison between MDA and the Intelligence Community			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency	<b>Date:</b> May 2021
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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> MD28 / Intelligence & Security
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
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<p>-- Maintain and communicate prioritized, specific Missile Defense intelligence requirements to the Intelligence Community</p> <p>-- Maintain a focused dialogue with members of the Intelligence Community to ensure understanding, urgency and context of MDA intelligence requirements</p> <p>- Provide Current, Technical, Acquisition, Collection and Cyber intelligence to the MDS throughout the acquisition life cycle</p> <p>- 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</p> <p>- 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</p> <p>- Maintain Missile Intelligence Secure Link (MISL) classified portal (full operational capability)</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2021 Plans:</b></p> <p>- SEE ABOVE.</p> <p><b>FY 2022 Plans:</b></p> <p>- SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b></p> <p>N/A</p>			
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<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> <p>- 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</p> <p>-- Engage National, Combatant Command and DoD CI resources to share and obtain threat information impacting MDA personnel, facilities, information, technologies, programs and activities, worldwide</p> <p>-- 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</p>	8.616 -	7.496 -	6.936 -
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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</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 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A</p>				
<b>Title:</b> Cybersecurity Engineering Program		3.596	4.826	4.255
		<b>Articles:</b> -	-	-
<p><b>Description:</b> Cybersecurity Engineering 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 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p>-- Recommend updates to MDA's Technical 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 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 System</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 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A</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 for 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 Freedom of Information Act (FOIA) and Mandatory Declassification Reviews to ensure sensitive Missile Defense information is not inadvertently released into the public domain</li> </ul>		11.032 -	10.929 -	10.112 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<ul style="list-style-type: none"> <li>- Perform Information Security program management and oversee implementation by MDA programs</li> <li>-- Perform internal program reviews, policy oversight and implementation, and training to identify and fix deficiencies and protect critical information</li> <li>-- Collect information required for annual reports and communicate security posture to leadership</li> <li>- Provide security oversight for the Agency's classified contracts by drafting and coordinating DD254 "Contract Security Classification Specification" documents</li> <li>- Execute an effective SCRM program to prevent unmitigated risks from degrading the performance of components and systems across the supply chain</li> <li>- 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</li> <li>- Perform systematic Declassification reviews on historical Agency information to prevent unauthorized disclosures due to automatic declassification requirements</li> <li>- Identify and integrate Security requirements for overseas sites with existing or planned missile defense weapons or sensor systems to ensure protection of deployed sites</li> <li>- Provide effective physical protection to low density/high demand emerging Warfighter capability</li> <li>- Expand security activities</li> <li>- 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</li> <li>- Keep pace with mission growth in program protection, system security engineering, acquisition security, and SCRM</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A</p>				
<b>Title:</b> Threat Systems Engineering		8.783	10.479	10.264
		<b>Articles:</b> -	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p><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 System flight test objectives. Program goals include:</p> <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 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	42.554	42.501	39.550

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2022</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
			<b>Base</b>	<b>OCO</b>	<b>Total</b>						
• 0305103C: <i>Cyber Security Initiative</i>	11.109	1.148	1.142	-	1.142	-	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency	<b>Date:</b> May 2021
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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> MD28 / Intelligence & Security
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**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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**Remarks**

**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 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
Intelligence - Intelligence Analysis & Support	Allot	MDA : VA, AL, CO	29.752	3.993	Oct 2019	3.903	Oct 2020	3.555	Oct 2021	-		3.555	Continuing	Continuing	Continuing
Intelligence - Intelligence Support	C/CPFF	TEAMS : AL, VA, CO	30.369	6.220	Nov 2019	4.289	Nov 2020	4.428	Nov 2021	-		4.428	Continuing	Continuing	Continuing
Intelligence - Intelligence Support - IT Maintenance	C/CPFF	Northrop Grumman : AL, CO	2.613	0.314	Nov 2019	0.579	Nov 2020	0.000		-		0.000	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	14.196	3.446	Oct 2019	2.852	Oct 2020	2.598	Oct 2021	-		2.598	Continuing	Continuing	Continuing
Counterintelligence - CI Analysis and Support	C/CPFF	TEAMS : AL, CO, VA	23.526	4.746	Nov 2019	4.211	Nov 2020	3.897	Nov 2021	-		3.897	Continuing	Continuing	Continuing
Counterintelligence - CI Surveillance Gear	Various	Various : Various	1.060	0.424	Dec 2019	0.433	Dec 2020	0.441	Dec 2021	-		0.441	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
Cybersecurity Engineering Program - Cybersecurity Engineering	Allot	MDA : VA, AL	16.243	1.549	Oct 2019	2.103	Oct 2020	1.429	Oct 2021	-		1.429	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity Engineering - Hardware	Various	Various : AL, CO, VA	0.000	1.107	Nov 2019	0.923	Nov 2020	0.588	Nov 2021	-		0.588	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity Engineering CSS	C/CPFF	TEAMS : VA, AL	4.363	0.940	Nov 2019	1.800	Nov 2020	2.238	Nov 2021	-		2.238	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Protection - Declassification Analysis	C/CPFF	TEAMS : VA, AL	9.773	2.096	Nov 2019	2.436	Nov 2020	2.202	Nov 2021	-		2.202	Continuing	Continuing	Continuing
Program Protection - Program Protection Analysis	Allot	MDA : VA, AL	29.552	3.733	Oct 2019	4.956	Oct 2020	4.514	Oct 2021	-		4.514	Continuing	Continuing	Continuing
Program Protection - Program Protection Analysis & Support	C/CPFF	TEAMS : AL, AK, CA, CO, VA	28.112	4.410	Nov 2019	3.122	Nov 2020	2.526	Nov 2021	-		2.526	Continuing	Continuing	Continuing
Program Protection - Program Protection Support	Various	Various : AL, VA, CO	3.560	0.793	Nov 2019	0.415	Nov 2020	0.870	Nov 2021	-		0.870	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	22.585	3.731	Oct 2019	3.604	Oct 2020	3.282	Oct 2021	-		3.282	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - CSS	C/CPFF	TEAMS, Various : VA, AL	11.309	2.207	Nov 2019	2.725	Nov 2020	3.787	Nov 2021	-		3.787	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - CSS 2	C/CPFF	Various : VA, AL	0.000	0.000		0.000		3.195	Nov 2021	-		3.195	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - FFRDC	FFRDC	MIT/LL : MA	4.206	1.219	Nov 2019	1.660	Nov 2020	0.000		-		0.000	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - OGA	MIPR	Various : CA, VA, AL	7.669	0.000		0.000		0.000		-		0.000	0.000	7.669	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Threat Systems Engineering - Threat Systems Engineering - UARC	FFRDC	JHU/APL : MD	5.338	1.626	Nov 2019	2.490	Nov 2020	0.000		-		0.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			279.811	42.554		42.501		39.550		-		39.550	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	
<b>Project Cost Totals</b>		279.811	42.554	42.501	39.550	-	39.550	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 2022 Missile Defense Agency** **Date: May 2021**

<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 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
MD28 Intelligence & Security	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇																
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																△												

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2022 Missile Defense Agency **Date:** May 2021

<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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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD28 Intelligence & Security	1	2020	4	2022
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

**Note**

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency										<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD30: BMD Information Management Systems	565.001	86.992	84.753	92.729	-	92.729	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**Note**

Increase from FY 2021 to FY 2022 provides for the implementation of the Qlik Sense capability and purchase of long-lead time hardware for FY 2023.

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

The MDS Information Management Systems budget project funds information technology mission critical functions necessary for the efficient operations and safeguarding of MDS 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". Information Technology (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 MDS 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. MDS 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 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p><b>Title:</b> End User Support</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Provides Information Technology (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 MDS 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. Plans, engineers and implements sustainment projects for common-use IT services and business systems consistent with the IT architecture road map. 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 2021 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Increase from FY 2021 to FY 2022 provides for purchase of long-lead time hardware for FY 2023.</p>	7.822	21.476	24.149
	-	-	-
<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 Information Technology (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.</p>	36.718	4.340	4.809
	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
Specific and/or unique accomplishments to each FY are as follows:  <b>FY 2021 Plans:</b> -SEE ABOVE. <b>FY 2022 Plans:</b> -SEE ABOVE. <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A				
<b>Title:</b> Information Technology (IT) Planning and Solutions  <b>Description:</b> Provides Information Technology (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 the Office of Management and Budget (OMB) IT budget reporting policies.  Specific and/or unique accomplishments to each FY are as follows:  <b>FY 2021 Plans:</b> -SEE ABOVE. <b>FY 2022 Plans:</b> -SEE ABOVE. <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A		8.951 Articles: -	13.181 -	13.796 -
<b>Title:</b> Unified Communications  <b>Description:</b> 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		12.953 Articles: -	23.187 -	23.481 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p>collaboration capabilities. Provides and implements engineering solutions for all unified communications services. Supports MDA global Research, Development, Test and Engineering (RDT&amp;E) mission for classified and unclassified voice services 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 telecommunications equipment classified and unclassified mobile and desktop telephony devices.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2021 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A</p>				
<p><b>Title:</b> Portal and Data Services</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Provides for the management, operation and maintenance support for the classified and unclassified MDA Portal application and the Information Technology (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 provides data management services to accommodate MDA users.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2021 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A</p>		11.764 -	14.431 -	14.384 -
<p><b>Title:</b> Business Automation Services</p> <p align="right"><b>Articles:</b></p>		4.109 -	8.138 -	12.110 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p><b>Description:</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. Develop and implement an unclassified and classified Qlik Sense business intelligence capability. 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).</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2021 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Increase from FY 2021 to FY 2022 provides for the implementation of the Qlik Sense capability.</p>			
<p><b>Title:</b> CARES Act Funding (COVID 19)</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Provides for priority Information Technology (IT) requirements for the purchase of laptops and labor for 100% telework of MDA employees during the COVID 19 Pandemic. These are CARES Act division B, Title III, requirements.</p> <p><b>FY 2021 Plans:</b> N/A</p> <p><b>FY 2022 Plans:</b> N/A</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A</p>	4.675 -	0.000 -	0.000 -
<b>Accomplishments/Planned Programs Subtotals</b>	86.992	84.753	92.729

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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)**

<b>Line Item</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0603176C: <i>Advanced Concepts and Performance Assessment</i>	45.852	49.410	15.800	-	15.800	-	-	-	-	-	-
• 0603180C: <i>Advanced Research</i>	27.166	35.024	21.466	-	21.466	-	-	-	-	-	-
• 0603294C: <i>Common Kill Vehicle Technology</i>	13.319	11.058	0.000	-	0.000	-	-	-	-	-	-
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	295.312	312.317	277.949	-	277.949	-	-	-	-	-	-
• 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i>	1,275.414	1,219.261	745.144	-	745.144	-	-	-	-	-	-
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	348.356	265.803	224.750	-	224.750	-	-	-	-	-	-
• 0603892C: <i>AEGIS BMD</i>	722.582	877.336	732.512	-	732.512	-	-	-	-	-	-
• 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i>	550.513	645.741	603.448	-	603.448	-	-	-	-	-	-
• 0603898C: <i>Ballistic Missile Defense Joint Warfighter Support</i>	51.095	49.560	50.594	-	50.594	-	-	-	-	-	-
• 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i>	54.783	55.356	52.403	-	52.403	-	-	-	-	-	-
• 0603907C: <i>Sea Based X-Band Radar (SBX)</i>	137.604	118.318	147.241	-	147.241	-	-	-	-	-	-
• 0603913C: <i>Israeli Cooperative Programs</i>	300.000	300.000	300.000	-	300.000	-	-	-	-	-	-
• 0603914C: <i>Ballistic Missile Defense Test</i>	398.939	365.208	362.906	-	362.906	-	-	-	-	-	-
• 0603915C: <i>Ballistic Missile Defense Targets</i>	545.764	536.133	553.334	-	553.334	-	-	-	-	-	-
• 0604880C: <i>Land Based SM-3 (LBSM3)</i>	36.918	56.628	43.158	-	43.158	-	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0901598C: <i>Management HQ - MDA</i>	27.065	26.902	24.102	-	24.102	-	-	-	-	-	-

**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 2022 Missile Defense Agency												Date: May 2021			
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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
End User Support - End User Consolidated Support Logistics/Asset Mgmt	C/CPFF	Venturi : AL, CO	0.514	0.383	Nov 2019	0.350	Nov 2020	0.358	Nov 2021	-		0.358	Continuing	Continuing	Continuing
End User Support - End User IT Software & Licenses	MIPR	Accenture : AL, AK, CA, CO, HI, NM, VA	0.000	0.000		0.982	Aug 2021	0.000		-		0.000	0.000	0.982	0.000
End User Support - End User Civilian Pay	Allot	MDA Civilian Pay : AL, CO, NM, VA	21.163	1.881	Oct 2019	2.835	Oct 2020	4.120	Oct 2021	-		4.120	Continuing	Continuing	Continuing
End User Support - End User IT Hardware Support	C/CPAF	Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	41.953	0.001	Nov 2019	4.944	Nov 2020	7.334	Nov 2021	-		7.334	Continuing	Continuing	Continuing
End User Support - End User IT Software / Licenses	C/CPAF	Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	17.353	5.556	Nov 2019	6.412	Nov 2020	5.994	Nov 2021	-		5.994	Continuing	Continuing	Continuing
End User Support - End User Operational Support	C/CPAF	Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	56.695	0.001	Oct 2019	5.953	Oct 2020	6.343	Oct 2021	-		6.343	Continuing	Continuing	Continuing
Special Purpose Processing Nodes (SPPN) - SPPN Civilian Pay	Allot	MDA Civilian Pay : AL, CO, VA	8.581	0.506	Oct 2019	1.041	Oct 2020	1.512	Oct 2021	-		1.512	Continuing	Continuing	Continuing
Special Purpose Processing Nodes (SPPN) - SPPN Licenses	C/CPAF	Jacobs Engineering : AL, CO, VA	80.362	9.000	Nov 2019	1.984	Nov 2020	2.087	Nov 2021	-		2.087	Continuing	Continuing	Continuing
Special Purpose Processing Nodes (SPPN) - SPPN Operational Support	C/CPAF	Jacobs Engineering : AL, CO, VA	73.523	27.212	Jan 2020	1.315	Jan 2021	1.210	Jan 2022	-		1.210	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Travel / PCS	Allot	MDA Civilian Travel : AL, CO, VA	0.000	0.000		0.000		0.333	Oct 2021	-		0.333	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions	Allot	MDA Civilian Pay : AL, CO, VA	8.200	1.783	Oct 2019	1.539	Oct 2020	2.236	Oct 2021	-		2.236	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency												Date: May 2021			
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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
- IT Planning and Solutions Civilian Pay															
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Consolidated Support	C/CPFF	Five Stones, Yorktown, Peopletec : AL, CO, VA	27.486	3.765	Aug 2020	6.764	Aug 2021	6.402	Aug 2022	-		6.402	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Operational Support	C/CPAF	Jacobs Engineering : AL, CO, VA	40.720	0.503	Mar 2020	2.478	Mar 2021	2.377	Mar 2022	-		2.377	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions SWDC PNT	C/CPFF	Northrup Grumman : AL, CO, VA	3.996	2.900	Oct 2019	2.400	Mar 2021	2.448	Mar 2022	-		2.448	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Civilian Travel / PCS	Allot	MDA Civilian Travel : AL, CO, VA	0.000	0.000		0.200	Oct 2020	0.000		-		0.000	0.000	0.200	0.000
Unified Communications - Unified Communications Civilian Pay	Allot	MDA Civilian Pay : AL, CO, VA	7.415	2.023	Oct 2019	0.996	Oct 2020	1.450	Oct 2021	-		1.450	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Hardware Licenses	C/CPIF	Jacobs Engineering : AL, CO, VA	2.536	1.850	Nov 2019	1.392	Nov 2020	1.405	Nov 2021	-		1.405	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Leased Communications/ Licenses	MIPR	DISA/DREN/IT2S : AL, AK, CA, CO, HI, NM, VA	27.786	3.003	Oct 2019	7.008	Oct 2020	9.107	Oct 2021	-		9.107	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Operational Support	C/CPAF	Jacobs Engineering : AL, CO, VA	12.096	2.037	Oct 2019	2.671	Dec 2020	3.118	Nov 2021	-		3.118	Continuing	Continuing	Continuing
Unified Communications - Unified Communications VTC Operations Support	C/CPIF	Network Management Resources : AL, AK, CO, NM, VA	40.227	0.081	Nov 2019	8.767	Apr 2021	7.006	Apr 2022	-		7.006	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency												Date: May 2021			
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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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 Wireless Services	C/FFP	AT&T : AL, CO, VA	7.601	1.983	Nov 2019	2.153	Oct 2020	1.395	Oct 2021	-		1.395	Continuing	Continuing	Continuing
Unified Communications - VTC HW/Break-Fix	C/CPIF	Network Management Resources : AL, CO, VA	1.209	1.976	Nov 2019	0.000		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	6.057	1.686	Oct 2019	0.831	Oct 2020	1.208	Oct 2021	-		1.208	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Operational	C/CPAF	Online Subscriptions Services : AL, CO, VA	2.674	0.455	Oct 2019	0.350	Oct 2020	0.354	Oct 2021	-		0.354	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Operational Support	C/FFP	Network Management Resources : AL, CO, VA	25.001	5.801	Apr 2020	6.200	Apr 2021	6.086	Apr 2022	-		6.086	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Operations and Support	C/CPAF	Jacobs Engineering : AL, CO, VA	11.877	3.822	Jan 2020	7.050	Jan 2021	6.736	Jan 2022	-		6.736	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Cloud E Cart	MIPR	TBD : AL, CO, VA	0.000	0.000		0.000		0.613	Sep 2022	-		0.613	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Civilian Pay	Allot	MDA Civilian Pay : AL, CO, VA	3.844	0.506	Oct 2019	0.331	Oct 2020	0.485	Oct 2021	-		0.485	Continuing	Continuing	Continuing
Business Automation Services - Business Automation E-Tasker/ Accenture Task Mgt Tool	Various	TBD : AL, CO, VA	0.000	0.000		0.000		0.234	Oct 2021	-		0.234	Continuing	Continuing	Continuing
Business Automation Services - Business Automation ELMS/ USA Learning	MIPR	TBD : AL, CO, VA	0.000	0.000		0.000		0.291	Oct 2021	-		0.291	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Business Automation Services - Business Automation Human Resources Tracking System	Various	TBD : AL, CO, VA	0.000	0.000		0.000		0.557	Oct 2021	-		0.557	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Licenses	C/CPAF	Jacobs Engineering : AL, CO, VA	6.421	0.991	Nov 2019	0.000		0.000		-		0.000	0.000	7.412	0.000
Business Automation Services - Business Automation Operational Support	C/CPAF	Jacobs Engineering : AL, CO, VA	29.587	2.612	Jan 2020	7.807	Jan 2021	6.208	Jan 2022	-		6.208	Continuing	Continuing	Continuing
Business Automation Services - Business Automation QLIK	C/CPAF	TBD : AL, CO, VA	0.000	0.000		0.000		3.132	Jun 2022	-		3.132	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Service Support	C/FFP	Network Management Resources : AL, CO, VA	0.000	0.000		0.000		0.590	Mar 2022	-		0.590	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Services Support	MIPR	CACI : AL, CO, VA	0.124	0.000		0.000		0.000		-		0.000	0.000	0.124	0.000
CARES Act Funding (COVID 19) - CARES IT Hardware Support	C/CPAF	Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	0.000	4.675	Aug 2020	0.000		0.000		-		0.000	0.000	4.675	0.000
<b>Subtotal</b>			565.001	86.992		84.753		92.729		-		92.729	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	565.001	86.992	84.753	92.729	-	92.729	Continuing	Continuing	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2022 Missile Defense Agency							<b>Date:</b> May 2021			
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	

**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 2022 Missile Defense Agency** **Date:** May 2021

<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 2020			FY 2021			FY 2022			FY 2023			FY 2024			FY 2025			FY 2026		
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 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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	2020	4	2022
Operate and Maintain General Information Technology Services 18 hours per day, 6 days per week - Follow-On	1	2020	4	2022
Revise and Test Contingency Plans for Information Technology Systems - Follow-On	1	2020	4	2022
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - Follow-On	1	2020	4	2022
Procure, Implement, and Asset Control for Information Technology Operational Systems -Follow-On	1	2020	4	2022
Provide 18 hours per day, 6 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - Follow-On	1	2020	4	2022
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - Follow-On	1	2020	4	2022
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - Follow-On	1	2020	4	2022
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - Follow-On	1	2020	4	2022
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - Follow-On	1	2020	4	2022
Sustain the Information Technology Infrastructure Across the MDA Enterprise - Follow-On	1	2020	4	2022
Operate, Monitor and Sustain Recurring Operations for Video Conferencing for Unified Communications Follow-On	1	2020	4	2022

**Note**

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency										<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MC30: <i>Cyber Operations</i>	159.570	115.404	64.659	78.248	-	78.248	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

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.

Increase from FY 2021 to FY 2022 provides for the staffing and implementation of a Defensive Cyber Operations Capability; the addition of the MDS (Weapons Systems) Cybersecurity Service provider (CSSP); and provides a movement of funds from PE 0603882C: Ballistic Missile Defense Midcourse Defense Segment, MC08: Cyber Operations out of the Network / System Certification and Accreditation (C&A) accomplishment.

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

A number of key Information Technology (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 MDS 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 Missile Defense System (MDS) 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 Manager (PM/ISSM) Plan of Action and Milestones (POA&M) for the MDA mission, test and common-use IT systems. Maintains the Authorization and Assessment (A&A) data repository, capturing the RMF documentation (artifacts, validation results, and Cybersecurity Risk Assessment results, and Authorizing Official (AO) decisions) and POA&M on all MDA information systems. Supports the monitoring and tracking of Cybersecurity mitigations detailed in IT cybersecurity POA&Ms. Activities include preparation of A&A documentation and authorization recommendations to the MDA PM/ISSM and AO. Independent Verification and Validation (IV&V) team actions ensure the availability, integrity, confidentiality and non-repudiation of the MDA mission, test and common-use IT 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 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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

This project funds the MDA Global Network Operations and Security Center(GNOSC) 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 the MDA Enterprise information and information systems.

The MDA Computer Emergency Response Team (CERT), MDA's Tier 2 Cybersecurity Service Provider (CSSP) monitors the MDA classified and unclassified information technology RDT&E and common-use 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. During FY 2020 began the development of the MDS (Weapons Systems) Cybersecurity Service provider (CSSP) as a fully accredited Tier II in accordance with CJCSI 6510.01F, DoD O-8530.1, and the DoD Cybersecurity Discipline Implementation Plan.

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 Communication Security (COMSEC) related activities.

Facility-related control systems (FRCS) include building management systems (BMS), electronic security systems (ESS), industrial control systems (ICS) and supervisory control and data acquisition (SCADA) systems in support of facility operations.

This project provides for the management of MDA's FRCS cybersecurity program, cybersecurity engineering for FRCS incorporated in MDA facility plans for construction and upgrades, as well as the implementation of RMF and Computer Network Defense (CND) on FRCS in MDA facilities.

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

	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<b>Title:</b> Preventing Malicious Cybersecurity Activity	28.325	16.544	18.543
<b>Articles:</b>	-	-	-
<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.</p> <p>This effort includes integration and test capabilities for element interface verification and provide operations and sustainment of the deployed Position, Navigation, and Timing (PNT) Last Mile integration capabilities at MDS locations.</p> <p>Recurring Activities for Preventing Malicious Cyber Attacks:</p> <ul style="list-style-type: none"> <li>-Maintain a current Cybersecurity risk and residual risk assessment of the MDS.</li> <li>-Coordinate Cybersecurity compliance for all IT projects and remote sites.</li> <li>-Implement measures to prevent unauthorized access to MDA Information Systems (IS) based on analysis of threat vectors.</li> </ul> <p>Evaluate known threats against vulnerabilities to determine mitigation strategies.</p> <ul style="list-style-type: none"> <li>-Track ports, protocols, and services.</li> </ul>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
-Coordinate with private partnerships to ensure the Defense Industrial Base protects MDA data.				
<b>FY 2021 Plans:</b> -SEE ABOVE.				
<b>FY 2022 Plans:</b> -Implement a Defensive Cyber Operations Capability				
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Increase from FY 2021 to FY 2022, provides for the staffing and implementation of a Defensive Cyber Operations Capability				
<b>Title:</b> Planning, Policy Development, Workforce Training & Force Management		2.390	4.164	4.794
		<b>Articles:</b> -	-	-
<b>Description:</b> 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.				
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 MDS Network Operations Support Center (BNOSC) and the MDS 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 MDS 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 other combatant commands to provide MDS Mission RMF package. -Conduct an annual IA Security review of the MDS 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 Cybersecurity 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:				
<b>FY 2021 Plans:</b>				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
-SEE ABOVE. <b>FY 2022 Plans:</b> -SEE ABOVE. <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Increase from FY 2021 to FY 2022 provides for additional government support to standardize processes to enable more efficient execution of cybersecurity resulting in improved preparedness for future inspections and cybersecurity tests.				
<b>Title:</b> Continuous Monitoring		17.225	8.230	8.228
<b>Articles:</b>		-	-	-
<b>Description:</b> Provide Information Technology (IT) Security Tools and Other Continuous Monitoring.  Recurring Activities for the Continuous Monitoring Accomplishment: -Manage data-at-rest encryption to ensure compliance with DoD mandated policies. -Procure/renew cybersecurity software licensing 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 2021 Plans:</b> -SEE ABOVE. <b>FY 2022 Plans:</b> -SEE ABOVE. <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A				
<b>Title:</b> Detect, Analyze and Mitigate Intrusions		67.297	35.550	45.586
<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.  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 Information Technology (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 2022 Missile Defense Agency	<b>Date:</b> May 2021
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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>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
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-Conduct RMF analysis and reporting for the MDS such as evaluation of residual risk by incorporating current and proposed MDS monitoring and mitigations.

-Maintain MDA Computer Emergency Response Team (MDA CERT) as a fully accredited Tier II Cybersecurity Service provider (CSSP) in accordance with CJCSI 6510.01F and DoD O-8530.1.

-Perform CSSP services (protect, detect, respond and sustain) for all MDA Common-use IT Services, MDA Mission and test networks and enclaves 24 hours a day, 7 days a week, 365 days a year.

-Conduct application testing that looks for vulnerabilities and issues using a number of tactics, technical and procedures.

-Conduct vulnerability scanning of MDA network to assess risks to MDA data from inside and outside sources.

-Conduct monthly cybersecurity vulnerability audits.

-Issue and track implementation of Information Assurance Vulnerability Alerts (IAVA), Bulletins and Technical Advisories.

-Implement Information Assurance Vulnerability Alerts (IAVA) and Communication Tasking Orders remediation and patches.

-Perform network security monitoring of all MDA subscriber networks and enclaves.

-Conduct system forensic analysis, review content of compromised system, document files and data, and identify tactics, techniques and procedures used by an attacker to gain access.

-Develop and maintain the RMF package for the MDS Mission System to support a full Authorization to Operation (ATO).

-Compile and validate MDS Mission Element-level authorization and assessment documents to include MDS Element-level System Security Plans (SSPs), Security Controls Traceability Matrix (SCTM), Plan of Action and Milestone (POA&M) artifacts and support conduct of Control Validation Testing (CVT). Execute controls validation integration testing as part of developmental testing efforts for the MDS.

-Ensure MDA mission, test, and common-use IT systems are operated securely in accordance with DoD Risk Management Framework policies.

-Prepare and maintain current RMF documentation for MDA networks and systems reported to DoD and Office of Management and Budget (OMB).

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

**FY 2021 Plans:**

-SEE ABOVE.

**FY 2022 Plans:**

-Develop and maintain the MDS (Weapons Systems) Cybersecurity Service provider (CSSP) as a fully accredited Tier II in accordance with CJCSI 6510.01F, DoD O-8530.1, and the DoD Cybersecurity Discipline Implementation Plan.

**FY 2021 to FY 2022 Increase/Decrease Statement:**

<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
Increase from FY 2021 to FY 2022 provides the addition of the MDS (Weapons Systems) Cybersecurity Service provider (CSSP).				
<b>Title:</b> Outside Federal Outreach - Defense Industrial Base		0.167	0.171	0.159
<b>Articles:</b>		-	-	-
<b>Description:</b> Review current Cybersecurity Policies and coordinating with MDA Missile Defense System (MDS) 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 MDS Controlled Unclassified Information (CUI).				
Specific and/or unique accomplishments to each FY are as follows:				
<b>FY 2021 Plans:</b> -SEE ABOVE.				
<b>FY 2022 Plans:</b> -SEE ABOVE.				
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A				
<b>Title:</b> Facility Related Control Systems (FRCS)		0.000	0.000	0.938
<b>Articles:</b>		-	-	-
<b>Description:</b> Provide Facility-Related Control Systems (FRCS) program oversight to include policies, procedures, plans, reports and budgets to support agency FRCS.				
- Systems development, inventory, assessment, mitigation and sustainment IAW DoDI 8500.01 Cybersecurity and DoDI 8510.01 Risk Management Framework (RMF) throughout the life cycle of each FRCS.				
- Manage the cybersecurity activities to protect the FRCS, including vulnerability assessment and management, malware protection, information system continuous monitoring (ISCM), cyber incident handling, and auditing to detect, deter, and mitigate insider threats, IAW DoDI 8530.01 Cybersecurity Activities Support to DoD Information Network Operations.				
- Oversee the development of FRCS in facilities to ensure cybersecurity is designed and built into the system IAW Unified Facilities Criteria (UFC) 4-010-06 Cybersecurity Of Facility-Related Control Systems to reduce cybersecurity risk and ensure compliance with applicable National Institute of Standards and Technology (NIST) Special Publication (SP) 800-53 security controls.				
- Manage the training and development of the FRCS cybersecurity workforce to ensure all personnel are qualified to perform assigned cybersecurity duties IAW DoDD 8140.01 Cyberspace Workforce Management.				
<b>FY 2021 Plans:</b>				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency	<b>Date:</b> May 2021
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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 2020	FY 2021	FY 2022
N/A			
<b>FY 2022 Plans:</b> -SEE ABOVE			
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Increase from FY 2021 to FY 2022 provides a movement of funds from PE 0603882C: Ballistic Missile Defense Midcourse Defense Segment in MC08: Cyber Operations out of the Network / System Certification and Accreditation (C&A) accomplishment. FRCS was realigned to the BMD Enabling Program to better align with all of the Missile Defense Agency facilities that will be assessed and supported.			
<b>Accomplishments/Planned Programs Subtotals</b>	115.404	64.659	78.248

**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 2022 Missile Defense Agency												Date: May 2021			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MC30 / Cyber Operations					
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
Preventing Malicious Cybersecurity Activity - COMSEC	MIPR	National Security Agency : AL, CO, VA	0.000	0.200	Mar 2020	0.221	Apr 2021	0.223	Apr 2022	-		0.223	Continuing	Continuing	Continuing
Preventing Malicious Cybersecurity Activity - Civilian Pay	Allot	Civilian Pay : AL, CO, VA, NM	3.480	1.408	Oct 2019	1.649	Oct 2020	2.602	Oct 2021	-		2.602	Continuing	Continuing	Continuing
Preventing Malicious Cybersecurity Activity - Consolidated Support CSM	C/CPFF	Booz, Allen & Hamilton : AL, CO, VA	1.474	0.701	Mar 2020	0.000		0.689	Mar 2022	-		0.689	Continuing	Continuing	Continuing
Preventing Malicious Cybersecurity Activity - Cyber CSS	C/CPAF	Jacobs Engineering : AL, COL, VA	23.505	26.016	Jan 2020	14.674	Nov 2020	15.029	Nov 2021	-		15.029	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training & Force Management - A&AS Cyber BMDS CSM/CND	C/CPFF	Booz, Allen & Hamilton : AL, CO, VA	4.451	0.962	Aug 2020	3.048	Nov 2020	1.914	Nov 2021	-		1.914	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training & Force Management - Civilian Pay	Allot	Civilian Pay : AL, CO, NM, VA	2.450	1.428	Oct 2019	1.116	Oct 2020	1.763	Oct 2021	-		1.763	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training & Force Management - FFRDC	MIPR	MITRE : VA	0.000	0.000		0.000		0.449	Nov 2021	-		0.449	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training & Force Management - JWIC	MIPR	DIA : VA	0.000	0.000		0.000		0.668	Jan 2022	-		0.668	Continuing	Continuing	Continuing
Continuous Monitoring - Continuous Monitoring - IT Security Tools	C/CPAF	Jacobs Engineering : AL, CO, VA	12.166	17.225	Jan 2020	8.230	Jan 2021	8.228	Jan 2022	-		8.228	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - A&AS, BMDS CSM/CND	C/CPFF	Booz, Allen & Hamilton : AL, CO, VA	2.592	1.390	Aug 2020	2.489	Aug 2021	2.538	Aug 2022	-		2.538	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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, Cyber Risk Mgmt	C/CPFF	Decisive Analytics Corporation : AL, CO, VA	6.772	3.904	Mar 2020	3.985	Mar 2021	4.065	Mar 2022	-		4.065	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Civilian Pay	Allot	Civilian Pay : AL, CO, NM,, VA	5.575	2.823	Oct 2019	2.267	Oct 2020	3.695	Oct 2021	-		3.695	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Civilian Travel / PCS	Allot	Civilian Travel : AL, CO, NM,, VA	0.000	0.000		0.200	Oct 2020	0.404	Nov 2021	-		0.404	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Cyber CSS	C/CPAF	Jacobs Engineering : AL, CO, VA	89.714	53.180	May 2020	26.609	Jan 2021	26.611	Jan 2022	-		26.611	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Cyber Customer Support	C/CPAF	Network Management Resources : AL, CO, VA	6.775	2.000	Mar 2020	0.000		0.000		-		0.000	0.000	8.775	8.775
Detect, Analyze and Mitigate Intrusions - Network/System assessment and authorization contract support services	C/FFP	Booz, Allen & Hamilton, : VA	0.450	4.000	Feb 2020	0.000		0.000		-		0.000	0.000	4.450	4.450
Detect, Analyze and Mitigate Intrusions - Tier II CSSP	MIPR	Air Force : AL, CO, NM, VA	0.000	0.000		0.000		8.273	Apr 2022	-		8.273	Continuing	Continuing	Continuing
Outside Federal Outreach - Defense Industrial Base - Civilian Pay	Allot	MDA Civilian Pay : AL, CO, NM, VA	0.166	0.167	Oct 2019	0.171	Oct 2020	0.159	Oct 2021	-		0.159	Continuing	Continuing	Continuing
Facility Related Control Systems (FRCS) - Cyber Security and Cyber Resiliency	MIPR	Booz Allen Hamilton : AL, VA	0.000	0.000		0.000		0.938	Nov 2021	-		0.938	Continuing	Continuing	Continuing
<b>Subtotal</b>			159.570	115.404		64.659		78.248		-		78.248	Continuing	Continuing	N/A

**Remarks**  
N/A

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**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2022 Missile Defense Agency **Date:** May 2021

<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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	159.570	115.404	64.659	78.248	-	78.248	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 2022 Missile Defense Agency **Date:** May 2021

<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 Operations and Maintenance	1	2020	4	2022
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - Follow-On	1	2020	4	2022
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	2020	4	2022
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - Follow-On	1	2020	4	2022
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - Follow-On	1	2020	4	2022
Complete Annual Information Assurance user Training for MDA Workforce - Follow-On	1	2020	4	2022
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - Follow-On	1	2020	4	2022
Procure, Implement, and Asset Control of Hardware maintenance and Software Licenses for Monitoring Systems of Information Assurance - Follow-On	1	2020	4	2022

**Note**

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency										<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD31: <i>Modeling &amp; Simulation</i>	347.084	82.344	107.710	87.068	-	87.068	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**Note**

Decrease from FY 2021 to FY 2022 reflects transition from development to implementation of the initial Enterprise digital M&S product.

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

MDA's Modeling and Simulation (M&S) program develops system-level models, frameworks, truth, simulations, and operational representations as missile defense technologies continually advance and the threat changes, and evaluates performance of the Elements, Components, and overall Missile Defense 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 and provide digital assessment venue, 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 assessments; 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; Enable top-down systems engineering and management of agency-wide M&S federations.

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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<b>Title:</b> M&S Requirements, Design Support, Scenario Optimization	11.363	10.869	9.795
<b>Articles:</b>	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
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**Description:** This activity provides the integrated program lifecycle planning and requirements definition of all MDS M&S models and capabilities to enable assessment of capability deliveries. M&S capability development executes an integrated, synchronized program to manage M&S development in support of MDS development, testing, and assessment. The following actions are required on a continuing basis to accomplish the M&S lifecycle planning and requirements definition mission:

- Maintain traceability between the M&S Systems Requirements Documents and M&S product development
- Produce capability documents and specifications for M&S product development to enable all Digital assessment, System flight and HWIL tests, training events, exercises, wargames, concept evaluation and development engineering
- Support MDA response to export requests for M&S software and technical data to nations or international organizations
- Participate in Technical Interchange Meetings and provide support for bilateral agreements with allies and partners
- Support system engineering capability trades for all MDS capability deliveries
- Provide integrated program lifecycle planning and scheduling of all System-level M&S models and capabilities to enable assessment of capability deliveries for Homeland and Regional Defense
- Execute M&S planning, development, framework and test integration; 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
- 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

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

**FY 2021 Plans:**

- SEE ABOVE.

**FY 2022 Plans:**

- SEE ABOVE.

**FY 2021 to FY 2022 Increase/Decrease Statement:**

Decrease from FY 2021 to FY 2022 reflects consolidation of MDA simulation capabilities.

<b>Title:</b> BMDS Simulations & Tools	11.119	13.437	15.900
<b>Articles:</b>	-	-	-
<b>Description:</b> 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, engineering studies/analyses, and International Simulation events. The following actions are required on a continuing basis: Event Integration/Support Operations:			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency	<b>Date:</b> May 2021
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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>	FY 2020	FY 2021	FY 2022
<ul style="list-style-type: none"> <li>- Deliver integrated architecture instantiations of the MDS to support Performance Assessments and integration of new capabilities into the Operational Capability Baseline</li> <li>- Integrate, test, and verify the M&amp;S enterprise supporting System-level testing, assessment, exercises, and wargaming, including testing infrastructure</li> <li>- Integrate, test, functionally qualify, and deliver M&amp;S tools and complex test architectures to provide system test capabilities to support MDA IMTP based test events, wargames, and exercises</li> <li>- Maintain simulations for System and Element M&amp;S development laboratories</li> <li>- 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</li> <li>- Provide Event Integration Support for non-MDA Missile Defense component and weapon system models for use in MDA test and validation events</li> <li>- Provide HWIL/M&amp;S benchmarking/integration, documentation and coordination; sustain, integrate and execute ground tests, and Exercises/Wargames</li> <li>- Provide communications emulation (MTJ, STJ, and Link-16) and network analysis support via the Tactical Communications Environment Segment (TCES)</li> <li>- Perform operational planning for planned MDS assessment events</li> <li>- Conduct M&amp;S system integration and verification and conduct developmental integration testing</li> </ul> <p>M&amp;S Operations:</p> <ul style="list-style-type: none"> <li>- Provide digital representations of MDS elements/components using MDA's International Simulation (I-SIM) in support of Combatant Command and International Wargames, conceptual planning, visualizations, training/orientation, M&amp;S demonstrations, and the Warfighter's Modification &amp; Fielding Requirements List (MFRL) for exercises and training</li> <li>- Implement I-SIM architecture requirements and emerging capability requirements to adapt to growing distributed event requirements</li> <li>- Sustain the Missile Defense Space Warning Tool (MDST) and related tools to pace fielded Overhead Persistent Infrared (OPIR) Architectures in support of Warfighter training and exercise events, and Element development engineering</li> <li>- Provide software operations/maintenance support to the Extended Air Defense Simulation (EADSIM) code base for use in Warfighter exercises, training venues, and Combatant Command planning tools</li> <li>- Upgrade models and develop new designs or software as required to support System simulations</li> <li>- Provide threat representations (trajectories, radar cross sections, and 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 HWIL requirements and allow M&amp;S participation across multiple intended uses</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2021 Plans:</b></p>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
- SEE ABOVE.				
<b>FY 2022 Plans:</b>				
<ul style="list-style-type: none"> <li>- Update and provide new M&amp;S capabilities to support development of Layered Homeland Defense (LHD):</li> <li>-- Develop signature, environment, and lethality models for layered defense, to include debris environment</li> <li>-- Adapt M&amp;S framework and interfaces to accommodate new assets for LHD architecture</li> <li>-- Develop threat representations and provide threat data for LHD test, analysis, and assessment</li> <li>- Conduct M&amp;S-level and element level engineering for LHD, including M&amp;S planning, assessment, and requirements definition, and performing developmental integration activities</li> </ul>				
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b>				
Increase from FY 2021 to FY 2022 provides for M&S updates supporting Layered Homeland Defense activities.				
<b>Title:</b> M&S Objective Simulation Framework (OSF)		13.111	12.352	12.882
		<b>Articles:</b>	-	-
<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 integration expertise to meet the assessment requirements (includes the IMTP); support delivery of integrated architectures across all venues using the System test framework to integrate architectures</li> <li>- Develop, maintain, test, and field 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>- Maintain the M&amp;S Integration and Development Laboratories for Element M&amp;S; maintain venue for stakeholders to conduct early M&amp;S integration efforts and identification of issues prior to event architecture integration to support system development</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>				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A</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> <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 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2022 Plans:</b></p>		11.677	11.655	12.044
		-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency	<b>Date:</b> May 2021
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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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
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- SEE ABOVE.

**FY 2021 to FY 2022 Increase/Decrease Statement:**

N/A

<b>Title:</b> M&S Improvements	35.074	59.397	36.447
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<b>Articles:</b>	-	-	-
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**Description:** This effort funds MDS Enterprise-wide M&S improvements that will enhance digital and ground test capabilities. Investigate improvements to the M&S program to support flight testing. Planned improvements include an experimental, developmental M&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:

**FY 2021 Plans:**

- Continue development of initial delivery of EDISS, called Early Digital Product (EDP)
  - Create cloud-computing and Data Analytics environment
  - Prepare M&S for execution in support of Long Range Discrimination Radar (LRDR) assessment
  - Complete requirements development
  - Continue software development and conduct spiral In-Progress Reviews
  - Conduct M&S Integration, Test, and Verification, Increment Acceptance Reviews
  
- Continue Software Development of EDISS Full Digital Product (FDP), Increments 1 and 2:
  - Complete systems engineering for FDP Inc 1, initiate systems engineering for FDP Inc 2, including System Requirements Review and System Functional Review
  - Continue software development for FDP Inc 1, including Spiral In-Progress Reviews
  - Conduct integration and testing for FDP Inc 1
  
- Deploy Phase 1 of GTISS (Ground Test Integrated System-level Simulation) improvements to the MDA Ground Test Architecture:
  - Complete requirements development

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency	<b>Date:</b> May 2021
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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>	FY 2020	FY 2021	FY 2022
<ul style="list-style-type: none"> <li>-- Continue software development</li> <li>-- Provide Threat Data Production improvements</li> <li>-- Conduct M&amp;S Integration, Test, and Verification</li>   <li>- Continue Engineering and Development of GTISS Phase 2:                             <ul style="list-style-type: none"> <li>-- Continue software development, including in-progress technical reviews</li> <li>-- Integrate and Test GTISS phase 2 M&amp;S</li> </ul> </li>   <li>- Perform GTISS Phase 3 Functional Analysis and System Design                             <ul style="list-style-type: none"> <li>-- Conduct requirements analysis and functional analysis, develop system design</li> <li>-- Conduct Systems Engineering Technical Reviews</li> </ul> </li>   <li><b><i>FY 2022 Plans:</i></b> <ul style="list-style-type: none"> <li>- Continue Software Development of EDISS v2-4:                                     <ul style="list-style-type: none"> <li>-- Continue systems engineering for EDISS v3 -- Complete software development for EDISS v2, including Spiral In-Progress Reviews</li> <li>-- Continue integration and testing for EDISS v2</li> <li>-- Perform M&amp;S data production in support of Long Range Discrimination Radar (LRDR) assessment</li> </ul> </li>   <li>- Deploy Phase 2 of GTISS (Ground Test Integrated System-level Simulation) improvements to the MDA Ground Test Architecture:                                     <ul style="list-style-type: none"> <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> </li>   <li>- Continue Engineering and Development of GTISS Phase 3:                                     <ul style="list-style-type: none"> <li>-- Continue software development, including in-progress technical reviews</li> <li>-- Integrate and Test GTISS Phase 2 M&amp;S</li> </ul> </li>   <li>- Perform post-GTISS Phase 3 sustainment planning</li> </ul> </li>   <li><b><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i></b></li> </ul>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
Decrease from FY 2021 to FY 2022 reflects transition from development to implementation of the initial Enterprise digital M&S product.			
<b>Accomplishments/Planned Programs Subtotals</b>	82.344	107.710	87.068

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

<b>Line Item</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0603881C: Ballistic Missile	295.312	312.317	277.949	-	277.949	-	-	-	-	-	-
<i>Defense Terminal Defense Segment</i>											
• 0603882C: Ballistic Missile Defense Midcourse Defense Segment	1,275.414	1,219.261	745.144	-	745.144	-	-	-	-	-	-
• 0603892C: AEGIS BMD	722.582	877.336	732.512	-	732.512	-	-	-	-	-	-

**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 2022 Missile Defense Agency												Date: May 2021			
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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
M&S Requirements, Design Support, Scenario Optimization - FFRDC & UARC	MIPR	Various : CO, AL	8.334	1.458	Nov 2019	1.093	Nov 2020	0.618	Nov 2021	-		0.618	Continuing	Continuing	Continuing
M&S Requirements, Design Support, Scenario Optimization - Prior Yr Requirements & Scenario Design no longer funded in FYDP	Various	Various : AL	13.032	0.000		0.000		0.000		-		0.000	0.000	13.032	0.000
M&S Requirements, Design Support, Scenario Optimization - Requirements & Design - CSS	C/CPFF	TEAMS : CO, AL	28.542	5.861	Nov 2019	9.776	Nov 2020	9.177	Nov 2021	-		9.177	Continuing	Continuing	Continuing
M&S Requirements, Design Support, Scenario Optimization - Science and Technology Council	Various	Various : VA, AL	0.000	0.500	Dec 2019	0.000		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	3.544	Dec 2019	0.000		0.000		-		0.000	0.000	3.544	0.000
BMDS Simulations & Tools - Digital Framework Development	C/CPAF	Northrop Grumman : CO	34.671	0.000		0.000		0.000		-		0.000	0.000	34.671	0.000
BMDS Simulations & Tools - Digital Simulation Development / Support	MIPR	SMDC : AL	4.711	1.108	Dec 2019	1.750	Nov 2020	1.506	Nov 2021	-		1.506	Continuing	Continuing	Continuing
BMDS Simulations & Tools - Layered Homeland Defense M&S – Core Truth Model Toolkit	C/CPAF	DeciBel Research : AL	0.000	0.000		0.000		0.816	Jan 2022	-		0.816	Continuing	Continuing	Continuing
BMDS Simulations & Tools - Layered Homeland Defense M&S –	C/CPAF	Lockheed Martin : AL, CO	0.000	0.000		0.000		1.224	Jan 2022	-		1.224	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Framework and RepBox/ Tools															
BMDS Simulations & Tools - Layered Homeland Defense M&S – Threat Modeling and Production	C/CPAF	Northrop Grumman : CO	0.000	0.000		0.000		1.828	Jan 2022	-		1.828	Continuing	Continuing	Continuing
BMDS Simulations & Tools - Layered Homeland Defense M&S –Engineering and Integration	Various	Various : CO, AL	0.000	0.000		0.000		0.923	Jan 2022	-		0.923	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Development	C/CPAF	SWDC : CO	0.000	8.144	Nov 2019	7.257	Nov 2020	9.302	Nov 2021	-		9.302	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support	Various	MDA : CO, AL	2.560	0.867	Nov 2019	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support - CSS	C/CPFF	TEAMS : CO	6.494	0.000		1.963	Nov 2020	0.301	Nov 2021	-		0.301	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	CCDC : 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	1.000	Dec 2019	2.467	Nov 2020	0.000		-		0.000	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - Continuous Integration Requirements Development	Various	Various : CO, AL	0.000	1.744	Dec 2019	2.088	Nov 2020	0.000		-		0.000	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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 Objective Simulation Framework (OSF) - M&S HWIL - CSS	C/CPFF	TEAMS / Jacobs : CO, AL	5.626	2.708	Nov 2019	6.670	Nov 2020	6.874	Nov 2021	-		6.874	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	39.312	1.663	Nov 2019	0.000		0.000		-		0.000	0.000	40.975	0.000
M&S Objective Simulation Framework (OSF) - M&S HWIL Simulations / Models - Various	Various	Various : CO, AL	0.000	2.426	Dec 2019	1.144	Dec 2020	1.475	Dec 2021	-		1.475	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL Simulations / Models Development	MIPR	CCDC : AL	25.341	3.570	Nov 2019	2.450	Nov 2020	4.533	Nov 2021	-		4.533	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL Support / GT re-architecture	Various	MDA : AL, CO	8.855	0.000		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	1.000	Dec 2019	0.000		0.000		-		0.000	0.000	1.000	0.000
M&S Core Truth Modeling - M&S Core Truth Modeling - OGA	MIPR	AFRL : CO	4.100	0.000		0.000		0.000		-		0.000	0.000	4.100	0.000
M&S Core Truth Modeling - Core Truth Modeling - Engineering	C/CPFF	PeopleTec : CO	0.000	4.282	Dec 2019	6.253	Nov 2020	5.876	Nov 2021	-		5.876	Continuing	Continuing	Continuing
M&S Core Truth Modeling - Core Truth Models Validation	Various	MDA : CO, AL	7.944	1.711	Nov 2019	0.700	Nov 2020	0.700	Nov 2021	-		0.700	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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 Core Truth Modeling - M&S Core Truth Modeling - CSS	C/CPFF	Peopletec : AL, CO	4.497	0.000		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	1.683	0.000		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	CCDC : AL	34.822	0.000		0.000		0.000		-		0.000	0.000	34.822	0.000
M&S Core Truth Modeling - M&S Core Truth Modeling Simulation System	C/CPAF	Northrop Grumman : CO	50.706	0.000		0.000		0.000		-		0.000	0.000	50.706	0.000
M&S Core Truth Modeling - M&S Core Truth Modeling Simulation System 2	C/CPAF	SWDC : CO	0.000	5.684	Nov 2019	4.702	Nov 2020	5.468	Nov 2021	-		5.468	Continuing	Continuing	Continuing
M&S Improvements - Enterprise-wide ground test re-architecture improvements	Various	Various : CO, AL	10.650	10.219	Dec 2019	21.198	Dec 2020	12.145	Dec 2021	-		12.145	Continuing	Continuing	Continuing
M&S Improvements - M&S Improvement - Enterprise-wide digital capability development	Various	Various : CO, AL	30.355	24.855	Nov 2019	38.199	Nov 2020	24.302	Nov 2021	-		24.302	Continuing	Continuing	Continuing
<b>Subtotal</b>			347.084	82.344		107.710		87.068		-		87.068	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	347.084	82.344	107.710	87.068	-	87.068	Continuing	Continuing	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2022 Missile Defense Agency	<b>Date:</b> May 2021
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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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	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
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<p><b>Remarks</b></p> <p>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.</p> <p>Award Dates reflect date of first obligation. Additional obligations may incrementally occur throughout the year.</p>									
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**Exhibit R-4, RDT&E Schedule Profile: PB 2022 Missile Defense Agency** **Date:** May 2021

<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 2020			FY 2021			FY 2022			FY 2023			FY 2024			FY 2025			FY 2026		
International Simulation v8.7	▲																				
Release Update to OSF - 4Q FY 2020			▲																		
International Simulation v8.8 - 1Q FY 2021				▲																	
MDST Update - FY 2021				▲																	
Initial GTISS Delivery					▲																
Release Update to OSF - FY 2021						△															
Release Update to OSF - FY 2022							△														
International Simulation v8.9 - 1Q FY 2022								△													
MDST Update - FY 2022									△												
Early Digital Product										△											
GTISS Update (2022)												△									

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2022 Missile Defense Agency **Date:** May 2021

<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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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
International Simulation v8.7	1	2020	1	2020
Release Update to OSF - 4Q FY 2020	4	2020	4	2020
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 2021	3	2021	3	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
Early Digital Product	2	2022	2	2022
GTISS Update (2022)	4	2022	4	2022

**Note**

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2022 Missile Defense Agency **Date:** May 2021

<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			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
MC31: <i>Engineering Cyber Operations</i>	30.822	23.322	35.709	22.462	-	22.462	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Decrease from FY 2021 to FY 2022 reflects consolidation of Cyber Engineering activities within Systems Engineering processes.

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

This project provides monitoring and tracking of Cybersecurity mitigations detailed in Information Technology security Plans of Activity and Milestones (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.

This project also funds MDA Cyber Assistance Teams to assess the security of MDA information on Defense Industrial Base networks.

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

	FY 2020	FY 2021	FY 2022
<b>Title:</b> Information Assurance / Cyber Network Defense	23.322	35.709	22.462
<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			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<ul style="list-style-type: none"> <li>- Conduct Controls Validation Testing of systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies</li> <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> <li>- Perform engagements with MDA Defense Industrial Base (DIB) partners to detect and increase understanding of cyber threats</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <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 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- SEE ABOVE.</li> </ul> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b></p> <p>Decrease from FY 2021 to FY 2022 reflects consolidation of Cyber Engineering activities within Systems Engineering processes.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	23.322	35.709	22.462

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0305103C: <i>Cyber Security Initiative</i>	11.109	1.148	1.142	-	1.142	-	-	-	-	-	-

**Remarks**

**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 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	MITRE : VA, AL	2.769	1.000	Nov 2019	2.490	Nov 2020	1.969	Nov 2021	-		1.969	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Assistance Teams - Contractor Support	C/CPFF	TEAMS : VA, AL	8.168	3.860	Nov 2019	9.240	Nov 2020	9.559	Nov 2021	-		9.559	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Assistance Teams - Hardware	Various	Various : VA, AL	1.692	1.184	Nov 2019	1.545	Nov 2020	1.576	Nov 2021	-		1.576	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Assistance Teams - Intelligence Reporting	C/CPAF	Deloitte : AL, VA	3.178	0.000		2.215	Nov 2020	0.514	Nov 2021	-		0.514	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Assistance Teams - Software/Licenses	C/CPAF	Splunk : AL, VA	2.401	0.000		2.040	Nov 2020	0.000		-		0.000	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Engineering	C/CPFF	Deloitte : AL, VA	0.000	6.198	Feb 2020	6.028	Dec 2020	1.071	Dec 2021	-		1.071	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Engineering - CSS	C/CPFF	TEAMS : VA, AL	0.000	2.600	Feb 2020	2.546	Nov 2020	0.273	Dec 2021	-		0.273	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Engineering - VISUM	MIPR	Various : AL	0.000	2.960	Feb 2020	2.961	Dec 2020	0.000		-		0.000	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Program Protection	C/CPFF	TEAMS : CO, AL, VA	0.000	0.000		0.000		1.285	Nov 2021	-		1.285	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - IT / CND Support	C/CPFF	TEAMS : CO, AL, VA	4.456	2.220	Nov 2019	1.634	Nov 2020	1.667	Nov 2021	-		1.667	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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 - Insider Threat - Continuous SSO Support	C/CPFF	TEAMS : CO, AL, VA	0.000	0.000		1.124	Dec 2020	1.428	Dec 2021	-		1.428	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Insider Threat Mitigation Cell	C/CPFF	TEAMS : CO, AL, VA	2.491	0.880	Dec 2019	1.398	Dec 2020	1.428	Dec 2021	-		1.428	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Insider Threat Mitigation Cell - IT	C/CPAF	Northrop Grumman : CO	2.910	0.520	Dec 2019	0.531	Dec 2020	0.000		-		0.000	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Software Assurance	C/CPFF	TEAMS : CO, AL	2.757	1.900	Nov 2019	1.957	Nov 2020	1.692	Dec 2021	-		1.692	Continuing	Continuing	Continuing
<b>Subtotal</b>			30.822	23.322		35.709		22.462		-		22.462	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	30.822	23.322	35.709	22.462	-	22.462	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 2022 Missile Defense Agency **Date:** May 2021

<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	2020	4	2022

**Note**

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency										<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD32: <i>Quality, Safety, and Mission Assurance</i>	294.540	29.780	30.269	29.527	-	29.527	-	-	-	-	-	-
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 program. MDS Safety Officers 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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<b>Title:</b> Quality, Safety & Mission Assurance	29.780	30.269	29.527
<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 2021 Plans:</b> -SEE ABOVE.			
<b>FY 2022 Plans:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
-SEE ABOVE.				
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> N/A				
<b>Accomplishments/Planned Programs Subtotals</b>		29.780	30.269	29.527
<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 2022 Missile Defense Agency												Date: May 2021			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)					
0400 / 4					PE 0603890C / BMD Enabling Programs					MD32 / Quality, Safety, and Mission Assurance					
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
Quality, Safety & Mission Assurance - Audits & Quality On-site Support	MIPR	NSWC Corona : AL, CA	27.226	3.500	Nov 2019	3.925	Nov 2020	2.921	Nov 2021	-		2.921	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	16.538	1.600	Nov 2019	0.000		0.000		-		0.000	0.000	18.138	0.000
Quality, Safety & Mission Assurance - Independent Readiness Review Team	C/CPFF	AI Solutions : AL	5.794	0.200	Nov 2019	0.000		0.000		-		0.000	0.000	5.994	0.000
Quality, Safety & Mission Assurance - MDS Quality Support	C/CPFF	AI Solutions : AL	11.337	0.800	Nov 2019	0.000		0.000		-		0.000	0.000	12.137	0.000
Quality, Safety & Mission Assurance - MDS Safety	C/CPFF	APT, INC : AL	12.516	0.600	Nov 2019	0.000		0.000		-		0.000	0.000	13.116	0.000
Quality, Safety & Mission Assurance - MDS Safety Officers	MIPR	CCDC : AL	4.614	0.092	Nov 2019	0.000		0.000		-		0.000	0.000	4.706	0.000
Quality, Safety & Mission Assurance - Management and Operations Support	MIPR	CCDC : AL	3.266	0.222	Nov 2019	0.639	Nov 2020	0.666	Nov 2021	-		0.666	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Mission Assurance Subject Matter Experts	C/CPFF	APT, INC. : AL	8.583	0.500	Nov 2019	0.000		0.000		-		0.000	0.000	9.083	0.000
Quality, Safety & Mission Assurance - Operations Support	MIPR	Various Multi : AL, CA	5.659	0.200	Nov 2019	0.000		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	17.650	2.094	Nov 2019	1.097	Nov 2020	1.308	Nov 2021	-		1.308	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Parts,	C/CPFF	AI Solutions : AL	8.417	1.666	Nov 2019	0.000		0.000		-		0.000	0.000	10.083	0.000

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2022 Missile Defense Agency</b>											<b>Date: May 2021</b>				
<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>Support (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Materials and Processes - PMP - Program															
Quality, Safety & Mission Assurance - Pedigree & Design Certification - FFRDC	MIPR	Aerospace : AL, CA	29.058	3.000	Nov 2019	2.376	Nov 2020	2.748	Nov 2021	-		2.748	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	10.371	0.750	Nov 2019	7.297	Nov 2020	5.872	Nov 2021	-		5.872	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Safety Support	C/CPFF	APT, Inc : AL, VA	3.014	0.220	Nov 2019	0.902	Jan 2021	1.018	Jan 2022	-		1.018	Continuing	Continuing	Continuing
<b>Subtotal</b>			164.043	15.444		16.236		14.533		-		14.533	Continuing	Continuing	N/A

**Remarks**  
N/A

<b>Management Services (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
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	99.848	11.836	Oct 2019	12.073	Oct 2020	14.189	Oct 2021	-		14.189	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance Operations Support	C/CPFF	Network Mgmt Resources Yorktown : AL and VA	12.777	1.500	Nov 2019	0.880	Dec 2020	0.280	Nov 2021	-		0.280	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Quality,	Allot	MDA QS : AL, CO, AK, DC, VA	17.872	1.000	Nov 2019	1.080	Oct 2020	0.525	Oct 2021	-		0.525	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<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>Management Services (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Safety & Mission Assurance Operations Support (Travel/PCS)															
<b>Subtotal</b>			130.497	14.336		14.033		14.994		-		14.994	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	294.540	29.780	30.269	29.527	-	29.527	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 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 2022 Missile Defense Agency		<b>Date:</b> May 2021
<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	2022

**Note**

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency										<b>Date:</b> May 2021		
<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 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD40: <i>Program-Wide Support</i>	184.262	23.635	23.808	23.102	-	23.102	-	-	-	-	-	-
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 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<b>Title:</b> Program Wide Support	23.635	23.808	23.102
<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 2022 Missile Defense Agency	<b>Date:</b> May 2021
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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 2020	FY 2021	FY 2022
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 2021 Plans:</i></b> - SEE ABOVE.			
<b><i>FY 2022 Plans:</i></b> - SEE ABOVE.			
<b><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i></b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	23.635	23.808	23.102

**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 2022 Missile Defense Agency** **Date:** May 2021

<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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	27.831	0.000		2.157	Dec 2020	0.000		-		0.000	0.000	29.988	0.000
Program Wide Support - Agency Operations Management	Various	Various : Multi: AL, CA, CO, VA	6.156	0.356	Jul 2020	0.000		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	16.085	Oct 2019	16.000	Oct 2020	17.624	Oct 2021	-		17.624	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	5.442	Nov 2019	3.077	Nov 2020	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/Various	Various : Multi: AK, AL, CO, CA, HI, MD, VA	112.565	0.000		2.574	Dec 2020	5.427	Dec 2021	-		5.427	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations, Sustainment and GPC	C/CPFF	Various Multi: : AK, AL, CA, HI, NY, VA	0.000	0.000		0.000		0.018	Nov 2021	-		0.018	Continuing	Continuing	Continuing
Program Wide Support - Facilities and Maintenance SRM	MIPR	Various : Multi: AL, CA, AL, AK	0.000	1.752	May 2020	0.000		0.033	May 2022	-		0.033	Continuing	Continuing	Continuing
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>			184.262	23.635		23.808		23.102		-		23.102	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	184.262	23.635	23.808	23.102	-	23.102	Continuing	Continuing	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2022 Missile Defense Agency	<b>Date:</b> May 2021
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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> MD40 / <i>Program-Wide Support</i>
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	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
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**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 2022 Missile Defense Agency **Date:** May 2021

<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	2020	4	2022

**Note**  
Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.