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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 Program Element (Number/Name) PE 0603890C I BMD Enabling Programs							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	2,137.840	533.993	620.831	571.507	-	571.507	603.672	541.667	574.553	553.969	Continuing	Continuing
MD24: System Engineering & Integration	791.319	208.588	204.853	164.291	-	164.291	160.729	147.305	154.875	159.575	Continuing	Continuing
MT23: Enabling - Test	51.455	22.758	39.288	59.029	-	59.029	36.658	52.208	58.268	36.538	Continuing	Continuing
MD28: Intelligence & Security	191.735	41.448	44.078	43.851	-	43.851	45.048	45.315	46.062	46.969	Continuing	Continuing
MD30: BMD Information Management Systems	409.688	82.507	79.979	84.525	-	84.525	87.524	90.302	92.513	94.357	Continuing	Continuing
MC30: Cyber Operations	102.286	62.622	98.912	66.212	-	66.212	65.381	68.046	68.891	69.889	Continuing	Continuing
MD31: Modeling & Simulation	211.917	55.185	83.186	88.487	-	88.487	115.556	71.841	80.727	73.117	Continuing	Continuing
MC31: Engineering Cyber Operations	3.797	6.466	20.666	11.564	-	11.564	34.665	10.697	13.383	13.651	Continuing	Continuing
MD32: Quality, Safety, and Mission Assurance	236.059	30.291	29.319	29.986	-	29.986	30.528	30.976	31.738	32.373	Continuing	Continuing
MD40: Program-Wide Support	139.584	24.128	20.550	23.562	-	23.562	27.583	24.977	28.096	27.500	Continuing	Continuing
Program MDAP/MAIS Code: 362												
Note Decrease from FY 2019 to FY 2020 reflects the return to core funding levels following completion of content added in response to FY 2019 congressional funding increase.												
A. Mission Description and Budget Item Justification The Ballistic Missile Defense System (BMDS) Enabling Programs provide critical products and processes needed to combine element missile defense systems into a single, integrated and layered BMDS to provide new defensive capabilities and evaluate existing capabilities against the emerging threats. Specifically, the Enabling Programs: - Define BMDS architectures and functional requirements, conduct Analyses of Alternatives (AoA) for the DoD, and provide engineering requirements, execution support, and pre- and post-mission analysis for BMD System tests - Provide validated models and simulations for BMD System assessment - Assess BMDS performance (through data collection and analysis) and deliver capabilities to the Warfighter - Provide multi-disciplinary security and intelligence support for BMDS acquisition, development, test, and deployment - Identify potential threats and vulnerabilities to MDA and the BMDS and develop and implement strategies to mitigate those risks												

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0400: Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)		PE 0603890C I BMD Enabling Programs				
<div><div>- Assess architecture alternatives to address advanced threats and provide recommendations for future BMDS configurations to keep pace with evolving threats</div><div>- Provide Information Management tools and products supporting the development of BMDS capabilities while safeguarding networks and critical program information</div><div>- Provide MDA secure communication networks, IT systems, special purpose processing nodes, operations and monitoring centers, and disaster recovery and continuity of operations requirements</div><div>- Evaluate quality, technical safeguards, and mission assurance effectiveness</div><div>- Assess System ability to maintain integrity and superiority with advances in technology development</div></div>						
This Program Element also funds BMDS threat discrimination development to enhance BMDS effectiveness against the evolving adversary threat. The end result will be a BMDS architecture more capable of discriminating and destroying reentry vehicles with a higher degree of confidence, improving Warfighter shot doctrine, and more efficiently using interceptor inventory. BMDS 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. Program Change Summary (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget		465.642	540.926	542.326	-	542.326
Current President's Budget		533.993	620.831	571.507	-	571.507
Total Adjustments		68.351	79.905	29.181	-	29.181
• Congressional General Reductions		0.000	-3.595			
• Congressional Directed Reductions		-10.000	-10.800			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		56.342	94.300			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		27.236	0.000			
• SBIR/STTR Transfer		-10.566	0.000			
• Missile Defeat and Defense Enhancement		0.000	0.000	0.000	-	0.000
• Other Adjustment		5.339	0.000	29.181	-	29.181
Change Summary Explanation						
Increase in FY 2018 from PB19 to PB20 reflects the Omnibus Above Threshold Reprogramming for advanced threat systems engineering and cybersecurity, and the following congressional adjustments:						
<div><div>- decrease of \$10.000 million for development activities in support of an organic Aegis Ashore Defense capability.</div><div>- increase of \$6.000 million for additional modeling and simulation capabilities for the all-digital M&S representation of the BMDS.</div><div>- increase of \$23.342 million for improved discrimination capabilities.</div><div>- increase of \$1.900 million to repeat flight test FTM-29 (FTM-45).</div><div>- increase of \$25.000 million for additional cyber training requirements and cyber defense enhancements to counter emerging threats.</div></div>						
Increase in FY 2019 from PB19 to PB20 reflects the following congressional adjustments:						

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<ul style="list-style-type: none"> - decrease of \$6.600 million for modeling and simulations. - decrease of \$4.200 million for cyber operations. - increase of \$34.100 million for systems engineering improvements. - increase of \$4.000 million for discrimination improvements. - increase of \$16.200 million for cyber assessments of Defense Industrial Base. - increase of \$40.000 million for cyber security enhancements. <p>Increase in FY 2020 from PB19 to PB20 provides emerging Department of Defense priorities, including execution of a continuous integration and agile ground testing capability; modeling and simulation enhancements for Hardware-in-the-Loop (HWIL) and end-to-end digital simulation to provide significantly more data for BMD System Assessment and give Warfighters confidence in BMDS performance; and additional enhancements to cybersecurity.</p>		

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Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD24 / System Engineering & Integration			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD24: System Engineering & Integration	791.319	208.588	204.853	164.291	-	164.291	160.729	147.305	154.875	159.575	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The budget project reflects the FY 2019 Appropriations Act add of \$38.1 million for Systems Engineering Improvements and Discrimination Improvements. The FY 2020 decrease reflects a return to Core Engineering funding levels following completion of congressional add content.

A. Mission Description and Budget Item Justification

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

The SE&I Major Program Goals are:

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

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The BMDS discrimination and countermeasures mitigation effort will develop and field integrated Element capabilities to increase the BMDS ability to identify lethal and non-lethal objects. SE&I will conduct BMDS performance analysis and engineering to specify the BMDS requirements and interfaces to achieve the capability increase.					
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
Title: Requirements and Design			53.158	53.827	30.736
Articles:			-	-	-
<p>Description: The Requirements and Design effort develops the BMD System level requirements and specifications and drives the integration of the BMDS. Requirements and Design allocates requirements to BMDS Elements and adjudicates Element level specifications to provide required capabilities for the Warfighter.</p> <ul style="list-style-type: none">- Define BMDS technical content expectations and develop system requirements.- Develop and allocate functional performance, interface, and design suitability requirements to Programs, in collaboration with BMDS element engineers.- Deliver system technical baseline updates to document integrated system build content as identified in the R4 summary.- Identify and resolve technical disconnects through the requirements trace process and element certifications; conduct engineering analyses and perform trade studies.- Participate in Element Requirements Reviews.- Develop Specification Change Notices (SCN) for future requirements changes, to include mitigation strategies to address BMDS Discrepancy Reports.- Ensure accurate reporting of Element functionality and software / hardware integration in the BMDS Accountability Report (BAR) and Director's Program Reviews.- Assess and add emerging threats to MDA's lethality prediction models.- Incorporate updates to lethality assessments, collateral effects, and consequences of intercept into the BMDS Lethality Program Plan. <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none">- Complete system requirements and interface definition for the Homeland Defense Radar in Hawaii.- Per FY 2019 Appropriations Act Add for Systems Engineering Enhancements:<ul style="list-style-type: none">-- Provide updated threat products for BMDS development and testing-- Replace obsolete M&S interface for hardware in support of BMDS testing <p>FY 2020 Plans:</p> <ul style="list-style-type: none">- Complete system requirements and interface definition for the Pacific Radar. <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
Decrease from FY 2019 to FY 2020 reflects a return to Core Engineering funding levels following completion of content added in response to FY 2019 congressional funding increase.					
Title: Integrated Air and Missile Defense (IAMD) Description: 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, and configuration control across the joint systems. IAMD provides improved performance such as an improved air picture to enable engagement coordination decision making, increase battlespace, and improve track continuity. Additional efforts will address critical joint Command and Control and interoperability needs such as integrated fire control. Specific and/or unique accomplishments to each FY are as follows: FY 2019 Plans: - Continue IAMD Increment 2 engineering efforts: -- Develop Combat Identification models and conduct analyses -- Develop Joint Force Planner options -- Work with the Combatant Commands, Joint Staff, and Services to understand and prioritize existing and emerging capability gaps -- Conduct studies and analysis to assess and advocate for the development of technologies to address these technical gaps -- Monitor and assess the implementation of technical requirement compliance within Service and MDA Programs of Record - Conduct long-range planning for future capabilities FY 2020 Plans: - Complete IAMD Increment 2 Joint Planning and Combat ID engineering efforts - Conduct engineering required to address critical Joint Command and Control and interoperability needs, including Joint Integrated Fire Control (IFC) FY 2019 to FY 2020 Increase/Decrease Statement: N/A			16.911 -	16.246 -	15.981 -
Title: System-Level Verification and Assessment Articles:			23.008 -	32.017 -	25.369 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
<p>Description: This activity funds BMD System Assessment and Verification, Validation, and Accreditation (VV&A) activities to support BMDS Operational Capacity Baseline (OCB) delivery decisions and Technical Capability Declarations (TCDs), and anchor System modeling & simulation.</p> <ul style="list-style-type: none"> - Develop and manage assessment plans and requirements for BMDS capability increments: <ul style="list-style-type: none"> -- Map assessment requirements to data collection venues (i.e., ground tests, flight tests, and exercises). -- Evaluate current Modeling & Simulation (M&S) capability to address assessment requirements, and provide recommendations for new or improved M&S. - Maintain assessment documentation per the R4 summary. - Conduct extensive analysis of data collected in BMDS ground and flight test events to characterize BMDS interoperability and performance, and anchor models and simulations. - Identify mitigation approaches for system performance issues uncovered during the course of analysis and assessment. - 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. - Continue VV&A activities to meet and maintain Hardware-in-the-Loop (HWIL) model accreditation in accordance with the HWIL Accreditation plan - Conduct assessments of BMD System capabilities and limitations prior to capability delivery decisions. - Produce independent assessments of each incremental BMDS Capability Delivery to support fielding readiness determinations. - Verify BMDS performance against specified requirements, and produce BMDS verification reports. - Maintain M&S VV&A database and toolkit. - Maintain verification data for BMD System Specification Change Notices. - Recommend solutions to improve assessment confidence, including M&S and testing issue resolutions. <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none"> - Complete system assessment in support of BMDS EPAA Phase 3 TCD. - Increase verification documentation and analyze additional performance parameters for each BMDS model. - Improve VV&A process for M&S used in ground tests, per MDA-BMDS OTA joint prioritized M&S limitations list <ul style="list-style-type: none"> -- Develop new analysis tools to verify that the Objective Simulation Framework correctly presents threat data to all Element M&S -- Develop threat implementation verification reports for all Element M&S -- Conduct verification and validation for additional environmental models -- Identify root cause for and resolve sensor model track accuracy issues - Continue analysis of tactical system outputs to increase confidence in ground test data 					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
<p>- Per FY 2019 Appropriations Act Add for Systems Engineering Enhancements:</p> <p>-- Address systems engineering and M&S shortfalls to mitigate DOT&E concerns regarding BMDS model accreditation</p> <p>-- Provide comprehensive, high-fidelity performance assessments for capability deliveries to the Warfighter</p> <p>FY 2020 Plans:</p> <p>- Conduct VV&A for the initial BMDS end-to-end Digital simulation</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p> <p>Decrease from FY 2019 to FY 2020 reflects progress made to accredit BMDS Hardware-in-the-Loop models in accordance with Operational Test Agency (OTA) Assessment Plan.</p>					
<p>Title: Knowledge Centers</p> <p style="text-align: right;">Articles:</p> <p>Description: Knowledge Centers serve as independent technical advisors to BMDS program offices in the C2BMC, Interceptor, Space, and Sensor areas to support development of technical approaches and improve reliability.</p> <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> <p>-- Provide Subject Matter Expertise and analytical support for Independent Review Teams, mission assurance assessments, Failure Review Boards and Failure Investigation Teams</p> <p>-- Identify and provide recommendations to mitigate technical risks, including innovative and unconventional approaches</p> <p>-- Promote knowledge sharing between external technical sources and MDA.</p> <p>- Perform independent technical assessments of critical BMDS and Element program issues:</p> <p>-- Define element knowledge points (KPs), establish closure criteria, and provide closure recommendations</p> <p>-- Continue to provide BMD System and Element performance assessments.</p> <p>- Conduct assessments of emerging technologies as required.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <p>- SEE ABOVE.</p> <p>FY 2020 Plans:</p> <p>- SEE ABOVE.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p> <p>N/A</p>			15.219	15.224	14.138
			-	-	-
Title: Future Concepts and Planning			20.027	14.898	13.288

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
<p align="right">Articles:</p> <p>Description: This activity funds BMDS architecture and future concept development, and efforts and studies to address the BMDS emergent threat, including DoD Analyses of Alternatives (AoA).</p> <ul style="list-style-type: none"> - Participate in designated OSD activities or analyses, as directed by Congress - Perform BMDS capability gap analysis, and analyze and document architecture alternatives and/or new technologies to address gaps - Develop Initial Requirements Documents (IRDs) to establish functional, performance and integration planning requirements for next generation BMD weapons and sensors - Identify architecture alternatives that improve BMDS performance and are complementary to and interoperable with North Atlantic Treaty Organization (NATO) systems and theaters around the world - Conduct technology development reviews for future/follow-on BMDS Element development efforts. - Update concept capability documentation based on architectural options, trade studies, and technology development experiments. - Maintain and update Phased Implementation Plan to document integrated requirements for improvements to, or augmentations of, current system capabilities. - Develop Preliminary Specification Change Notices for selected future BMDS capabilities and technologies. - Maintain a dialog with the warfighter community for all BMDS engineering and technical issues -- Inform Warfighter development of the Prioritized Capabilities List (PCL) by providing relevant BMD System data -- Develop updates to the Achievable Capabilities List (ACL) as required - Lead collaborative effort to improve foreign partners' understanding of existing system capabilities, architectural performance and operational concepts of the BMDS <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none"> - Conduct analyses of architecture alternatives, including: <ul style="list-style-type: none"> -- Directed energy technologies -- Improvements recommended by the Missile Defense Review (MDR) - Per the FY 2019 Appropriations Act Add for Systems Engineering Enhancements: <ul style="list-style-type: none"> -- Provide architecture analyses and requirements to ensure the operational effectiveness of potential space architecture solutions <p>FY 2020 Plans:</p> <ul style="list-style-type: none"> - Deliver the 2020 Achievable Capabilities List <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>			-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
Decrease from FY 2019 to FY 2020 reflects a return to Core Engineering funding levels following completion of content added in response to FY 2019 congressional funding increase.					
Title: Systems Engineering, Engineering Analysis and Quick Response Team			10.620	10.690	10.497
Articles:			-	-	-
Description: This task provides rapid response, high quality systems engineering analysis products and supporting technical data to address external and internal Agency inquiries and decisions: <ul style="list-style-type: none"> - Conduct system level analyses to support ongoing BMDS Architecture and Systems Engineering efforts. - Analyze expected performance of BMDS Architecture options: <ul style="list-style-type: none"> -- Analyze and predict the performance of future BMDS capabilities -- Provide technical assessments, and collaborate with BMDS Elements to define and track technical performance measures. - Respond to Warfighter, Combatant Command (CCMD) and congressional requests for information and analysis (RFIs/RFAs) - Provide analytical support for real-world events. - Maintain analysis parameters database and standards per the R4 summary to ensure consistency. - Develop analytical data to respond to information requests from MDA and DoD leadership. <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans: - SEE ABOVE.</p> <p>FY 2020 Plans: - SEE ABOVE.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: N/A</p>					
Title: Discrimination			35.116	26.322	23.334
Articles:			-	-	-
Description: For Mid-term and Far-term discrimination, SE&I will establish performance goals for the technology development phase; develop functional, performance, and interface requirements to address the Mid-term and Far-term threat sets. SE&I will establish ground and flight test requirements for the Mid-term and Far-term phases, and develop updated high fidelity threat models to support analysis and testing activities. <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Develop and refine requirements to integrate new and improved discrimination capabilities. - Complete integration phase of ground testing for Mid-term discrimination capabilities via GTI-08. - Monitor Mid-term ground testing and analyze test results. - Support planning of distributed phase of ground testing for Mid-term discrimination capabilities via GTD-08. - Per the FY 2019 Appropriations Act Add for Discrimination Improvements: <ul style="list-style-type: none"> -- Provide systems engineering expertise to develop and field improved discrimination capabilities, including accelerated delivery of threat definitions and threat models and Ballistic Missile Defense System Specification changes to implement critical discrimination and countermeasures mitigation techniques. <p>FY 2020 Plans:</p> <ul style="list-style-type: none"> - Provide technical support for fielding Discrimination capability in BMDS Increment 6B/6C. - Conduct deep dive analysis on impact of new discrimination techniques on BMDS engagement performance. - Develop prototype modeling techniques of Electronic Attack for definition and validation of initial requirements for BMDS. - Develop Electronic Attack/Electronic Protection models and interfaces to current analysis environment for performance analysis and technique assessment. - Define operational concepts for improved Counter-countermeasure techniques and technologies and develop required models and tools to estimate BMDS impact and performance. - Assess discrimination planning and reporting of BMDS Midterm Increment 6C Technical Capability Declaration. - Develop models and simulations for reactive/responsive Electronic Attack, objective debris aggregation, Electro-optical/infrared improvements, and high fidelity scene generation. - Develop BMD System Specification inputs and supporting analysis for multi- sensor/phenomenology Discrimination techniques. -- Develop Preliminary Change Notice, Functional Specification Change Notice, Performance Specification Change Notice, and Document Change Notice for Discrimination and Decision Logic improvements. -- Develop Preliminary Change Notice, Specification Change Notice, and Document Change Notice for Objective Debris Mitigation. <p>FY 2019 to FY 2020 Increase/Decrease Statement: Decrease from FY 2019 to FY 2020 reflects a return to Core Engineering funding levels following completion of content added in response to FY 2019 congressional funding increase.</p>					
<p>Title: Risk Management</p> <p align="right">Articles:</p> <p>Description: The Risk Management task identifies BMDS element and component technical risks, and tracks status and risk mitigation progress.</p> <ul style="list-style-type: none"> - Convene and chair Risk Management Working Group. - Execute the risk management and mission readiness working group process. 			7.868 -	7.768 -	7.497 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
<div>- Maintain a risk database using the Failure Reporting and Corrective Action System.</div> <div>- Review and approve program element risks, on quarterly basis.</div> <div>Specific and/or unique accomplishments to each FY are as follows:</div> <div>FY 2019 Plans: - SEE ABOVE.</div> <div>FY 2020 Plans: - SEE ABOVE.</div> <div>FY 2019 to FY 2020 Increase/Decrease Statement: N/A</div>				
<div>Title: Anti-Tamper & Engineering Manufacturing Readiness Level Development</div> <div>Articles:</div> <div>Description: 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 BMDS element, component, or system maturity.</div> <div>- Develop anti-tamper approaches to enable international fielding, support coalition warfare, and extend the effective operational life of the BMDS.</div> <div>- Engage and support the Services in understanding and transitioning BMDS Element Anti-Tamper activities.</div> <div>- 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.</div> <div>- Monitor application of EMRLs to evaluate engineering and manufacturing maturity of BMDS elements, systems, and components.</div> <div>- Assess and report readiness of MDA development efforts for transition to production.</div> <div>Specific and/or unique accomplishments to each FY are as follows:</div> <div>FY 2019 Plans: - SEE ABOVE.</div> <div>FY 2020 Plans: - SEE ABOVE.</div> <div>FY 2019 to FY 2020 Increase/Decrease Statement:</div>		5.517 -	5.637 -	5.065 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
N/A					
Title: Manufacturing and Producibility			4.944	7.724	4.686
<p align="right">Articles:</p> <p>Description: 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"> - Assess BMDS industrial base and determine critical manufacturing technologies -- Conduct assessments of critical component supply base and update critical technologies database -- Collaborate with national security space components on investment strategies for critical technologies -- Develop engineering management tool to characterize industrial base risks. - Utilize supply chain risk identification and mitigation tracking system to mitigate manufacturing supply issues for critical components - Assess the effectiveness of reliability programs for each MDA Product (Radar, Launcher, Missile/Interceptor, etc.) to achieve/sustain required reliability. - Perform reliability, composite risk, and probability of mission success assessments for flight tests. - Identify failure trends/modes and evaluate impact on the Probability of Mission Success; evaluate potential corrective actions -- Provide element/program scorecard data to support reliability evaluations/assessments. - With Logistics Support, develop MDA Reliability and Logistic Policies/Plans to promote an integrated Sustainability efforts - Ensure that BMDS 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. - Provide updates to MDA RAM policy and guidance. <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none"> - SEE ABOVE. - Per FY 2019 Appropriations Act Add for Systems Engineering Improvements: -- Address systems engineering challenges in the manufacturing and producibility arena to address concerns regarding BMDS reliability and sustainability <p>FY 2020 Plans:</p> <ul style="list-style-type: none"> - SEE ABOVE. <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>			-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs		Project (Number/Name) MD24 / System Engineering & Integration	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
Decrease from FY 2019 to FY 2020 reflects a return to Core Engineering funding levels following completion of content added in response to FY 2019 congressional funding increase.					
Title: Aegis Ashore Defense Articles: Description: Consistent with direction in Public Law 114-92, National Defense Authorization Act for FY 2016, the Department is required to provide defense of Aegis Ashore sites in Romania and Poland by mid-year 2019. Congress eliminated all funding for this initiative in the FY 2018 Appropriations Act. FY 2019 Plans: N/A FY 2020 Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: N/A			0.000 -	0.000 -	0.000 -
Title: USFK JEON Capability Articles: Description: In conjunction with the Lower Tier Project Office (LTPO), for a U.S. Forces-Korea (USFK) 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: -- Develop threat updates to inform requirements -- Develop functional, performance, and interface requirements -- Develop test requirements -- Update Modeling and Simulation (M&S) frameworks and core truth models -- Provide M&S integration for testing, and provide Wargame and training support -- Develop requirements for capability assessments -- Provide test and performance analysis -- Perform Element integration Specific and/or unique accomplishments to each FY are as follows: FY 2019 Plans:			16.200 -	14.500 -	13.700 -

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD24 / System Engineering & Integration				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)										FY 2018	FY 2019	FY 2020
- Improve THAAD performance against defended area and emerging threats.												
FY 2020 Plans: - SEE ABOVE.												
FY 2019 to FY 2020 Increase/Decrease Statement: N/A												
Accomplishments/Planned Programs Subtotals										208.588	204.853	164.291
C. Other Program Funding Summary (\$ in Millions)												
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To Complete</u>	<u>Total Cost</u>	
• 0603881C: Ballistic Missile	454.147	388.273	302.761	-	302.761	234.679	227.921	179.248	197.459	Continuing	Continuing	
Defense Terminal Defense Segment												
• 0603882C: Ballistic	1,153.263	803.359	1,156.506	-	1,156.506	829.451	766.237	834.533	776.671	Continuing	Continuing	
Missile Defense Midcourse												
Defense Segment												
• 0603884C: Ballistic	290.289	385.375	283.487	-	283.487	296.098	263.681	276.092	351.607	Continuing	Continuing	
Missile Defense Sensors												
• 0603892C: AEGIS BMD	798.395	741.076	727.479	-	727.479	718.949	703.473	505.529	527.720	Continuing	Continuing	
• 0603896C: Ballistic Missile	449.985	507.817	564.206	-	564.206	534.988	502.581	525.742	535.636	Continuing	Continuing	
Defense Command and												
Control, Battle Management												
& Communication												
• 0603914C: Ballistic	406.806	515.897	395.924	-	395.924	417.946	335.481	451.723	405.136	Continuing	Continuing	
Missile Defense Test												
Remarks												
D. Acquisition Strategy												
In order to optimize the performance of the BMDS, MDA leverages the nation's engineering Centers of Excellence at government agencies and Military Services, FFRDCs, UARCs, and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution to the BMDS. Products and Services will be acquired by competitive means to the extent that is possible and practical.												
E. Performance Metrics												
N/A												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs						Project (Number/Name) MD24 / System Engineering & Integration			
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A
Remarks N/A															
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Requirements and Design - Reqts & Design - Lethality Spt - FFRDC/ UARC	MIPR	Various : CA	1.405	1.046	Nov 2017	0.947	Nov 2018	0.963	Nov 2019	-		0.963	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - Lethality Spt - CSS	C/CPAF	TEAMS : NC	2.217	0.000		0.592	Nov 2018	0.604	Nov 2019	-		0.604	Continuing	Continuing	Continuing
Requirements and Design - BMDS ground test infrastructure improvements	Various	Various (GWAC) : AL, CO	0.000	0.000		11.382	Jan 2019	0.000		-		0.000	0.000	11.382	0.000
Requirements and Design - Integrated Cybersecurity Environment	Various	Various : AL	0.000	2.312	Sep 2018	0.000		0.000		-		0.000	0.000	2.312	0.000
Requirements and Design - Pre & Post-Launch Analysis Classification Toolset	Various	Various : AL	0.000	5.700	Sep 2018	0.000		0.000		-		0.000	0.000	5.700	0.000
Requirements and Design - Previous Year Reqts & Design Content No Longer in FYDP	Various	Various : AL, VA	4.595	0.000		0.000		0.000		-		0.000	0.000	4.595	0.000
Requirements and Design - Reqts & Design	C/CPFF	TEAMS : AL, VA	36.033	4.156	Nov 2017	5.557	Nov 2018	4.646	Nov 2019	-		4.646	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - CSS 3	C/CPFF	MEI : AL	1.167	0.509	Nov 2017	0.000		0.000		-		0.000	0.000	1.676	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD24 / System Engineering & Integration					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Requirements and Design - Reqts & Design - FFRDC/UARC 1	MIPR	ORNL : TN	0.984	0.391	Nov 2017	0.399	Nov 2018	0.406	Nov 2019	-		0.406	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - FFRDC/UARC 2	MIPR	MITRE : VA	1.317	2.074	Nov 2017	1.196	Nov 2018	1.219	Nov 2019	-		1.219	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - HAENS Spt	MIPR	NSWC Crane : IN	1.443	0.479	Nov 2017	0.488	Nov 2018	0.498	Nov 2019	-		0.498	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - Industry	C/CPFF	Boeing : AL	106.832	8.534	Nov 2017	7.095	Nov 2018	7.136	Nov 2019	-		7.136	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - MDA	Allot	MDA : AL, VA	46.687	8.800	Oct 2017	8.018	Oct 2018	8.289	Oct 2019	-		8.289	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - OGA	MIPR	AMRDEC : AL	7.459	2.062	Nov 2017	3.231	Nov 2018	2.275	Nov 2019	-		2.275	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - Post Intercept Assessment	Various	Various : Various	0.000	6.900	Dec 2017	5.700	Nov 2018	4.700	Nov 2019	-		4.700	Continuing	Continuing	Continuing
Requirements and Design - Systems Engineering Improvements	Various	Various : VA, AL, CO	0.000	3.467	Sep 2018	4.870	Nov 2018	0.000		-		0.000	0.000	8.337	0.000
Requirements and Design - Threat engineering	MIPR	Various : AL, VA, MD	0.000	3.508	Sep 2018	4.352	Jan 2019	0.000		-		0.000	0.000	7.860	0.000
Requirements and Design - WebCOP	Various	Various : AL	0.000	3.220	Sep 2018	0.000		0.000		-		0.000	0.000	3.220	0.000
Integrated Air and Missile Defense (IAMD) - IAMD - OGA	MIPR	AMRDEC : AL	4.319	4.448	Nov 2017	4.627	Nov 2018	4.720	Nov 2019	-		4.720	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - Support	C/CPFF	TEAMS : AL, VA, CO	3.890	1.498	Nov 2017	1.802	Nov 2018	0.898	Nov 2019	-		0.898	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - Various	MIPR	DoD Activities : Various	32.659	10.965	Nov 2017	9.817	Nov 2018	10.363	Nov 2019	-		10.363	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs						Project (Number/Name) MD24 / System Engineering & Integration			
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
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 - Cyber Engineering	Various	Various : AL, VA	0.000	2.285	Sep 2018	0.000		0.000		-		0.000	0.000	2.285	0.000
System-Level Verification and Assessment - Cyber Engineering - CSS	C/CPFF	TEAMS : AL, CO	0.000	1.013	Sep 2018	0.000		0.000		-		0.000	0.000	1.013	0.000
System-Level Verification and Assessment - Cyber Engineering - OGA	MIPR	AMRDEC : AL	0.000	1.008	Sep 2018	0.000		0.000		-		0.000	0.000	1.008	0.000
System-Level Verification and Assessment - Sys V&A - CSS	C/CPFF	TEAMS : AL	6.409	3.368	Nov 2017	5.723	Nov 2018	4.221	Nov 2019	-		4.221	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - CSS 2	C/CPFF	MiDAESS / TEAMS : AL, CO	2.046	0.000		0.000		0.000		-		0.000	0.000	2.046	0.000
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 1	MIPR	Aerospace : CA	18.224	1.700	Nov 2017	1.750	Nov 2018	1.800	Nov 2019	-		1.800	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 2	MIPR	JHU/APL : MD, VA	10.958	1.100	Nov 2017	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 3	MIPR	GTRI : AL	0.000	0.000		1.125	Nov 2018	1.150	Nov 2019	-		1.150	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 6	MIPR	MIT/LL : MA	19.898	1.400	Nov 2017	1.425	Nov 2018	1.450	Nov 2019	-		1.450	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 7	MIPR	MITRE : VA	18.166	1.618	Nov 2017	1.369	Nov 2018	1.623	Nov 2019	-		1.623	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD24 / System Engineering & Integration					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System-Level Verification and Assessment - Sys V&A - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	2.193	0.000		0.000		0.000		-		0.000	0.000	2.193	0.000
System-Level Verification and Assessment - Sys V&A - M&S Accreditation	Various	AMRDEC / Various : AL	0.000	2.000	Nov 2017	10.581	Nov 2018	6.873	Dec 2019	-		6.873	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - MDA	Allot	MDA : VA, AL	7.268	2.389	Oct 2017	2.306	Nov 2018	4.806	Oct 2019	-		4.806	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - OGA	MIPR	AMRDEC : AL	9.871	1.609	Oct 2017	4.841	Nov 2018	2.490	Nov 2019	-		2.490	Continuing	Continuing	Continuing
System-Level Verification and Assessment - V&A Industry Support	C/CPFF	Boeing : AL	13.982	3.518	Nov 2017	2.897	Nov 2018	0.956	Nov 2019	-		0.956	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 5	MIPR	Draper : VA	0.000	0.000		0.639	Nov 2018	0.652	Nov 2019	-		0.652	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 1	MIPR	Aerospace : CA	13.180	1.793	Nov 2017	1.828	Nov 2018	1.865	Nov 2019	-		1.865	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 2	MIPR	MIT/LL : MA	8.000	1.027	Nov 2017	1.048	Nov 2018	1.069	Nov 2019	-		1.069	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 3	FFRDC	MITRE : VA	8.066	1.042	Nov 2017	1.063	Nov 2018	1.084	Nov 2019	-		1.084	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 4	FFRDC	JHU/APL : VA	7.135	0.820	Nov 2017	0.700	Nov 2018	0.714	Nov 2019	-		0.714	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 7	MIPR	GTRI : GA	4.286	0.363	Nov 2017	0.370	Nov 2018	0.377	Nov 2019	-		0.377	Continuing	Continuing	Continuing
Knowledge Centers - KC - MDA	Various	MDA : AL, VA	30.176	5.099	Oct 2017	4.460	Oct 2018	4.264	Oct 2019	-		4.264	Continuing	Continuing	Continuing
Knowledge Centers - KC - TEAMS	C/CPFF	TEAMS : AL	0.000	3.276	Nov 2017	2.725	Nov 2018	2.708	Nov 2019	-		2.708	Continuing	Continuing	Continuing
Knowledge Centers - KC - Various	MIPR	Various : Various	5.639	1.799	Nov 2017	2.391	Dec 2018	1.405	Dec 2019	-		1.405	Continuing	Continuing	Continuing

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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 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
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	9.986	3.740	Nov 2017	2.957	Nov 2018	5.212	Nov 2019	-		5.212	Continuing	Continuing	Continuing
Future Concepts and Planning - Advanced Photonics	Various	Various : AL	0.000	4.200	Sep 2018	0.000		0.000		-		0.000	0.000	4.200	0.000
Future Concepts and Planning - Future Concepts - Architecture Support	Various	Various : VA, AL	7.516	4.537	Oct 2017	1.471	Nov 2018	1.000	Nov 2019	-		1.000	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 1	MIPR	SNL : CA	3.067	0.391	Nov 2017	0.817	Nov 2018	0.406	Nov 2019	-		0.406	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 3	MIPR	MIT/LL : MA	3.916	0.783	Nov 2017	0.797	Nov 2018	0.406	Nov 2019	-		0.406	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 4	MIPR	JHU/APL : MD, VA	5.243	0.000		0.000		0.000		-		0.000	0.000	5.243	0.000
Future Concepts and Planning - Future Concepts - FFRDC / UARC 5	MIPR	MITRE : VA	2.444	0.478	Nov 2017	0.080	Nov 2018	0.488	Nov 2019	-		0.488	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 6	MIPR	Aerospace : CA	4.065	0.391	Nov 2017	0.854	Nov 2018	0.406	Nov 2019	-		0.406	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD24 / System Engineering & Integration					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Future Concepts and Planning - Future Concepts - Industry	C/CPFF	Boeing : AL	30.976	2.000	Nov 2017	2.000	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Support	Allot	MDA : VA / AL	10.045	3.507	Oct 2017	5.922	Oct 2018	5.370	Oct 2019	-		5.370	Continuing	Continuing	Continuing
Future Concepts and Planning - Previous Year Future Concepts - No Longer in FYDP	Various	Various : Various	23.482	0.000		0.000		0.000		-		0.000	0.000	23.482	0.000
Future Concepts and Planning - Previous Year Hypersonic Defense Content	Various	Various : Various	7.200	0.000		0.000		0.000		-		0.000	0.000	7.200	0.000
Systems Engineering, Engineering Analysis and Quick Response Team - Previous Year Sys Engrg, QRT - No Longer In FYDP	Various	Various : Various	1.295	0.000		0.000		0.000		-		0.000	0.000	1.295	0.000
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - CSS	C/CPFF	TEAMS : AL	36.042	2.421	Nov 2017	2.063	Nov 2018	2.105	Nov 2019	-		2.105	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - CSS 2	C/CPFF	SAIC : VA, AL	18.343	7.650	Nov 2017	7.636	Nov 2018	7.800	Nov 2019	-		7.800	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - Industry Spt	C/CPFF	Boeing : VA, AL	0.000	0.000		0.520	Nov 2018	0.592	Nov 2019	-		0.592	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - MDA	Various	MDA : VA, AL	3.269	0.549	Oct 2017	0.471	Oct 2018	0.000		-		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD24 / System Engineering & Integration					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Discrimination - Discrimination - CSS	C/CPFF	TEAMS : AL	14.736	2.489	Nov 2017	2.450	Nov 2018	6.600	Nov 2019	-		6.600	Continuing	Continuing	Continuing
Discrimination - Discrimination - Industry	C/CPAF	Boeing : AL, VA	22.672	14.843	Nov 2017	12.769	Nov 2018	14.898	Nov 2019	-		14.898	Continuing	Continuing	Continuing
Discrimination - Discrimination - Support	Allot	MDA : AL, VA	25.415	3.337	Oct 2017	3.260	Oct 2018	1.836	Oct 2019	-		1.836	Continuing	Continuing	Continuing
Discrimination - Discrimination - Various	Various	Various : AL, VA	14.201	14.447	Nov 2017	7.843	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Discrimination - Prior Year Discrimination Improvements no longer funded in FYDP	Various	Various : Various	27.219	0.000		0.000		0.000		-		0.000	0.000	27.219	0.000
Risk Management - Risk Mgt - Analysis	Various	MDA : VA, AL	18.623	6.547	Oct 2017	6.403	Oct 2018	6.585	Oct 2019	-		6.585	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - Analysis Spt	C/CPAF	TEAMS : AL	2.963	0.733	Nov 2017	0.767	Nov 2018	0.302	Nov 2019	-		0.302	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - FFRDC/UARC	MIPR	MITRE : VA	4.824	0.588	Nov 2017	0.598	Nov 2018	0.610	Nov 2019	-		0.610	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	2.125	0.000		0.000		0.000		-		0.000	0.000	2.125	2.125
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - Anti-Tamper	Various	Various : AL, VA, CO	0.000	0.000		0.000		1.097	Dec 2019	-		1.097	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - Anti-Tamper OGA Support	MIPR	AMRDEC : AL	0.000	0.000		0.000		0.261	Dec 2019	-		0.261	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - Anti-Tamper Support	MIPR	NSWC Crane : IN	6.481	0.498	Nov 2017	0.508	Nov 2018	0.256	Dec 2019	-		0.256	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD24 / System Engineering & Integration					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - MDA	Allot	MDA : AL, VA	20.925	5.019	Oct 2017	5.129	Oct 2018	3.451	Nov 2019	-		3.451	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - Prior Year AT & EMRL no longer funded in FYDP	Various	Various : Various	2.983	0.000		0.000		0.000		-		0.000	0.000	2.983	0.000
Manufacturing and Producibility - Core Standards	C/CPFF	Boeing : AL	3.313	1.500	Nov 2017	1.282	Nov 2018	1.653	Nov 2019	-		1.653	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility	Allot	MDA : AL	2.423	1.475	Oct 2017	2.154	Oct 2018	0.819	Nov 2019	-		0.819	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility - CSS	C/CPFF	TEAMS : AL, VA	0.000	0.000		0.764	Nov 2018	0.498	Nov 2019	-		0.498	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility - OGA Support	MIPR	AMRDEC : AL	8.021	1.969	Nov 2017	1.719	Nov 2018	1.716	Nov 2019	-		1.716	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility - Various	Various	Various : AL	0.000	0.000		1.805	Dec 2018	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
Aegis Ashore Defense - Concept Dev	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	0.000
USFK JEON Capability - CSS	C/CPFF	TEAMS : VA, AL	0.000	0.652	Dec 2017	0.562	Nov 2018	0.920	Dec 2019	-		0.920	Continuing	Continuing	Continuing
USFK JEON Capability - FFRDC/UARC	MIPR	MITRE : VA	0.000	0.528	Jan 2018	0.499	Nov 2018	0.407	Dec 2019	-		0.407	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD24 / System Engineering & Integration
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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
USFK JEON Capability - Framework, Truth Models	Various	Various : CO, AL	0.000	1.064	Jan 2018	1.628	Nov 2018	1.942	Dec 2019	-		1.942	Continuing	Continuing	Continuing
USFK JEON Capability - Industry Support	C/CPFF	Boeing : AL, VA	0.000	2.106	Jan 2018	0.000		0.000		-		0.000	0.000	2.106	0.000
USFK JEON Capability - Industry Support - IRES	C/CPAF	Northrop Grumman : AL, VA	0.000	2.445	Dec 2017	2.494	Nov 2018	2.335	Dec 2019	-		2.335	Continuing	Continuing	Continuing
USFK JEON Capability - OGA	MIPR	AMRDEC : AL	0.000	0.984	Dec 2017	1.016	Nov 2018	1.232	Dec 2019	-		1.232	Continuing	Continuing	Continuing
USFK JEON Capability - Systems Engineering	Various	MDA Various : VA, AL, CO	0.000	1.179	Dec 2017	2.996	Nov 2018	1.979	Dec 2019	-		1.979	Continuing	Continuing	Continuing
USFK JEON Capability - Test & Performance Analysis	Various	Various : VA, AL	0.000	3.268	Jan 2018	3.967	Nov 2018	4.210	Dec 2019	-		4.210	Continuing	Continuing	Continuing
USFK JEON Capability - UARC	MIPR	JHU / APL : MD, VA	0.000	3.974	Dec 2017	1.338	Nov 2018	0.675	Dec 2019	-		0.675	Continuing	Continuing	Continuing
Subtotal			791.319	208.588		204.853		164.291		-		164.291	Continuing	Continuing	N/A

Remarks

N/A

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

Remarks

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019		
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD24 / System Engineering & Integration				

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

Remarks N/A															
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	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	791.319	208.588		204.853		164.291		-		164.291	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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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency															Date: March 2019									
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs										Project (Number/Name) MD24 / System Engineering & Integration									
Significant Event Complete ▲ Significant Event Planned △					Milestone Decision Complete ★ Milestone Decision Planned ☆					Element Test Complete ◆ Element Test Planned ◇					System Level Test Complete ● System Level Test Planned ○					Complete Activity ◆ Planned Activity ◇				
					FY 2018					FY 2019					FY 2020					FY 2021				
BMD SS - 1Q FY 2018					▲																			
Element Design Reviews - FY 2018						▲																		
Update to IMAP - 2Q FY 2018						▲																		
Update MIP - FY 2018						▲																		
BMD SEP - FY 2018							▲																	
Element/Component Characterization for Analysis (E/CCA) - 3Q - FY 2018							▲																	
Update Achievable Capabilities List - FY 2018								▲																
BMD SS - 4Q FY 2018								▲																
Update to IMAP - 1Q FY 2019									△															
Update to BMD SDD - FY 2019									▲															
BMD SS - FY 2019									▲															
Deliver Assessment for EPAA Phase 3 – FY 2019									△															
E/CCA 1Q - FY 2019									▲															
Element Design Reviews - FY 2019										△														
SEP Update - FY 2019										△														
Update to IMAP - 3Q FY 2019											△													
BMDS Engineering Review - FY 2019											△													
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2019												△												
Update MIP - FY 2019												△												
E/CCA 4Q - FY 2019												△												
Update to BMD SDD - FY 2020													△											
Update Achievable Capabilities List - FY 2020														△										
SEP Update - FY 2020															△									
BMD SS - FY 2020																△								

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency																	Date: March 2019												
Appropriation/Budget Activity 0400 / 4										R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs										Project (Number/Name) MD24 / System Engineering & Integration									
Significant Event Complete ▲					Milestone Decision Complete ★					Element Test Complete ◆					System Level Test Complete ●					Complete Activity ◆									
Significant Event Planned △					Milestone Decision Planned ☆					Element Test Planned ◇					System Level Test Planned ○					Planned Activity ◇									
										FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024							
BMDS Engineering Review - FY 2020																													
Update to IMAP - 3Q FY 2020																													
Update MIP - FY 2020																													
E/CCA - 4Q - FY 2020																													
Update to BMD SDD - FY 2021																													
SEP Update FY 2021																													
BMD SS - FY 2021																													
BMDS Engineering Review - FY 2021																													
Update to IMAP - 3Q FY 2021																													
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SEP Update - FY 2023																													
Update to IMAP - 3Q FY 2023																													
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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency														Date: March 2019																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD24 / System Engineering & Integration	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
BMD SS - 1Q FY 2018	1	2018	1	2018
Element Design Reviews - FY 2018	2	2018	2	2018
Update to IMAP - 2Q FY 2018	2	2018	2	2018
Update MIP - FY 2018	2	2018	2	2018
BMD SEP - FY 2018	3	2018	3	2018
Element/Component Characterization for Analysis (E/CCA) - 3Q - FY 2018	3	2018	3	2018
Update Achievable Capabilities List - FY 2018	4	2018	4	2018
BMD SS - 4Q FY 2018	4	2018	4	2018
Update to IMAP - 1Q FY 2019	1	2019	1	2019
Update to BMD SDD - FY 2019	1	2019	1	2019
BMD SS - FY 2019	1	2019	1	2019
Deliver Assessment for EPAA Phase 3 FY 2019	1	2019	1	2019
E/CCA 1Q - FY 2019	1	2019	1	2019
Element Design Reviews - FY 2019	2	2019	2	2019
SEP Update - FY 2019	2	2019	2	2019
Update to IMAP - 3Q FY 2019	3	2019	3	2019
BMDS Engineering Review - FY 2019	3	2019	3	2019
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2019	4	2019	4	2019
Update MIP - FY 2019	4	2019	4	2019
E/CCA 4Q - FY 2019	4	2019	4	2019
Update to BMD SDD - FY 2020	1	2020	1	2020
Update Achievable Capabilities List - FY 2020	1	2020	1	2020
SEP Update - FY 2020	2	2020	2	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency				Date: March 2019	
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603890C / <i>BMD Enabling Programs</i>		Project (Number/Name) MD24 / <i>System Engineering & Integration</i>	
		Start		End	
Events	Quarter	Year	Quarter	Year	
BMD SS - FY 2020	2	2020	2	2020	
BMDS Engineering Review - FY 2020	3	2020	3	2020	
Update to IMAP - 3Q FY 2020	3	2020	3	2020	
Update MIP - FY 2020	4	2020	4	2020	
E/CCA - 4Q - FY 2020	4	2020	4	2020	
Update to BMD SDD - FY 2021	1	2021	1	2021	
SEP Update FY 2021	2	2021	2	2021	
BMD SS - FY 2021	2	2021	2	2021	
BMDS Engineering Review - FY 2021	3	2021	3	2021	
Update to IMAP - 3Q FY 2021	3	2021	3	2021	
Update Achievable Capabilities List - FY 2022	3	2021	3	2021	
Update MIP - FY 2021	4	2021	4	2021	
E/CCA - 4Q FY 2021	4	2021	4	2021	
Update to BMD SDD - FY 2022	1	2022	1	2022	
SEP Update FY 2022	2	2022	2	2022	
BMD SS - FY 2022	2	2022	2	2022	
Updates to IMAP -3Q FY 2022	3	2022	3	2022	
BMDS Engineering Review - FY 2022	3	2022	3	2022	
Update MIP - FY2022	4	2022	4	2022	
E/CCA - 4Q FY 2022	4	2022	4	2022	
Update to BMD SDD - FY 2023	1	2023	1	2023	
BMD SS - FY 2023	2	2023	2	2023	
SEP Update - FY 2023	2	2023	2	2023	
Update to IMAP - 3Q FY 2023	3	2023	3	2023	
E/CCA - 4Q - FY 2023	4	2023	4	2023	
Update MIP - FY 2023	4	2023	4	2023	

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency			Date: March 2019	
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs		Project (Number/Name) MD24 / System Engineering & Integration	
	Start		End	
Events	Quarter	Year	Quarter	Year
Update to BMD SDD - FY 2024	1	2024	1	2024
BMD SS - 2024	1	2024	1	2024
Update Achievable Capabilities List - FY 2024	1	2024	1	2024
SEP Update - FY 2024	2	2024	2	2024
Update to IMAP - 3Q FY 2024	3	2024	3	2024
E/CCA - 4Q - FY 2024	4	2024	4	2024
Update MIP - FY 2024	4	2024	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MT23 / Enabling - Test			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MT23: Enabling - Test	51.455	22.758	39.288	59.029	-	59.029	36.658	52.208	58.268	36.538	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Increase from FY 2019 to FY 2020 provides ramp-up to conduct pre-mission activities for Continuous Integration and Agile Test (CI/CAT) sprints in FY 2021 while maintaining support for current flight- and ground test missions, and implementation of a Continuous Development and Integration (CDI) Environment to reduce test risk by resolving technical issues early, enabling better flexibility and ability to meet CI/CAT testing tempo.

A. Mission Description and Budget Item Justification

The Enabling Test project includes the SE&I that drives BMDS test planning, execution, and post-test analysis and assessment, and the M&S tools and framework required to prepare for and execute ground and flight tests.

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

Engineering ground test (GT) responsibilities include BMDS 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 BMDS development and evolution and underpin the BMDS 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 BMDS 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 BMDS behavior and performance.

Reliability, Availability and Maintainability data collected through BMDS test events increases confidence in BMDS 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 BMDS performance and reliability.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MT23 / Enabling - Test		
MDA's M&S systems and products provide the BMDS, the Warfighter, and the OTA with the capability to evaluate individual BMDS components and the overall M&S system-of-systems. MDA validates and accredits system-level models and simulations to support accurate and comprehensive assessments of the BMDS. M&S System and product testing follows the test program outlined in MDA's IMTP and serves as a necessary precursor to conducting BMD System-level testing. Resources for the planning, design, execution and management of this testing are provided in accordance with the BMDS Test Policy, as listed in the most current version of the IMTP.					
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
Title: Engineering and Analysis			22.758	34.131	35.773
Articles:			-	-	-
Description: The Engineering and Analysis effort provides essential BMDS ground and flight test event planning, execution, and evaluation activities for each test event: - 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 BMDS performance and anchor Models and Simulations. - Produce the threat data for BMDS ground and flight tests. - Coordinate with BMDS Operational Test Agency (OTA) to address test issues, disposition them, coordinate them, and recommend action plans to achieve closure. - Deliver HWIL M&S integration test cases. - Conduct M&S HWIL Integration Benchmarking and integrate the BMDS HWIL M&S framework with MDA and non-MDA Elements into the test event BMDS architecture. - Integrate, test, and deliver end-to-end BMDS simulations supporting ground test missions. - Deploy and maintain M&S System Interface Units (SIUs) for BMDS testing. - Analyze System-level interoperability. - Conduct modeling and technical analysis for Combatant Command wargames and exercises. - Utilize M&S for pre-test assessment, post-test review, and M&S updates. - Provide test configuration management; risk assessments; and anomaly/deficiency review, assessment and closure. - Analyze test results to identify verification and validation data collection shortfalls and reassign objectives to future test events as required. - Document BMDS test observations for system-level test anomalies and coordinate the resulting BMDS Discrepancy Reports within the Failure Reporting, Analysis, and Corrective Action System (FRACAS) - Upgrade test analysis tools in concert with the BMDS evolution (e.g., Modular Analysis and Reporting Suite (MARS)) to enhance analysis capability and efficiency.					
Specific and/or unique accomplishments to each FY are as follows:					
FY 2019 Plans: - Provide more robust BMDS architecture analysis for Ground Test to support expanded assessment requirements. - Increase Cybersecurity requirements across Ground Test venues and cybersecurity events.					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MT23 / Enabling - Test		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none">- Purchase additional System Interface Units (SIUs) for new BMDS hardware under test (i.e., LRDR, Clear UEWR)- Augment test and performance analysis capability in response to:<ul style="list-style-type: none">-- Increased number of flight and ground test events requiring system analysis-- Extended analysis timeline due to early analysis requirements- Develop/refine requirements for Continuous Integration and Agile Test (CI/CAT) capability- Begin implementation of M&S infrastructure upgrades to support CI/CAT <p>FY 2020 Plans:</p> <p>- SEE ABOVE.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p> <p>N/A</p>				
<p>Title: Continuous Integration and Agile Test (CI/CAT)</p> <p align="right">Articles:</p> <p>Description: Provide test planning, analysis, M&S integration, M&S execution, and post-event analysis for the BMDS-wide Continuous Integration / Continuous Agile Testing approach for integrated ground testing.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none">- Develop/refine requirements for Continuous Integration and Agile Test (CI/CAT) capability- Begin implementation of M&S infrastructure upgrades to support CI/CAT <p>FY 2020 Plans:</p> <ul style="list-style-type: none">- Execute pre-CI/CAT Sprint activities:<ul style="list-style-type: none">-- Develop and document ground test sprint requirements-- Develop scenario designs for sprints-- Provide M&S integration-- Provide pre-mission analysis for ground test sprints- Execute agency ground test plan in accordance with new CONOPS and maintain integration across concurrent ground test and flight test activities <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>		0.000 -	5.157 -	13.293 -

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency									Date: March 2019		
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MT23 / Enabling - Test			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2018	FY 2019	FY 2020
Increase from FY 2019 to FY 2020 provides pre-mission activities for CI/CAT ground test sprints in FY 2021 while maintaining support for current flight and ground test missions. CI/CAT will increase ground test capacity to provide additional requested data for system assessments/fielding decisions and provide flexibility to adjust for emerging assessment requirements.											
Title: Continuous Development and Integration (CDI) Environment Articles: Description: Provide a Continuous Development and Integration (CDI) environment, allowing BMDS Elements to integrate new tactical and M&S software to be tested ahead of a ground test event. CDI will provide a venue for early test of BMDS Element and System upgrades, reducing risk of anomalies during HWIL integration and execution, and impacts of testing delays due to test configuration rework. This is a critical enabler to achieve the planned Continuous Integration/Continuous Agile Testing (CI/CAT) schedule and tempo. FY 2019 Plans: N/A FY 2020 Plans: - Procure additional hardware to enable pre-event integration - Initiate expansion of BMDS Integration and Development (BID) Lab to replicate the BMDS in order to meet evolving IMTP cadence - Conduct early integration activities such as scenario refinement, framework capability, and early checkout of Element software for GT-21 Sprints FY 2019 to FY 2020 Increase/Decrease Statement: Beginning in FY 2020, this funding will provide more efficient BMDS ground testing through the consistent application of Early Integration to resolve technical issues ahead of ground test events, enabling better flexibility and ability to meet the CI/CAT testing tempo.									0.000 -	0.000 -	9.963 -
Accomplishments/Planned Programs Subtotals									22.758	39.288	59.029
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 0603914C: Ballistic Missile Defense Test	406.806	515.897	395.924	-	395.924	417.946	335.481	451.723	405.136	Continuing	Continuing
• 0604878C: Aegis BMD Test	128.757	92.160	169.822	-	169.822	76.270	149.764	137.058	147.923	Continuing	Continuing
Remarks											

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / <i>BMD Enabling Programs</i>	Project (Number/Name) MT23 / <i>Enabling - Test</i>
<p><u>D. Acquisition Strategy</u></p> <p>In order to optimize the performance of the BMDS, MDA leverages the nation's engineering Centers of Excellence at government agencies and Military Services, FFRDCs, UARCs, and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution to the BMDS. MDA will acquire products and services by competitive means to the extent practical.</p> <p><u>E. Performance Metrics</u></p> <p>N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MT23 / Enabling - Test					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A
Remarks N/A															
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Analysis - Engineering & Analysis - CSS Support	C/CPFF	TEAMS : AL	3.008	1.526	Nov 2017	2.147	Nov 2018	5.131	Nov 2019	-		5.131	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - FFRDC	MIPR	Aerospace : AL	0.731	0.391	Nov 2017	0.399	Nov 2018	0.406	Nov 2019	-		0.406	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Industry	C/CPAF	Boeing : VA, AL	10.087	4.486	Nov 2017	5.405	Nov 2018	7.201	Nov 2019	-		7.201	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Integration Support CSS	C/CPAF	COLSA : AL, CO	13.194	7.076	Nov 2017	8.774	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Non-MDA Element Support for IMTP Events	Various	Various : AL, CO	0.000	0.000		0.000		7.641	Nov 2019	-		7.641	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - OGA Support	MIPR	AMRDEC : AL	20.040	6.602	Nov 2017	10.441	Nov 2018	14.856	Nov 2019	-		14.856	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - OGA Support - NME	MIPR	LTPO : AL	0.000	1.202	Nov 2017	4.375	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Technical Support	C/CPAF	Northrop Grumman : VA, AL	2.559	0.000		2.340	Nov 2018	0.000		-		0.000	0.000	4.899	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MT23 / Enabling - Test					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Analysis - Engineering & Analysis - Test Engineering Support	Various	Various : AL, CO, VA	1.836	1.475	Nov 2017	0.250	Nov 2018	0.538	Nov 2019	-		0.538	Continuing	Continuing	Continuing
Continuous Integration and Agile Test (CI/CAT) - CI/ CAT M&S Integration	Various	Various : AL, CO	0.000	0.000		0.000		7.673	Dec 2019	-		7.673	Continuing	Continuing	Continuing
Continuous Integration and Agile Test (CI/CAT) - CI/ CAT Test & Performance Analysis	Various	Various : AL, CO	0.000	0.000		0.000		4.567	Dec 2019	-		4.567	Continuing	Continuing	Continuing
Continuous Integration and Agile Test (CI/CAT) - CI/ CAT Test Requirements Development	C/CPFF	TEAMS : AL, CO	0.000	0.000		0.000		1.053	Nov 2019	-		1.053	Continuing	Continuing	Continuing
Continuous Integration and Agile Test (CI/CAT) - CSS	Various	Various : Various	0.000	0.000		2.734	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Continuous Integration and Agile Test (CI/CAT) - Hardware	C/CPFF	TBE : AL	0.000	0.000		2.423	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Continuous Development and Integration (CDI) Environment - Continuous Development and Integration Environment	MIPR	AMRDEC : AL, CO	0.000	0.000		0.000		9.963	Dec 2019	-		9.963	Continuing	Continuing	Continuing
Subtotal			51.455	22.758		39.288		59.029		-		59.029	Continuing	Continuing	N/A
Remarks N/A															
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency													Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs					Project (Number/Name) MT23 / Enabling - Test					

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

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

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	51.455	22.758		39.288		59.029		-		59.029	Continuing	Continuing	N/A
Remarks Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.													

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4										R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs										Project (Number/Name) MT23 / Enabling - Test									
Significant Event Complete ▲ Significant Event Planned △					Milestone Decision Complete ★ Milestone Decision Planned ☆					Element Test Complete ◆ Element Test Planned ◇					System Level Test Complete ● System Level Test Planned ○					Complete Activity ◆ Planned Activity ◇									
										FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024							
Integrated Master Test Plan (IMTP) Engineering Inputs - 1Q - FY 2018										▲																			
IMTP Engineering Inputs - 3Q - FY 2018											▲																		
IMTP Engineering Inputs - 1Q - FY 2019												△																	
IMTP Engineering Inputs - 3Q - FY 2019													△																
IMTP Engineering Inputs - 1Q - FY 2020														△															
IMTP Engineering Inputs - 3Q - FY 2020															△														
FTO-03 (OTA, OT Intercept Flight Test)															△														
GTI-08 (N/P) (BMDS Ground Test)															◇	◇													
IMTP Engineering Inputs - 1Q - FY 2021																△													
GTI-09 Sprint 1 (E/C) (BMDS Ground Test)																◇	◇												
IMTP Engineering Inputs - 2Q - FY 2021																	△												
GTI-09 Sprint 2 (E/C) (BMDS Ground Test)																	◇												
IMTP Engineering Inputs - 1Q - FY2022																		△											
IMTP Engineering Inputs - 3Q - FY 2022																			△										
IMTP Engineering Inputs - 1Q - FY 2023																				△									
IMTP Engineering Inputs - 3Q - FY 2023																					△								
IMTP Engineering Inputs - 1Q - FY 2024																							△						
IMTP Engineering Inputs - 3Q - FY 2024																								△					

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / <i>BMD Enabling Programs</i>	Project (Number/Name) MT23 / <i>Enabling - Test</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Integrated Master Test Plan (IMTP) Engineering Inputs - 1Q - FY 2018	1	2018	1	2018
IMTP Engineering Inputs - 3Q - FY 2018	3	2018	3	2018
IMTP Engineering Inputs - 1Q - FY 2019	1	2019	1	2019
IMTP Engineering Inputs - 3Q - FY 2019	3	2019	3	2019
IMTP Engineering Inputs - 1Q - FY 2020	1	2020	1	2020
IMTP Engineering Inputs - 3Q - FY 2020	3	2020	3	2020
FTO-03 (OTA, OT Intercept Flight Test)	4	2020	4	2020
GTI-08 (N/P) (BMDS Ground Test)	4	2020	1	2021
IMTP Engineering Inputs - 1Q - FY 2021	1	2021	1	2021
GTI-09 Sprint 1 (E/C) (BMDS Ground Test)	1	2021	2	2021
IMTP Engineering Inputs - 2Q - FY 2021	3	2021	3	2021
GTI-09 Sprint 2 (E/C) (BMDS Ground Test)	3	2021	3	2021
IMTP Engineering Inputs - 1Q - FY2022	1	2022	1	2022
IMTP Engineering Inputs - 3Q - FY 2022	3	2022	3	2022
IMTP Engineering Inputs - 1Q - FY 2023	1	2023	1	2023
IMTP Engineering Inputs - 3Q - FY 2023	3	2023	3	2023
IMTP Engineering Inputs - 1Q - FY 2024	1	2024	1	2024
IMTP Engineering Inputs - 3Q - FY 2024	3	2024	3	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD28 / Intelligence & Security			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD28: Intelligence & Security	191.735	41.448	44.078	43.851	-	43.851	45.048	45.315	46.062	46.969	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

The Intelligence and Security program provides multi-disciplinary intelligence and security for the BMDS 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 BMDS 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 MDA and BMDS personnel, facilities, information and activities.
- Define cybersecurity systems engineering requirements for BMDS assets. Identify cybersecurity systems engineering and infrastructure intelligence requirements to focus IC collection, analysis and production to target MDA/BMDS cyber vulnerabilities. Incorporate cybersecurity engineering requirements into the BMDS systems engineering process.
- Provide cross-Agency acquisition security oversight and support for the identification and protection of Critical Program Information (CPI), and evaluation and implementation of developing Supply Chain Risk Management (SCRM) requirements. Provide physical security for BMDS weapons/sensor system deployments, including Foreign Military Sales (FMS). Implement MDA's information security and declassification programs. Strengthen Test and Operations Security (OPSEC) across the Agency.

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

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

	FY 2018	FY 2019	FY 2020
Title: Intelligence	8.842	10.186	9.696
Articles:	-	-	-
Description: The Intelligence program provides expertise to develop intelligence products on threat ballistic missile 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: <ul style="list-style-type: none"> - Serve as designated intelligence broker between MDA and the Intelligence Community -- Maintain and communicate prioritized, specific BMDS intelligence requirements to the Intelligence Community. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD28 / Intelligence & Security		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
<p>-- Maintain a focused dialog 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 BMDS 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 ballistic 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 BMDS.</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>FY 2019 Plans: - SEE ABOVE.</p> <p>FY 2020 Plans: - SEE ABOVE.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: N/A</p>				
<p>Title: Counterintelligence</p> <p>Articles:</p> <p>Description: 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 BMDS deployment activities worldwide, including FMS Programs, to detect, deter, or neutralize criminal, terrorist and foreign intelligence collection threats targeting MDA and BMDS technologies, personnel, facilities and activities.</p> <p>- 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.</p>		6.919 -	6.776 -	7.051 -

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs		Project (Number/Name) MD28 / Intelligence & Security	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Conduct CI in Cyberspace activities to detect malicious and insider threat activities targeting MDA administrative and fire control networks. - Conduct MDA Insider Threat Program to identify, deter and mitigate potential insider threats. - Provide required CI Awareness and Reporting training to MDA workforce. - Provide CI research and assistance for cyber forensics and analysis to identify insider and foreign entity cyber threats to MDA computer networks and BMDS fire control systems. - 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. - 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. <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans: - SEE ABOVE.</p> <p>FY 2020 Plans: - SEE ABOVE.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: N/A</p>					
<p>Title: Cybersecurity Engineering Program</p> <p align="right">Articles:</p> <p>Description: The Cybersecurity Engineering Program is focused on developing designs and solutions to protect the BMDS from existing and emerging cyber threats through coherent cybersecurity systems engineering. Program goals include:</p> <ul style="list-style-type: none"> - Ensure Cybersecurity is integrated into the Acquisition Process. - 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. -- Develop and coordinate near-term and long-term engineering changes to the BMDS -- Develop requirements for building cybersecurity into incremental BMDS Hardware and Software builds -- Monitor allocation of these requirements to the Elements. -- Recommend updates to the BMDS Core Standards, including Cyber-related requirements specified by the Agency, the Combatant Commanders (CCMDs), the DoD, and the Federal Government. 			4.537 -	4.572 -	4.413 -

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD28 / Intelligence & Security		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
<p>-- Perform cybersecurity systems engineering assessments for proposed BMD System Specification and interface changes and additions.</p> <p>- Provide and recommend updates to cybersecurity systems engineering policy and guidance for BMDS system design and acquisition to enhance BMDS resiliency against cyber threats</p> <p>- Implement cybersecurity engineering resiliency techniques.</p> <p>- Provide objectives and requirements for Cybersecurity testing.</p> <p>- Provide independent cybersecurity reviews at critical engineering milestones.</p> <p>- Provide information system security engineering by assessing cybersecurity requirements, design, and implementations and provide recommendations to address architecture gaps or shortfalls.</p> <p>- Implement cyber threat mitigation strategies within BMDS architecture, design, system requirements, and specifications documentation to ensure traceability to necessary components and interfaces that make up the BMDS mission.</p> <p>- Coordinate evaluation of cybersecurity capability during BMDS tests.</p> <p>- Develop verification and assessment strategies for system cybersecurity requirements.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <p>- SEE ABOVE.</p> <p>FY 2020 Plans:</p> <p>- SEE ABOVE.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p> <p>N/A</p>				
<p>Title: Program Protection</p> <p>Articles:</p> <p>Description: Program Protection protects BMDS 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 BMDS. Program Protection also coordinates MDA intelligence, counterintelligence and security to help BMDS test activities. Program goals include:</p> <p>- Perform reviews required for all Agency public release, security classification, and FOIA and Mandatory Declassification Reviews to ensure sensitive BMDS information is not inadvertently released into the public domain.</p> <p>- Perform Information Security program management and oversee implementation by MDA programs</p> <p>-- Perform internal program reviews, policy oversight and implementation, and training to identify and fix deficiencies and protect critical BMDS information</p>		10.217 -	11.889 -	11.443 -

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD28 / Intelligence & Security		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
<div>-- Collect information required for annual reports and communicate security posture to leadership</div> <div>- Provide security oversight for the Agency's classified contracts by drafting and coordinating DD254 "Contract Security Classification Specification" documents.</div> <div>- Execute an effective SCRM program to prevent unmitigated risks from degrading the performance of components and systems across the BMDS supply chain.</div> <div>- Provide dedicated on-site security and protection of BMDS resources and personnel at operational sites in Alaska, California and Colorado to ensure security protection coverage of the BMDS mission operations and test assets based in those regions.</div> <div>- Perform systematic Declassification reviews on historical Agency information to prevent unauthorized disclosures due to automatic declassification requirements.</div> <div>- Identify and integrate Physical Security requirements for overseas sites with existing or planned missile defense weapons or sensor systems to ensure protection of deployed sites.</div> <div>- Provide effective physical protection to low density/high demand emerging warfighter capability.</div> <div>- Expand security activities to include FMS.</div> <div>- Conduct program protection planning for the continuing assessment of candidate critical program information for Advanced Technology programs and reassessment of other BMDS programs affected by technical baseline changes; ensure critical technologies embedded in missile defense systems are not vulnerable to compromise.</div> <div>- Keep pace with mission growth in program protection, system security engineering, acquisition security, and SCRM.</div> <div>Specific and/or unique accomplishments to each FY are as follows:</div> <div>FY 2019 Plans:</div> <div>- SEE ABOVE.</div> <div>FY 2020 Plans:</div> <div>- SEE ABOVE.</div> <div>FY 2019 to FY 2020 Increase/Decrease Statement:</div> <div>N/A</div>					
Title: Threat Systems Engineering			10.933	10.655	11.248
Articles:			-	-	-
Description: Threat Engineering provides representations of adversary missile capabilities based on available intelligence information, and develops, coordinates, and baselines BMDS-level targets and countermeasures requirements to define target capabilities required to meet BMDS flight test objectives. Program goals include:					
- Develop threat definitions for system specifications					
-- Produce threat / scenario data for BMDS development events					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / <i>BMD Enabling Programs</i>	Project (Number/Name) MD28 / <i>Intelligence & Security</i>	

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> -- Perform Threat Verification and Validation analysis to verify missile models meet specifications and are consistent with intelligence assessments. - Produce Adversary Data Package (ADP) updates. - Develop target requirements to ensure flight test targets meet operationally realistic conditions. - Produce Target Assessment and Certification Reports. - Assess threat representation of flight test targets. - Develop target system specifications and guide targets requirements development, planning, and certification for BMDS flight tests. - Analyze flight test target performance relative to threat intelligence assessments to support target system verification and certification. - Provide Technical Data for major reviews (System Requirements Reviews, Critical Design Reviews, etc.) - Complete Target Specification builds. - Update MDA INS 5000.06, Target Class Capabilities and Requirements documents as necessary. <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans: - SEE ABOVE.</p> <p>FY 2020 Plans: - SEE ABOVE.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: N/A</p>			
Accomplishments/Planned Programs Subtotals	41.448	44.078	43.851

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0305103C: <i>Cyber Security Initiative</i>	0.964	0.985	1.138	-	1.138	1.160	1.184	1.206	1.230	Continuing	Continuing

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

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / <i>BMD Enabling Programs</i>	Project (Number/Name) MD28 / <i>Intelligence & Security</i>
<p>contracting strategies in a flexible manner to maximize their contribution to the BMDS. Products and Services will be acquired by competitive means to the extent that is beneficial and practical.</p> <p><u>E. Performance Metrics</u> N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs						Project (Number/Name) MD28 / Intelligence & Security			
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A
Remarks N/A															
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Intelligence - Intelligence Analysis & Support	Allot	MDA : VA, AL, CO	20.699	4.566	Oct 2017	4.046	Oct 2018	3.668	Oct 2019	-		3.668	Continuing	Continuing	Continuing
Intelligence - Intelligence Support	C/CPFF	TEAMS : AL, VA, CO	21.596	3.719	Nov 2017	5.832	Nov 2018	5.714	Nov 2019	-		5.714	Continuing	Continuing	Continuing
Intelligence - Intelligence Support - IT Maintenance	C/CPFF	Northrop Grumman : AL, CO	2.056	0.557	Nov 2017	0.308	Nov 2018	0.314	Nov 2019	-		0.314	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	8.406	2.102	Oct 2017	3.075	Oct 2018	2.788	Oct 2019	-		2.788	Continuing	Continuing	Continuing
Counterintelligence - CI Analysis and Support	C/CPFF	TEAMS : AL, CO, VA	15.439	4.020	Nov 2017	2.667	Nov 2018	3.839	Nov 2019	-		3.839	Continuing	Continuing	Continuing
Counterintelligence - CI Surveillance Gear	Various	Various : Various	0.000	0.797	Dec 2017	1.034	Dec 2018	0.424	Dec 2019	-		0.424	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	3.279	0.384	Nov 2017	0.398	Nov 2018	0.000		-		0.000	0.000	4.061	0.000
Cybersecurity Engineering Program - Cybersecurity - FFRDC (2)	FFRDC	MITRE : VA, AL	2.713	1.145	Nov 2017	1.196	Nov 2018	0.000		-		0.000	0.000	5.054	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD28 / Intelligence & Security					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Cybersecurity Engineering Program - Cybersecurity Engineering	Allot	MDA : VA, AL	11.686	2.467	Oct 2017	2.241	Oct 2018	2.058	Oct 2019	-		2.058	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity Engineering - Hardware	Various	Various : AL, CO, VA	0.000	0.000		0.000		1.107	Nov 2019	-		1.107	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity Engineering CSS	C/CPFF	TEAMS : VA, AL	2.828	0.541	Nov 2017	0.737	Nov 2018	1.248	Nov 2019	-		1.248	Continuing	Continuing	Continuing
Program Protection - Declassification Analysis	C/CPFF	TEAMS : VA, AL	7.496	1.061	Nov 2017	2.055	Nov 2018	2.096	Nov 2019	-		2.096	Continuing	Continuing	Continuing
Program Protection - Program Protection Analysis	Allot	MDA : VA, AL	20.892	4.555	Oct 2017	4.654	Oct 2018	3.733	Oct 2019	-		3.733	Continuing	Continuing	Continuing
Program Protection - Program Protection Analysis & Support	C/CPFF	TEAMS : AL, AK, CA, CO, VA	19.534	4.006	Nov 2017	4.648	Nov 2018	4.821	Nov 2019	-		4.821	Continuing	Continuing	Continuing
Program Protection - Program Protection Support	Various	Various : AL, VA, CO	2.717	0.595	Nov 2017	0.532	Nov 2018	0.793	Nov 2019	-		0.793	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	19.225	38.450	0.000
Threat Systems Engineering - Threat Systems Engineering	Allot	MDA : VA, AL, CO	13.991	5.037	Oct 2017	4.522	Oct 2018	3.731	Oct 2019	-		3.731	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - CSS	C/CPFF	TEAMS : VA, AL	6.237	3.290	Nov 2017	3.343	Nov 2018	4.672	Nov 2019	-		4.672	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat	FFRDC	MIT/LL : MA	1.869	1.174	Nov 2017	1.196	Nov 2018	1.219	Nov 2019	-		1.219	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs						Project (Number/Name) MD28 / Intelligence & Security			
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering - FFRDC															
Threat Systems Engineering - Threat Systems Engineering - UARC	FFRDC	JHU/APL : MD	2.233	1.432	Nov 2017	1.594	Nov 2018	1.626	Nov 2019	-		1.626	Continuing	Continuing	Continuing
Subtotal			191.735	41.448		44.078		43.851		-		43.851	Continuing	Continuing	N/A
Remarks NASIC - National Air and Space Intelligence Center															
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A
Remarks N/A															
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A
Remarks N/A															
Project Cost Totals			191.735	41.448		44.078		43.851		-		43.851	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency							Date: March 2019		
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs		Project (Number/Name) MD28 / Intelligence & Security			
	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
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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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency																	Date: March 2019									
Appropriation/Budget Activity 0400 / 4									R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs									Project (Number/Name) MD28 / Intelligence & Security								
Significant Event Complete ▲ Significant Event Planned △			Milestone Decision Complete ★ Milestone Decision Planned ☆			Element Test Complete ◆ Element Test Planned ◇			System Level Test Complete ● System Level Test Planned ○						Complete Activity ◆ Planned Activity ◇											
									FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024					
MD28 Intelligence & Security									◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇			
Adversary Data Package (ADP) - 2018												▲														
Annual MDA OPSEC Report to USD(I) - 2018												▲														
Annual Declassification Review - 2018												▲														
ADP - 2019														△												
Annual MDA OPSEC Report to USD(I) - 2019														△												
Annual Declassification Review - 2019														△												
Adversary Data Package (ADP) - 2020																△										
Annual 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 MDA OPSEC Report to USD(I) - 2021																		△								
Annual Declassification Review - 2021																		△								
Annual Report to Congress for SAPs (FY 2022)																				△						
ADP - 2022																			△							
Annual MDA OPSEC Report to USD(I) - 2022																			△							
Annual Declassification Review - 2022																			△							
Annual Report to Congress for SAPs (FY 2023)																					△					
ADP - 2023																					△					
Annual MDA OPSEC Report to USD(I) - 2023																					△					
Annual Declassification Review - 2023																					△					
ADP - 2024																						△				

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency															Date: March 2019														
Appropriation/Budget Activity 0400 / 4										R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs										Project (Number/Name) MD28 / Intelligence & Security									
Significant Event Complete ▲					Milestone Decision Complete ★					Element Test Complete ◆					System Level Test Complete ●					Complete Activity ◆									
Significant Event Planned △					Milestone Decision Planned ☆					Element Test Planned ◇					System Level Test Planned ○					Planned Activity ◇									
										FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024							
Annual MDA OPSEC Report to USD(I) - 2024																					△								
Annual Declassification Review - 2024																					△								
Annual Report to Congress for SAPs (FY 2024)																							△						

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD28 / Intelligence & Security	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD28 Intelligence & Security	1	2018	4	2024
Adversary Data Package (ADP) - 2018	4	2018	4	2018
Annual MDA OPSEC Report to USD(I) - 2018	4	2018	4	2018
Annual Declassification Review - 2018	4	2018	4	2018
ADP - 2019	4	2019	4	2019
Annual MDA OPSEC Report to USD(I) - 2019	4	2019	4	2019
Annual Declassification Review - 2019	4	2019	4	2019
Adversary Data Package (ADP) - 2020	4	2020	4	2020
Annual 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 MDA OPSEC Report to USD(I) - 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
Annual MDA OPSEC Report to USD(I) - 2022	4	2022	4	2022
Annual Declassification Review - 2022	4	2022	4	2022
Annual Report to Congress for SAPs (FY 2023)	4	2023	4	2023
ADP - 2023	4	2023	4	2023
Annual MDA OPSEC Report to USD(I) - 2023	4	2023	4	2023
Annual Declassification Review - 2023	4	2023	4	2023

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency			Date: March 2019	
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs		Project (Number/Name) MD28 / Intelligence & Security
		Start		End
Events		Quarter	Year	Quarter Year
ADP - 2024		1	2024	1 2024
Annual MDA OPSEC Report to USD(I) - 2024		1	2024	1 2024
Annual Declassification Review - 2024		1	2024	1 2024
Annual Report to Congress for SAPs (FY 2024)		4	2024	4 2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD30 / BMD Information Management Systems			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD30: BMD Information Management Systems	409.688	82.507	79.979	84.525	-	84.525	87.524	90.302	92.513	94.357	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

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

MDA information management systems capabilities support rigorous missile defense Research, Development, Test and Engineering (RDT&E) and facilitate the development of technologies to guard against evolving missile threat. Communications are vital for missile defense to continue a viable homeland defense against rogue threats and to provide the integration required to defend deployed forces, allies, and friends against theater threats. The BMD information management consists of MDA Special Purpose Processing Nodes (SPPNs), IT systems, data centers, operations and monitoring centers which are vital to support the strategic mission of the Agency and necessary to meet disaster recovery and continuity of operations requirements. This infrastructure is required to sustain access to the Secret Internet Protocol Router Network (SIPRNET), Non secure Internet Protocol Router Network (NIPRNET), MDA classified and unclassified networks, classified and unclassified video teleconferencing services, test and business knowledge data centers, 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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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD30 / BMD Information Management Systems		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
<p>Title: End User Support</p> <p>Articles:</p> <p>Description: Provides IT operations, support and maintenance (18 hours a day, six days a week) to over 10,500 MDA worldwide users (classified and unclassified) executing the Research, Development, Test and Engineering (RDT&E) mission. Services include Integrated Service Desk support (Help Desk and Client Support Services); management of hardware and software maintenance and licensing; and monitoring network activity to ensure users comply with DoD policies for the proper use of information systems. Services also include printing and copying; email and file; directory and authentication services. Includes investments in equipment at end-of-life to comply with Federal and DoD mandated cybersecurity policies. Provides life-cycle management of over 190,000 IT assets including IT procurement, receiving, shipping/transportation, warehousing, transfers and disposal using the Defense Property Accountability System (DPAS).</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans: - SEE ABOVE.</p> <p>FY 2020 Plans: - SEE ABOVE.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: N/A</p>		19.694 -	20.791 -	21.076 -
<p>Title: Special Purpose Processing Nodes (SPPNs) (formerly Network and Infrastructure Services)</p> <p>Articles:</p> <p>Description: Provides for the developmental engineering and operational strategies and concepts; and planning, design, implementation and maintenance for MDA Research, Development, Test and Evaluation (RDT&E) Special Purpose Processing Nodes (SPPNs) in Huntsville, AL and Colorado Springs, CO. The SPPN infrastructure consists of routers, switches, firewalls, compute, storage and intrusion detection systems that provide IT support to over 10,500 MDA classified/unclassified users worldwide. The SPPNs support dynamic and rapid modifications and reconfigurations of network infrastructure in support of RDT&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/COOP) rehearsals; Internet access management; and web filtering. Sustains core communications distribution services across the MDA Enterprise. Includes investments in equipment at end-of-life to comply with Federal and DoD mandated cybersecurity policies. Plan, engineer and implement sustainment projects for general IT services and business systems consistent with the IT architecture roadmap.</p>		17.309 -	10.964 -	11.632 -

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD30 / BMD Information Management Systems		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
Specific and/or unique accomplishments to each FY are as follows: FY 2019 Plans: - SEE ABOVE. FY 2020 Plans: - SEE ABOVE. FY 2019 to FY 2020 Increase/Decrease Statement: N/A				
Title: Information Technology (IT) Planning and Solutions Articles: Description: Provides IT engineering support for new requirements analysis, design, planning and implementation of IT solutions for real-world issues. Addresses the increasing demand for more complex IT products and highly specialized IT services. Manages the prioritization and integration of investments in the MDA IT Portfolio to ensure compliance with Federal and DoD polices. Supports the MDA Chief Information Officer Enterprise Architecture Board, Project Steering Committee and the Change Control Board. Ensures compliance with Federal Laws, DoD policies, directives and regulations including: Clinger-Cohen Act, the Federal Information Security Management Act (FISMA), and Office of Management and the Office of Management and Budget (OMB) IT budget reporting policies. Specific and/or unique accomplishments to each FY are as follows: FY 2019 Plans: - SEE ABOVE. FY 2020 Plans: - SEE ABOVE. FY 2019 to FY 2020 Increase/Decrease Statement: N/A		14.998 -	14.431 -	12.893 -
Title: Unified Communications Articles: Description: Provides for the management, operations and sustainment of classified and unclassified globally deployed video teleconferencing capabilities and equipment. Also includes unclassified desktop instant messaging, wireless services, and collaboration capabilities. Provides and implements engineering solutions for all unified communications services. Supports		14.998 -	16.973 -	18.667 -

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD30 / BMD Information Management Systems		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
<p>MDA global RDT&E mission for classified and unclassified voice and data circuits (wide area, local area and metropolitan area networks) and interfaces with the Defense Information System Network (DISN) Video Services Global (DVSG), the Defense Research and Engineering Network (DREN), Joint Service Provider (JSP) and commercial vendors. Maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment (classified and unclassified mobile and desktop telephony devices).</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans: - SEE ABOVE.</p> <p>FY 2020 Plans: - SEE ABOVE.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The increase from FY 2019 to FY 2020 provides additional support and sustainment requirements for asset management, test operations tempo and bandwidth expansion due to the increased global mission.</p>				
<p>Title: Business Automation Services</p> <p align="right">Articles:</p> <p>Description: Provides for the management, operation and maintenance of enterprise business applications for the MDA community to access and share various sources of available data, information and knowledge and enable improved organization, retrieval, manipulation, and storage. Operate and maintain nine Defense Business Systems that meet the reporting requirements of Title 10 United States Code section 2222; these include portal-based Electronic Learning Management System (E-LMS), Program Resource Internet Database Environment (PRIDE), Information Management Program Activity control Tool (IMPACT), Standard Procurement System (SPS), Human Resource Tracking System/Personnel Tracking System (HRTS/PTS), TEAMMATE, E-TASKER, Comprehensive Cost and Requirements (CCaR), Electronic Content and Records Tool (ECART).</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans: - SEE ABOVE.</p> <p>FY 2020 Plans:</p>		8.087 -	9.255 -	10.515 -

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency									Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD30 / BMD Information Management Systems		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2018	FY 2019	FY 2020
- SEE ABOVE.											
FY 2019 to FY 2020 Increase/Decrease Statement: N/A											
Title: Portal and Data Services									7.421	7.565	9.742
Articles:									-	-	-
Description: Provides for the management, operation and maintenance support for the classified and unclassified MDA Portal application and the IT portal infrastructure. The support includes web-based developmental engineering and operations, planning, design, application implementation, content management and training. Also provides MDA Privacy Office and Civil Liberties compliance and reporting, and manages data storage capacity to accommodate MDA users.											
Specific and/or unique accomplishments to each FY are as follows:											
FY 2019 Plans: - SEE ABOVE.											
FY 2020 Plans: -SEE ABOVE.											
FY 2019 to FY 2020 Increase/Decrease Statement: Increase from FY 2019 to FY2020 reflects a realignment of \$1.034M from Information Technology (IT) Planning & Solutions for Civilian Labor and an increase of \$1.143M for the Research and Development Enterprise Collaboration Services (RECS) contract for additional license cost and portal content.											
Accomplishments/Planned Programs Subtotals									82.507	79.979	84.525
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 0603176C: Advanced Concepts and Performance Assessment	17.683	13.017	14.208	-	14.208	14.904	15.142	16.262	16.574	Continuing	Continuing
• 0603178C: Weapons Technology	28.894	13.400	10.000	-	10.000	10.000	10.000	0.000	0.000	Continuing	Continuing
• 0603180C: Advanced Research	23.765	42.565	20.674	-	20.674	21.154	21.521	22.041	22.465	Continuing	Continuing
• 0603294C: Common Kill Vehicle Technology	55.562	56.753	13.600	-	13.600	13.475	16.187	18.232	22.949	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD30 / BMD Information Management Systems				
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• 0603881C: Ballistic Missile Defense Terminal Defense Segment	454.147	388.273	302.761	-	302.761	234.679	227.921	179.248	197.459	Continuing	Continuing	
• 0603882C: Ballistic Missile Defense Midcourse Defense Segment	1,153.263	803.359	1,156.506	-	1,156.506	829.451	766.237	834.533	776.671	Continuing	Continuing	
• 0603884C: Ballistic Missile Defense Sensors	290.289	385.375	283.487	-	283.487	296.098	263.681	276.092	351.607	Continuing	Continuing	
• 0603892C: AEGIS BMD	798.395	741.076	727.479	-	727.479	718.949	703.473	505.529	527.720	Continuing	Continuing	
• 0603896C: Ballistic Missile Defense Command and Control, Battle Management & Communication	449.985	507.817	564.206	-	564.206	534.988	502.581	525.742	535.636	Continuing	Continuing	
• 0603898C: Ballistic Missile Defense Joint Warfighter Support	48.574	48.767	51.532	-	51.532	51.411	53.932	53.600	54.646	Continuing	Continuing	
• 0603904C: Missile Defense Integration and Operations Center (MDIOC)	51.905	58.125	56.161	-	56.161	57.446	58.574	61.144	62.339	Continuing	Continuing	
• 0603907C: Sea Based X-Band Radar (SBX)	173.988	136.715	128.156	-	128.156	119.452	132.826	127.504	139.909	Continuing	Continuing	
• 0603913C: Israeli Cooperative Programs	373.800	300.000	300.000	-	300.000	300.000	300.000	300.000	300.000	Continuing	Continuing	
• 0603914C: Ballistic Missile Defense Test	406.806	515.897	395.924	-	395.924	417.946	335.481	451.723	405.136	Continuing	Continuing	
• 0603915C: Ballistic Missile Defense Targets	512.838	561.352	554.171	-	554.171	513.964	439.826	358.018	276.108	Continuing	Continuing	
• 0604880C: Land Based SM-3 (LBSM3)	29.652	27.692	38.352	-	38.352	36.348	28.029	22.733	30.463	Continuing	Continuing	
• 0604881C: AEGIS SM-3 Block IIA Co-Development	9.531	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.531	
• 0901598C: Management HQ - MDA	29.947	28.626	27.065	-	27.065	27.446	28.164	28.698	29.271	Continuing	Continuing	

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency							Date: March 2019		
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603890C / <i>BMD Enabling Programs</i>			Project (Number/Name) MD30 / <i>BMD Information Management Systems</i>		

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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 Requisitions (MIPRs) for leased communications including DISA, DREN and the US Army.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD30 / BMD Information Management Systems					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A
Remarks N/A															
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
End User Support - Consolidated Support Logistics/Asset Mgmt	C/CPFF	Venturi : AL, CO	0.000	0.000		0.514	Nov 2018	0.383	Nov 2019	-		0.383	Continuing	Continuing	Continuing
End User Support - End User Civilian Pay/Travel/PCS	Allot	MDA Civilian Pay/ TDY/PCS : AL, CO, NM, VA	14.833	3.213	Oct 2017	3.117	Oct 2018	1.881	Oct 2019	-		1.881	Continuing	Continuing	Continuing
End User Support - End User Civilian Travel	Allot	MDA Civilian Travel : AL, AK, CA, CO, HI, NM, VA	1.093	0.232	Oct 2017	0.000		0.000		-		0.000	0.000	1.325	0.000
End User Support - End User IT Hardware/ Software Support	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	30.242	7.071	Feb 2018	6.130	Nov 2018	6.630	Nov 2019	-		6.630	Continuing	Continuing	Continuing
End User Support - End User IT Licenses	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	11.837	1.744	Feb 2018	5.262	Nov 2018	5.710	Nov 2019	-		5.710	Continuing	Continuing	Continuing
End User Support - End User Operational Support	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	43.495	7.434	Feb 2018	5.768	Oct 2018	6.472	Oct 2019	-		6.472	Continuing	Continuing	Continuing
Special Purpose Processing Nodes (SPPNs) (formerly Network and Infrastructure	Allot	MDA Civilian Pay : AL, CO, VA	5.975	1.280	Oct 2017	1.326	Oct 2018	0.506	Oct 2019	-		0.506	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs						Project (Number/Name) MD30 / BMD Information Management Systems			
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Services) - SPPN Civilian Pay/Travel/PCS															
Special Purpose Processing Nodes (SPPNs) (formerly Network and Infrastructure Services) - SPPN Licenses	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, CO, VA	64.800	9.037	Feb 2018	6.525	Nov 2018	9.000	Nov 2019	-		9.000	Continuing	Continuing	Continuing
Special Purpose Processing Nodes (SPPNs) (formerly Network and Infrastructure Services) - SPPN Operational Support	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, CO, VA	63.418	6.992	Feb 2018	3.113	Nov 2018	2.126	Nov 2019	-		2.126	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - Consolidated Support, IT Planning and Solutions	C/CPFF	Five Stones, Yorktown, Peopletec : AL, CO, VA	15.056	5.755	Mar 2018	5.423	Nov 2018	7.707	Aug 2020	-		7.707	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Civilian Pay/Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	5.417	0.960	Oct 2017	1.823	Oct 2018	1.783	Oct 2019	-		1.783	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions OMB, OSD, and DOD Compliance Monitoring and Reporting/Contract Deliverable	C/CPFF	Colsa : AL, CO, VA	0.834	0.128	Mar 2018	0.000		0.000		-		0.000	0.000	0.962	0.000
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Operational Support	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, CO, VA	30.628	8.155	Feb 2018	7.185	Oct 2018	0.503	Oct 2019	-		0.503	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions	Allot	MDA Business Operations : AL, CO, VA	1.904	0.000		0.000		0.000		-		0.000	0.000	1.904	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD30 / BMD Information Management Systems					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
- MDA Agency Business Operations															
Information Technology (IT) Planning and Solutions - SWDC PNT	C/CPFF	Northrup Grumman : AL, CO, VA	0.000	0.000		0.000		2.900	Oct 2019	-		2.900	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Civilian Pay/Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	5.301	1.120	Oct 2017	0.994	Oct 2018	2.023	Oct 2019	-		2.023	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Leased Communications/ Licenses	MIPR	DISA/DREN/IT2S : AL, AK, CA, CO, HI, NM, VA	18.668	2.813	Oct 2017	3.102	Oct 2018	3.334	Oct 2019	-		3.334	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Operational Support	C/CPAF	IRES : AL, CO, VA	8.882	2.088	Feb 2018	4.062	Oct 2018	2.037	Oct 2019	-		2.037	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Wireless Services	C/FFP	AT&T : AL, CO, VA	3.592	2.011	Nov 2017	1.998	Nov 2018	1.983	Nov 2019	-		1.983	Continuing	Continuing	Continuing
Unified Communications - VTC HW Licenses	C/CPIF	IRES : AL, CO, VA	1.800	0.000		1.736	Nov 2018	1.850	Nov 2019	-		1.850	Continuing	Continuing	Continuing
Unified Communications - VTC HW/Break-Fix	C/CPIF	RECS : AL, CO, VA	1.209	0.000		1.267	Nov 2018	1.976	Nov 2019	-		1.976	Continuing	Continuing	Continuing
Unified Communications - VTC Operations Support	C/CPIF	RECS : AL, AK, CO, NM, VA	27.447	6.966	Nov 2017	3.814	Nov 2018	5.464	Nov 2019	-		5.464	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Civilian Pay/ Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	3.033	0.480	Oct 2017	0.331	Oct 2018	0.506	Oct 2019	-		0.506	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Licenses	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, CO, VA	4.496	0.953	Feb 2018	0.972	Nov 2018	0.991	Nov 2019	-		0.991	Continuing	Continuing	Continuing
Business Automation Services - Business	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, CO, VA	15.025	6.632	Feb 2018	7.930	Nov 2018	9.018	Nov 2019	-		9.018	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD30 / BMD Information Management Systems					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Automation Operational Support															
Business Automation Services - Business Automation Services Support	MIPR	CACI : AL, CO, VA	0.080	0.022	Oct 2017	0.022	Mar 2019	0.000		-		0.000	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Civilian Pay/Travel/PCS	Allot	MDS Civilian Pay : AL, CO, VA	4.428	0.800	Oct 2017	0.829	Oct 2018	1.686	Oct 2019	-		1.686	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Licenses and Maintenance	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, CO, VA	8.589	1.627	Feb 2018	1.661	Nov 2018	1.800	Nov 2019	-		1.800	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Operational	C/CPAF	Online Subscriptions Services : AL, CO, VA	1.849	0.408	Oct 2017	0.417	Oct 2018	0.455	Oct 2019	-		0.455	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Operational Support	C/FFP	NMR / TBD : AL, CO, VA	15.757	4.586	Nov 2017	4.658	Nov 2018	5.801	Nov 2019	-		5.801	Continuing	Continuing	Continuing
Subtotal			409.688	82.507		79.979		84.525		-		84.525	Continuing	Continuing	N/A
Remarks N/A															
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A
Remarks N/A															

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019		
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD30 / BMD Information Management Systems				

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

Remarks N/A																	
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	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	409.688	82.507		79.979		84.525		-		84.525	Continuing	Continuing	N/A

Remarks Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.																	
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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency															Date: March 2019														
Appropriation/Budget Activity 0400 / 4										R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs										Project (Number/Name) MD30 / BMD Information Management Systems									
Significant Event Complete ▲ Significant Event Planned △					Milestone Decision Complete ★ Milestone Decision Planned ☆					Element Test Complete ◆ Element Test Planned ◇					System Level Test Complete ● System Level Test Planned ○					Complete Activity ◆ Planned Activity ◇									
										FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024							
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications Follow-On										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					
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										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD30 / BMD Information Management Systems	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications Follow-On	1	2018	4	2024
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - Follow-On	1	2018	4	2024
Operate and Maintain General Information Technology Services 18 hours per day, 6 days per week - Follow-On	1	2018	4	2024
Revise and Test Contingency Plans for Information Technology Systems - Follow-On	1	2018	4	2024
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - Follow-On	1	2018	4	2024
Procure, Implement, and Asset Control for Information Technology Operational Systems -Follow-On	1	2018	4	2024
Provide 18 hours per day, 6 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - Follow-On	1	2018	4	2024
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - Follow-On	1	2018	4	2024
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - Follow-On	1	2018	4	2024
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - Follow-On	1	2018	4	2024
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - Follow-On	1	2018	4	2024
Sustain the Information Technology Infrastructure Across the MDA Enterprise - Follow-On	1	2018	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MC30 / Cyber Operations			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MC30: Cyber Operations	102.286	62.622	98.912	66.212	-	66.212	65.381	68.046	68.891	69.889	Continuing	Continuing
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.

Decrease from FY 2019 to FY 2020 reflects the FY 2019 congressional plus up for Cybersecurity Enhancements.

A. Mission Description and Budget Item Justification

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

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

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

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

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency			Date: March 2019	
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MC30 / Cyber Operations		
<p>This project funds the MDA Security Operations Center (SOC), responsible for monitoring, managing, patching, and maintaining MDA network and core IT services; issuing and tracking Technical Compliance Orders; and coordinating overarching Enterprise NetOps. The SOC provides the network security operations centers and supporting processes to protect and defend BMDS and the MDA Enterprise information and information systems.</p> <p>The MDA Computer Emergency Response Team (CERT) monitors the classified and unclassified information technology MDA administrative IT networks and reports vulnerabilities. The MDA CERT coordinates with U.S. Cyber Command to identify and implement network vulnerability updates and patches to comply with U.S. Cyber Command vulnerabilities identified for DoD networks.</p> <p>The project funds Cybersecurity governance management and administrative management support, annual Agency-wide computer-based IA training and metrics reporting, implementation of Public Key Infrastructure and Enabling and COMSEC related activities.</p> <p>New Accomplishment beginning in FY 2019: Outside Federal Service Outreach - Defense Industrial Base - Participate and liaison with the Defense Security Service (DSS), MDA organizations and industry partners to conduct site visits and inspections to improve network monitoring capabilities at classified contractor sites to ensure protection of MDA BMDS data. -Assist with the analysis of network scans of industry partner networks and mitigation of risks to BMDS data.</p>				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
Title: Information Assurance/Computer Network Defense (IA/CND)		0.000	0.000	0.000
Articles:		-	-	-
Description: Provides for the certification of Information Technology networks and systems, monitoring and computer emergency response services.				
Specific and/or unique accomplishments to each FY are as follows:				
FY 2019 Plans: N/A				
FY 2020 Plans: N/A				
FY 2019 to FY 2020 Increase/Decrease Statement: N/A				
Title: Detect, Analyze and Mitigate Intrusions		41.692	71.857	35.227
Articles:		-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019	
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / <i>BMD Enabling Programs</i>	Project (Number/Name) MC30 / <i>Cyber Operations</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019
<p>Description: Provide cybersecurity activities including: Federal Incident Response Centers; National Institute of Standards for Technology (NIST) SP 800.53 Implementation; Cyber Threat Analysis; Cyber Continuity of Operations (COOP); Incident Response and Remediation; Forensics and Damage Assessment; and Computer Emergency Response Teams. Specific and/or unique accomplishments to each FY are as follows:</p> <p>Recurring Activities for the Detect, Analyze and Mitigate Intrusions Accomplishment:</p> <ul style="list-style-type: none"> -Test RMF controls on all IT supporting research, development, test and evaluation and DoD-controlled IT operated by a contractor or other entity on behalf of DoD and reported. -Conduct RMF analysis and reporting for the BMDS such as evaluation of residual risk by incorporating current and proposed BMDS monitoring and mitigations. -Maintain MDA Computer Emergency Response Team (MDA CERT) as a fully accredited Tier II Computer Network Defense Service provider (CNDSP) in accordance with CJCSI 6510.01F and DoD O-8530.1. -Perform CNDSP services (protect, detect, respond and sustain) for all MDA Admin/General Services, MDA Mission and test networks and enclaves 24 hours per day, seven 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 information assurance 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 BMDS Mission System to support a full Authorization to Operation (ATO). -Compile and validate BMDS Mission Element-level certification and accreditation documents to include BMDS Element-level SIPs, DIPs, C&A Scorecards, POA&M artifacts (CVT -Ensure MDA mission, test, and administrative systems are operated securely in accordance with DoD Information Assurance Certification and Accreditation policies. -Prepare and maintain current certification and accreditation documentation for general service networks reported to DoD and Office of Management and Budget. <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none"> - FY19 congressional plus up provides for cybersecurity enhancements in support of all the above recurring activities. <p>FY 2020 Plans:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MC30 / Cyber Operations		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
-SEE ABOVE.				
FY 2019 to FY 2020 Increase/Decrease Statement: Decrease from FY 2019 to FY 2020 reflects the FY 2019 congressional plus up for Cybersecurity Enhancements.				
Title: Preventing Malicious Cybersecurity Activity		9.685	18.738	20.080
Articles:		-	-	-
Description: Provide: Federal Information Security Management Activity Act (FISMA)-related activities; Intrusion Prevention Systems; Trusted Internet Connections; Identity Management and Authentication; Supply Chain Management; Network & Data Protection and Insider Threat Mitigation Activities. This effort includes integration and test capabilities for element interface verification and provide operations and sustainment of the deployed PNT Last Mile integration capabilities at BMDS locations. Recurring Activities to Preventing Malicious Cyber Attacks: -Maintain a current Information Assurance risk and residual risk assessment of the BMDS. -Coordinate all IT projects and remote sites to ensure Cybersecurity compliance. -Implement methodologies and goals to identify insecure and unauthorized vectors of access to networks or applications, analyze the threat, attempt to exploit the vectors and confirm existence and analyze the risk for exploiting an application, network or service. -Track ports, protocols, and services. -Coordinate with private partnerships to ensure the Defense Industrial Base protects MDA data.				
FY 2019 Plans: -SEE ABOVE.				
FY 2020 Plans: - SEE ABOVE.				
FY 2019 to FY 2020 Increase/Decrease Statement: N/A				
Title: Continuous Monitoring		7.032	5.134	7.495
Articles:		-	-	-
Description: Provide IT Security Tools and Other Continuous Monitoring. Recurring Activities for the Continuous Monitoring Accomplishment: -Manage data-at-rest encryption to ensure compliance with Global Information Grid mandated policies. -Procure/renew cybersecurity software maintenance agreements for IT Security Tools. -Procure/renew cybersecurity hardware maintenance for hardware.				

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MC30 / Cyber Operations		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
Specific and/or unique accomplishments to each FY are as follows:				
FY 2019 Plans: - SEE ABOVE.				
FY 2020 Plans: - SEE ABOVE.				
FY 2019 to FY 2020 Increase/Decrease Statement: Increase from FY 2019 to FY 2020 provides ArcSight licenses (bi-annual license cost).				
Title: Planning, Policy Development, Workforce Training & Force Management		4.213	3.017	3.243
Articles:		-	-	-
Description: Provide National Initiative for Cybersecurity Education (NICE); Workforce Development; Security Training for Employees with Significant Security Responsibilities; and Cybersecurity Strategic Planning, Policy, Oversight and Management. Specific and/or unique accomplishments to each FY are as follows:				
Recurring Activities for the Planning, Policy Development, Workforce Training and Force Management Accomplishment: -Document and maintain Standard Operating Instructions/Procedures for consistent interface with the MDA BMDS Network Operations Support Center (BNOSC) and the BMDS elements. -Publish MDA policies to incorporate new requirements stated in DoDI 8510.01 Risk Management Framework (RMF) to comply with 237 new controls and 817 control enhancements into controls validation testing of BMDS elements and networks. -Manage the Information Assurance Workforce Improvement Program to certify Cybersecurity professionals and report compliance in accordance with Federal Information Security Management Act (FISMA) and Information Assurance Workforce Improvement Program (DoD Manual 8570.1), achieving the DoD certification goal; reports IA Risk Assessments, Primary RMF artifacts. -Interface with Central Command (CENTCOM) to provide BMDS Mission RMF package. -Conduct an annual IA Security review of the BMDS in accordance with DoDI 8510.01 and provide an analysis of changes in IA posture. -Collect, analyze, and report vulnerability and cyber warfare attack metrics to the MDA CIO, MDA leadership, and U.S. Cyber Command. -Provide Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs.				
Specific and/or unique accomplishments to each FY are as follows:				

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019	
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MC30 / Cyber Operations	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019
FY 2019 Plans: - SEE ABOVE. FY 2020 Plans: - SEE ABOVE. FY 2019 to FY 2020 Increase/Decrease Statement: N/A			
Title: Outside Federal Outreach - Defense Industrial Base Description: Review current Cybersecurity Policies and coordinating with MDA BMDS Programs to ensure all applicable Cybersecurity clauses are included into MDA contracts with MDA Industry partners in the Defense Industrial Base (DIB) to ensure protection of Ballistic Missile Defense System (BMDS) Controlled Unclassified Information (CUI). Specific and/or unique accomplishments to each FY are as follows: FY 2019 Plans: - SEE ABOVE. FY 2020 Plans: - SEE ABOVE. FY 2019 to FY 2020 Increase/Decrease Statement: N/A		0.000 -	0.166 -
		0.167	-
Accomplishments/Planned Programs Subtotals		62.622	98.912
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.			
E. Performance Metrics			
N/A			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs						Project (Number/Name) MC30 / Cyber Operations			
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A
Remarks N/A															
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Information Assurance/Computer Network Defense (IA/CND) - BMDS IA Advisory and Assistance Services	C/CPFF	Booz Allen Hamilton : AL, CO, VA	5.396	0.000		0.000		0.000		-		0.000	0.000	5.396	0.000
Information Assurance/Computer Network Defense (IA/CND) - CND/IA Advisory and Assistance Services	C/CPFF	Torch Technologies : AL, CO, VA	10.755	0.000		0.000		0.000		-		0.000	0.000	10.755	0.000
Information Assurance/Computer Network Defense (IA/CND) - CND/IA Civilian Travel	Allot	MDA Civilian Travel : AL, AK, CA, CO, HI, NM, VA	0.631	0.000		0.000		0.000		-		0.000	0.000	0.631	0.000
Information Assurance/Computer Network Defense (IA/CND) - CND/IA Civilian pay/Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	9.609	0.000		0.000		0.000		-		0.000	0.000	9.609	0.000
Information Assurance/Computer Network Defense (IA/CND) - CND/IA Licenses	C/CPAF	Northrop Grumman : AL, CO, VA	11.879	0.000		0.000		0.000		-		0.000	0.000	11.879	0.000
Information Assurance/Computer Network Defense (IA/CND) - CND/IA Operational Support	C/FFP	Northrop Grumman : AL, CO, VA	43.672	0.000		0.000		0.000		-		0.000	0.000	43.672	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs						Project (Number/Name) MC30 / Cyber Operations			
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Information Assurance/ Computer Network Defense (IA/CND) - CND/ IA, CCRI, Comsec	MIPR	NSA/DISA : AL, CO, VA	0.741	0.000		0.000		0.000		-		0.000	0.000	0.741	0.000
Information Assurance/ Computer Network Defense (IA/CND) - Cyber Compliance Projects	C/CPAF	Northop Grumman : AL, CO, VA	19.603	0.000		0.000		0.000		-		0.000	0.000	19.603	0.000
Detect, Analyze and Mitigate Intrusions - A&AS Cyber IT Mgmt	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.164	Mar 2018	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - A&AS, BMDS CSM/CND	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	1.140	Mar 2018	1.452	Mar 2019	1.390	Aug 2020	-		1.390	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - A&AS, Cyber Risk Mgmt	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	2.856	Mar 2018	3.916	Mar 2019	3.904	Mar 2020	-		3.904	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Civilian Pay	Allot	Civilian Pay : AL, CO, NM,, VA	0.000	3.255	Oct 2017	2.320	Oct 2018	2.823	Oct 2019	-		2.823	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Cyber CSS	C/CPAF	IRES : AL, CO, VA	0.000	34.277	Feb 2018	64.169	Jan 2019	27.110	Jan 2020	-		27.110	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - PNT, CSS	C/CPAF	JRDC / IRES : AL, CO, VA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Preventing Malicious Cybersecurity Activity - A&AS IT Mgmt	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Preventing Malicious Cybersecurity Activity - CND/IA, CCRI, Comsec	MIPR	NSA/TBD : AL, CO, VA	0.000	0.000		0.000		0.200	Mar 2020	-		0.200	Continuing	Continuing	Continuing
Preventing Malicious Cybersecurity Activity - Civpay	Allot	Civilian Pay : AL, CO, VA, NM	0.000	1.704	Oct 2017	1.740	Mar 2019	1.408	Oct 2019	-		1.408	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MC30 / Cyber Operations					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Preventing Malicious Cybersecurity Activity - Consolidated Support CSM	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.570	Apr 2018	0.904	Mar 2019	0.701	Mar 2020	-		0.701	Continuing	Continuing	Continuing
Preventing Malicious Cybersecurity Activity - Cyber CSS	C/CPAF	JRDC / IRES : AL, COL, VA	0.000	7.411	Feb 2018	16.094	Jan 2019	17.771	Jan 2020	-		17.771	Continuing	Continuing	Continuing
Continuous Monitoring - Continuous Monitoring - IT Security Tools	C/CPAF	IRES : AL, CO, VA	0.000	7.032	Jan 2018	5.134	Jan 2019	7.495	Jan 2020	-		7.495	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training & Force Management - A&AS Cyber BMDS CSM/CND	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	2.672	Mar 2018	1.779	Mar 2019	1.815	Aug 2020	-		1.815	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training & Force Management - A&AS Cyber CRM	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.329	Mar 2018	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training & Force Management - Civilian PayTravel/PCS	Allot	Civilian Pay : AL, CO, NM, VA	0.000	1.212	Oct 2017	1.238	Oct 2018	1.428	Oct 2019	-		1.428	Continuing	Continuing	Continuing
Outside Federal Outreach - Defense Industrial Base - Civpay	Allot	MDA Civilian Pay : AL, CO, NM, VA	0.000	0.000		0.166	Oct 2018	0.167	Oct 2019	-		0.167	Continuing	Continuing	Continuing
Subtotal			102.286	62.622		98.912		66.212		-		66.212	Continuing	Continuing	N/A
Remarks N/A															

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency											Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MC30 / Cyber Operations				
	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	102.286	62.622		98.912		66.212		-		66.212	Continuing	Continuing	N/A

Remarks

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

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency															Date: March 2019									
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs										Project (Number/Name) MC30 / Cyber Operations									
Significant Event Complete ▲ Significant Event Planned △					Milestone Decision Complete ★ Milestone Decision Planned ☆					Element Test Complete ◆ Element Test Planned ◇					System Level Test Complete ● System Level Test Planned ○					Complete Activity ◆ Planned Activity ◇				
PNT Operations and Maint																								
PNT Test Capabilities																								
PNT BMDS Last Mile Capability Operations & Sustainment																								
PNT Last Mile Integration 3 Additional BMDS Sites																								
PNT Last Mile Integration 3 BMDS Sites																								
PNT interface testing equipment																								
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - Follow-On																								
Monitor Networks and Systems to Defend Mission, Test, and Administrative Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - Follow-On																								
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - Follow-On																								
Procure, Implement, and Asset Control of Hardware maintenance and Software Licenses for Monitoring Systems of Information Assurance - Follow-On																								
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - Follow-On																								
Complete Annual Information Assurance user Training for MDA Workforce - Follow-On																								
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - Follow-On																								

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MC30 / Cyber Operations	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
PNT Operations and Maint	1	2019	4	2023
PNT Test Capabilities	2	2019	4	2019
PNT BMDS Last Mile Capability Operations & Sustainment	4	2018	4	2018
PNT Last Mile Integration 3 Additional BMDS Sites	4	2018	4	2018
PNT Last Mile Integration 3 BMDS Sites	3	2018	4	2018
PNT interface testing equipment	2	2018	4	2018
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - Follow-On	1	2018	4	2024
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	2018	4	2024
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - Follow-On	1	2018	4	2024
Procure, Implement, and Asset Control of Hardware maintenance and Software Licenses for Monitoring Systems of Information Assurance - Follow-On	1	2018	4	2024
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - Follow-On	1	2018	4	2024
Complete Annual Information Assurance user Training for MDA Workforce - Follow-On	1	2018	4	2024
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - Follow-On	1	2018	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD31 / Modeling & Simulation			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD31: Modeling & Simulation	211.917	55.185	83.186	88.487	-	88.487	115.556	71.841	80.727	73.117	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

MDA's Modeling and Simulation (M&S) program is essential to ensuring missile defense capabilities are affordable and effective. M&S develops system-level models, frameworks, truth, simulations, and operational environments as missile defense technologies continually advance and the threat changes, and evaluates performance of the Elements, Components, and overall BMD System for verification, validation and accreditation purposes. MDA's M&S program provides a cost effective means to assess and examine the performance space of the BMDS 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 in support of MDA's BMDS acquisition, 2) to improve BMDS Flight and Ground Test execution, 3) to leverage MDA test activities to collect data to anchor M&S, and 4) to perform warfighter training and tactics validation. The strategy also incorporates key elements to address DOT&E's BMDS Assessment Report: Ensure that future M&S architectures are composable and flexible, and simplify the integration process to conserve resources and improve capabilities; Ensure that future M&S architectures incorporate and require the use of consistent truth representations (phenomenology, lethality, environmental factors, threat simulations, etc.); Improve cross-organizational system engineering processes to optimize requirements generation and ensure the inclusion of all stakeholders; Develop refined M&S accreditation criteria between MDA and the OTA.

MDA's M&S Program consists of system and product planning, development, integration, and operation; threat model development, verification, and analysis; and integration and deployment of MDA's Distributed BMDS 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 BMDS 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 of the BMDS.

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

	FY 2018	FY 2019	FY 2020
Title: M&S Requirements, Design Support, Scenario Optimization	8.047	12.621	12.340
Articles:	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD31 / Modeling & Simulation		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
<p>Description: This activity provides the integrated program lifecycle planning and requirements definition of all BMDS M&S models and capabilities to enable assessment of BMDS capability deliveries. M&S capability development executes an integrated, synchronized program to manage M&S development in support of BMDS development, testing, and assessment. The following actions are required on a continuing basis to accomplish the M&S lifecycle planning and requirements definition mission:</p> <ul style="list-style-type: none">- 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 BMDS 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 BMDS capability deliveries (including BMDS capability deliveries for Phased Adaptive Approach and Homeland Defense).- Continue the transition to replace the Single Stimulation Framework (SSF) with the Objective Simulation Framework (OSF) to support M&S Intended Uses.- Provide integrated program lifecycle planning and scheduling of all BMDS M&S models and capabilities to enable assessment of BMDS capability deliveries for Homeland and Regional Defense.- Execute M&S planning, development, framework and test integration and operation; threat model development, verification, and analysis; and integration and deployment of MDA's Distributed BMDS 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 BMDS components in their various stages of development or sustainment as required for the test venue. <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none">-Upgrade the System Interface Unit (SIU) Fleet to current technical standards, interfaces, components and product line support to meet BMDS stakeholder needs for all BMDS Increments and associated test campaigns-Update Threat Modeling Tools to meet future threat data needs and event environments-Ensure Environment and Plume core truth model development, verification, maintenance and sustainment meets requirements-Incorporate emerging BMDS capabilities to include advanced threats into BMD simulations and ground test events <p>FY 2020 Plans:</p> <ul style="list-style-type: none">- SEE ABOVE. <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs		Project (Number/Name) MD31 / Modeling & Simulation	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
N/A					
Title: BMDS Simulations & Tools			11.618	12.326	12.585
Articles:			-	-	-
<p>Description: This activity funds the development and sustainment of digital products and the architecture framework, and delivery/maintenance of infrastructure for BMDS performance assessments, Warfighter events, and BMD International Simulation events. The following actions are required on a continuing basis:</p> <p>Event Integration/Support Operations:</p> <ul style="list-style-type: none"> - Provide ground test architecture integration to meet IMTP requirements. Use the BMDS test framework to integrate distributed architectures in support of BMDS capability deployments for EPAA Phase 3. - Deliver integrated architecture instantiations of the BMDS to support Performance Assessments and integration of new capabilities into the BMDS Operational Capability Baseline.- Integrate, test, and verify the M&S enterprise supporting BMDS testing, assessment, exercises, and wargaming, including testing infrastructure. - Integrate, test, functionally qualify, and deliver M&S tools and complex test architectures to provide system test capabilities to support MDA IMTP based test events, wargames, and exercises. - Continue the transition of real-time digital simulation capability to OSF to support Intended Uses. - Maintain simulations for Element M&S development laboratories used in the BMDS Integration & Development Lab and Digital M&S Integration Center (DMIC) in Huntsville, AL and in the MDIOC Simulation Center. - Conduct integration, testing and system-level verification per the digital System Requirements Document (SRD). Operate the testbed to mature the OSF-based digital system simulation. - Provide Event Integration Support for non-MDA BMDS component and weapon system models for use in MDA test and validation events. - Provide HWIL/M&S benchmarking/integration, documentation and coordination. Sustain, integrate and execute ground tests, FAST Events and Exercises/Wargames. - Provide communications emulation (MTJ, STJ, and Link-16) and network analysis support via the Tactical Communications Environment Segment (TCES) for use in IMTP events, HWIL System Post Flight Reconstructions (SPFRs) and HWIL System Pre Mission Tests (SPMTs). - Perform operational planning for planned BMDS assessment events. - Conduct M&S system integration and verification to support M&S system architecture development. Conduct developmental integration testing. <p>M&S Operations:</p> <ul style="list-style-type: none"> - Provide digital representations of BMDS elements/components using MDA's BMD International Simulation (I-SIM) in support of CCMD and International Wargames, conceptual planning, BMD visualizations, BMD training/orientation, M&S demonstrations, and the Warfighter's Modification & Fielding Requirements List (MFRL) for exercises and training. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs		Project (Number/Name) MD31 / Modeling & Simulation	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Implement I-SIM re-architecture requirements and emerging requirements such as IAMD/Fog of War to adapt to growing distributed event requirements. - Maintain the Missile Defense Space Warning Tool (MDST) to keep pace with fielded BMDS Overhead Persistent Infrared (OPIR) Architectures in support of Warfighter training events, BMDS exercise events, and BMDS development engineering. - Provide software operations/maintenance support to the Extended Air Defense Simulation (EADSIM) code base for use in Warfighter exercises, training venues, and CCMD planning tools. - Upgrade legacy models and develop new designs or software as required to support BMDS simulation Re-Architecture. - Provide threat representations (kinematic trajectories, radar cross sections, and infrared signatures data) for use in real-world events, simulations, exercises, wargames, and test and evaluation activities across the DoD. -Develop products that meet digital and test requirements and allow M&S participation in these venues. <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <p>- SEE ABOVE.</p> <p>FY 2020 Plans:</p> <p>- SEE ABOVE.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p> <p>N/A</p>					
<p>Title: M&S Objective Simulation Framework (OSF)</p> <p align="right">Articles:</p> <p>Description: The following actions are required on a continuing basis to accomplish the OSF mission:</p> <ul style="list-style-type: none"> - 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&S Enterprise needs. - Perform testing and integration of Core Truth Model capabilities into the OSF framework. - Sustain and enhance framework products to maintain capabilities to support stakeholders and to keep pace with the IMTP. - 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. - Provide the ground test architecture integration expertise to meet the testing requirements of the IMTP. Support delivery of integrated architectures for test across all test venues using the BMDS test framework to integrate distributed architectures in support of BMDS. 			13.360 -	14.680 -	14.661 -

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs		Project (Number/Name) MD31 / Modeling & Simulation	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Develop, maintain, test, field, and operate model representations for use in IMTP events and other MDA M&S stakeholder application areas. Deploy hardware and software updates to distributed sites. Perform regular maintenance and critical repairs of hardware and software. - Develop a BMDS-level integrated, high-fidelity end-to-end digital simulation, including hardware and software, data storage and transmission, and verification tools. - Maintain the M&S Integration and Development Laboratories for Element M&S. Maintain venue for stakeholders to conduct early integration efforts and identification of issues prior to event architecture integration to support system development. - Deploy Simulation Interface Units (SIUs) for BMDS testing - materials, licenses, SIU fleet purchasing. Deploy SIUs and components to maintain and sustain SIU fleet including cybersecurity; enables Developmental and Operational testing with full BMDS as required in IMTP. - Continue maintenance of SSF in the required venues until the transition to OSF in the venues completes. - Develop M&S products to keep pace with evolving requirements in all digital and test venues <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none"> - SEE ABOVE. <p>FY 2020 Plans:</p> <ul style="list-style-type: none"> - SEE ABOVE. <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p> <p>N/A</p>					
<p>Title: M&S Core Truth Modeling</p> <p>Articles:</p> <p>Description: The Core Truth Model (CTM) program provides consistent and common Phenomenology, Lethality, Environment, Communications, and Threat models for BMDS M&S venues utilized in all Digital and Ground Test Events and Wargaming Exercises. The CTM efforts are critical in the assessment of all BMDS capability deliveries. The following actions are required on a continuing basis to accomplish the CTM mission:</p> <ul style="list-style-type: none"> - Implement next generation truth representations for signatures and lethality to address advanced BMDS capability needs for tracking, discrimination and engagement - 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. - Support integration of all applicable CTM functions into the OSF framework. 			10.840 -	12.373 -	12.166 -

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs		Project (Number/Name) MD31 / Modeling & Simulation	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Provide support for scheduled events including training, exercises, Wargames, and the Distributed, Focused and Integrated HWIL Events as presented in the IMTP. - Deliver CTM Toolkit for integrated truth representations across the M&S enterprise. - Maintain an Environments Program that will provide consistent environment models for system and element level simulations. - 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. - Generate CTM Sensitivity analysis to identify the sensitivity within system simulation of Core Truth Models and boundary. - Develop and maintain CTM design to support system and element level simulations across the entire M&S portfolio. <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none"> - Update Threat Modeling Tools to meet evolving threat data needs and event environments - Ensure Environment and Plume core truth model development, verification, maintenance and sustainment meets requirements <p>FY 2020 Plans:</p> <ul style="list-style-type: none"> - SEE ABOVE. <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p> <p>N/A</p>					
<p>Title: M&S Improvements</p> <p align="right">Articles:</p> <p>Description: This effort funds BMDS Enterprise-wide M&S improvements that will enhance digital and ground test capabilities. Planned improvements include an experimental, developmental M&S prototype capability necessary to achieve a BMDS-level integrated, high-fidelity end-to-end digital simulation. The prototype effort designs and develops a digital simulation capability that will provide assessment data for the BMDS, supplemental to Ground- and Flight tests, in areas that those venues cannot address. The end-to-end digital simulation 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.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none"> - Develop M&S infrastructure needed to modify Element-level models to meet System-level requirements - Continue the development of initial digital capability for first use supporting BMDS Increment 6b in FY 2021 Timeframe 			11.320 -	31.186 -	36.735 -

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019	
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / <i>BMD Enabling Programs</i>	Project (Number/Name) MD31 / <i>Modeling & Simulation</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019
<ul style="list-style-type: none"> -- Conduct Systems Engineering Design Reviews -- Implement software development for initial Digital M&S components -- Incorporate required M&S IT hardware infrastructure to enable statistically significant runs for Increment 6b FY21 assessment - Design and develop full BMDS-level high-fidelity digital capability: -- Conduct System Requirements Review (SRR) -- Build towards full Digital BMDS M&S architecture - Perform top-down systems engineering and software development to implement BMD System-level ground test improvements: -- Develop a ground test system design to align with the tactical BMDS for new and more complex systems and implement system-wide M&S improvements in truth data consistency, framework interfaces, consistent data formats and reduce integration timelines -- Implement Ground Test enterprise-wide re-architecture, to address Ground Test capability gaps and limitations that have hindered M&S <p>FY 2020 Plans:</p> <ul style="list-style-type: none"> - Complete development for the Early Digital Product initial capability (EDISS-EDP) -- Complete integration testing for EDISS-EDP in support of data production runs starting in FY 2021 -- Continue to implement M&S software development and execute M&S integration testing across MDA Elements in support of EDISS-EDP - Acquire M&S IT hardware infrastructure to support data production runs - Complete systems engineering and top-level design for next increment of all-digital capability EDISS-FDP (Full Digital Product) -- Conduct a System Requirements Review and System Functional Review for EDISS-FDP 1 - Ground Test Integrated System-level Simulation (GTISS) -- Execute software development, testing and prototyping in support of Ground Test re-architecture -- Complete consistent modeling of environments and debris -- Execute systems engineering design and early software development in support of advanced threats and advanced BMDS capabilities <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase from FY 2019 to FY 2020 provides development of ground test improvements.</p>			
Accomplishments/Planned Programs Subtotals		55.185	83.186
		88.487	

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency	Date: March 2019
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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD31 / Modeling & Simulation
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603881C: <i>Ballistic Missile</i>	454.147	388.273	302.761	-	302.761	234.679	227.921	179.248	197.459	Continuing	Continuing
<i>Defense Terminal Defense Segment</i>											
• 0603882C: <i>Ballistic</i>	1,153.263	803.359	1,156.506	-	1,156.506	829.451	766.237	834.533	776.671	Continuing	Continuing
<i>Missile Defense Midcourse</i>											
<i>Defense Segment</i>											
• 0603892C: <i>AEGIS BMD</i>	798.395	741.076	727.479	-	727.479	718.949	703.473	505.529	527.720	Continuing	Continuing

Remarks

D. Acquisition Strategy

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

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD31 / Modeling & Simulation					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
M&S Requirements, Design Support, Scenario Optimization - 3rd generation SIU development	C/CPFF	TBE : AL	0.000	0.000		4.500	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
M&S Requirements, Design Support, Scenario Optimization - FFRDC & UARC	MIPR	Various : CO, AL	4.592	1.632	Nov 2017	1.781	Nov 2018	1.458	Nov 2019	-		1.458	Continuing	Continuing	Continuing
M&S Requirements, Design Support, Scenario Optimization - Prior Yr Requirements & Scenario Design no longer funded in FYDP	Various	Various : AL	8.532	0.000		0.000		0.000		-		0.000	0.000	8.532	0.000
M&S Requirements, Design Support, Scenario Optimization - Requirements & Design - CSS 2	C/CPFF	TEAMS : CO, AL	15.787	6.415	Nov 2017	6.340	Nov 2018	6.838	Nov 2019	-		6.838	Continuing	Continuing	Continuing
M&S Requirements, Design Support, Scenario Optimization - Science and Technology Council	Various	Various : VA, AL	0.000	0.000		0.000		0.500	Dec 2019	-		0.500	Continuing	Continuing	Continuing
M&S Requirements, Design Support, Scenario Optimization - Threat Modeling	Various	Various : CO, AL	0.000	0.000		0.000		3.544	Dec 2019	-		3.544	Continuing	Continuing	Continuing
BMDS Simulations & Tools - Digital Framework Development	C/CPAF	Northrop Grumman : CO	20.891	6.909	Nov 2017	7.007	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
BMDS Simulations & Tools - Digital Simulation Development / Support	MIPR	SMDC : AL	3.547	0.000		0.000		1.108	Dec 2019	-		1.108	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD31 / Modeling & Simulation					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Simulations & Tools - M&S / Digital Framework Development	C/CPAF	SWDC : CO	0.000	0.000		0.000		9.610	Nov 2019	-		9.610	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support	Various	MDA : CO, AL	2.560	0.000		0.000		0.867	Nov 2019	-		0.867	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support - CSS	C/CPFF	TEAMS : CO	1.539	1.300	Nov 2017	1.339	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support - Industry	C/CPFF	TBE : AL	0.959	0.891	Nov 2017	0.834	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support - OGA	MIPR	AMRDEC : AL	13.941	2.518	Nov 2017	3.146	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
BMDS Simulations & Tools - Science & Technology Council	Various	Various : VA, AL	0.000	0.000		0.000		1.000	Dec 2019	-		1.000	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - Continuous Integration Requirements Development	Various	Various : CO, AL	0.000	0.000		0.000		3.294	Dec 2019	-		3.294	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL - CSS	C/CPFF	TEAMS : CO	2.200	0.800	Nov 2017	1.016	Nov 2018	2.708	Nov 2019	-		2.708	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL - Industry	C/CPAF	Northrop Grumman : CO	6.190	0.350	Nov 2017	0.350	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL Framework Development and Support	C/CPFF	MASC : AL, CO	20.238	9.484	Nov 2017	9.849	Nov 2018	1.663	Nov 2019	-		1.663	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S	Various	Various : CO, AL	0.000	0.000		0.000		2.426	Dec 2019	-		2.426	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD31 / Modeling & Simulation					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
HWIL Simulations / Models - Various															
M&S Objective Simulation Framework (OSF) - M&S HWIL Simulations / Models Development	MIPR	AMRDEC : AL	23.065	0.550	Nov 2017	0.550	Nov 2018	3.570	Nov 2019	-		3.570	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL Support / GT re-architecture	Various	MDA : AL, CO	6.381	2.176	Nov 2017	2.915	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - Science & Technology Council	Various	Various : VA, AL	0.000	0.000		0.000		1.000	Dec 2019	-		1.000	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling - OGA	MIPR	AFRL : CO	1.300	1.400	Nov 2017	1.400	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
M&S Core Truth Modeling - Core Truth Modeling - Engineering	Various	Various : CO	0.000	0.000		0.000		4.282	Dec 2019	-		4.282	Continuing	Continuing	Continuing
M&S Core Truth Modeling - Core Truth Models Validation	Various	MDA : CO, AL	6.144	1.000	Nov 2017	0.800	Nov 2018	2.200	Nov 2019	-		2.200	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling - CSS	C/CPFF	Peopletec : AL, CO	0.916	1.591	Nov 2017	1.990	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling - CSS 2	C/CPFF	TEAMS : AL, CO	0.000	0.000		1.683	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling - Lethality/ Phenomenology Modeling	MIPR	AMRDEC : AL	32.402	1.310	Nov 2017	1.110	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth	C/CPAF	Northrop Grumman : CO	40.733	5.539	Nov 2017	5.390	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD31 / Modeling & Simulation					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Modeling Simulation System															
M&S Core Truth Modeling - M&S Core Truth Modeling Simulation System 2	C/CPAF	SWDC : CO	0.000	0.000		0.000		5.684	Nov 2019	-		5.684	Continuing	Continuing	Continuing
M&S Improvements - Enterprise-wide ground test re-architecture improvements	Various	Various : CO, AL	0.000	0.000		11.400	Dec 2018	10.219	Dec 2019	-		10.219	Continuing	Continuing	Continuing
M&S Improvements - M&S Improvement - Enterprise-wide digital capability development	Various	Various : CO, AL	0.000	11.320	Dec 2017	19.786	Nov 2018	26.516	Nov 2019	-		26.516	Continuing	Continuing	Continuing
Subtotal			211.917	55.185		83.186		88.487		-		88.487	Continuing	Continuing	N/A
Remarks N/A															
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A
Remarks N/A															
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency													Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs					Project (Number/Name) MD31 / Modeling & Simulation					

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

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

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	211.917	55.185		83.186		88.487		-		88.487	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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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs								Project (Number/Name) MD31 / Modeling & Simulation											
Significant Event Complete ▲ Significant Event Planned △				Milestone Decision Complete ★ Milestone Decision Planned ☆				Element Test Complete ◆ Element Test Planned ◇				System Level Test Complete ● System Level Test Planned ○				Complete Activity ◆ Planned Activity ◇							

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / <i>BMD Enabling Programs</i>	Project (Number/Name) MD31 / <i>Modeling & Simulation</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MDST v16.3	1	2018	1	2018
International Simulation v8.5	1	2018	1	2018
Release Update to OSF - FY 2018	2	2018	2	2018
International Simulation v8.6	1	2019	1	2019
MDST v16.4	1	2019	1	2019
Release Update to OSF - FY 2019	1	2019	1	2019
Release Update to OSF - 2Q FY 2020	1	2020	1	2020
International Simulation v8.7	1	2020	1	2020
Release Update to OSF - FY 2021	1	2021	1	2021
International Simulation v8.8 - 1Q-FY 2021	1	2021	1	2021
Initial GTISS Delivery	1	2021	1	2021
Early Digital Product	2	2021	2	2021
Release Update to OSF - FY 2022	1	2022	1	2022
International Simulation v8.9 - 1Q FY 2022	1	2022	1	2022
GTISS Update (2022)	1	2022	1	2022
International Simulation v8.10 - 1Q FY 2023	1	2023	1	2023
Release Update to OSF - FY 2023	1	2023	1	2023
GTISS Update (2023)	1	2023	1	2023
Release Update to OSF - FY 2024	1	2024	1	2024
International Simulation v8.11 - 1Q FY 2024	1	2024	1	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MC31 / Engineering Cyber Operations			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MC31: Engineering Cyber Operations	3.797	6.466	20.666	11.564	-	11.564	34.665	10.697	13.383	13.651	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Increase in FY 2019 includes congressional plus up for Cyber Assistance Teams (CATs) to assess the safeguarding of MDA's information on Defense Industrial Base partners' networks. Beginning in FY 2020, funding for CATs is distributed across all Agency PE's in cyber projects.

A. Mission Description and Budget Item Justification

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

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

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

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

	FY 2018	FY 2019	FY 2020
Title: Information Assurance / Cyber Network Defense	6.466	20.666	11.564
Articles:	-	-	-
Description: This activity funds network defense and Information System Security Manager (ISSM) activities for MDA Engineering. Specific tasks include: <ul style="list-style-type: none"> - Conduct Cybersecurity/information assurance engineering and architecture planning for Engineering information technology systems. - Plan and test the information assurance controls for Engineering systems. - Implement RMF system engineering principles to ensure sufficient protections exist from a threat and risk based approach - Conduct Controls Validation Testing of systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency								Date: March 2019			
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MC31 / Engineering Cyber Operations			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) <ul style="list-style-type: none"> - Conduct annual information assurance reviews to assess compliance in implementing and maintaining information assurance controls. - Perform cybersecurity upgrades as needed to MDA Engineering systems to be in compliance with DoD mandates. - Continue MDA Insider Threat Mitigation Team efforts. <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none"> - Continue development and implementation of Software Assurance policies, processes, and guidelines. - Per FY 2019 Appropriations Act Add for Cyber Assessments: <ul style="list-style-type: none"> -- Improve MDA cybersecurity posture and ability to address cybersecurity threats to the MDA Defense Industrial Base (DIB) -- Augment Cyber Assistance Teams to conduct assessments to identify and propose mitigations for cyber threats to the MDA DIB unclassified networks <p>FY 2020 Plans:</p> <ul style="list-style-type: none"> - Continue to perform on-site visits of MDA DIB partners to detect and increase understanding of DIB cyber threats - Develop tailored cyber threat mitigation strategies - Promote cyber threat reporting and information sharing within the DIB. <p>FY 2019 to FY 2020 Increase/Decrease Statement: Decrease from FY 2019 to FY 2020 reflects distribution of funding for CATs across all Agency PE's in cyber projects.</p>								FY 2018	FY 2019	FY 2020	
Accomplishments/Planned Programs Subtotals								6.466	20.666	11.564	
C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0305103C: Cyber Security Initiative	0.964	0.985	1.138	-	1.138	1.160	1.184	1.206	1.230	Continuing	Continuing
Remarks											
D. Acquisition Strategy N/A											
E. Performance Metrics N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs						Project (Number/Name) MC31 / Engineering Cyber Operations			
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A
Remarks N/A															
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Information Assurance / Cyber Network Defense - Cyber Assistance Team Leads	MIPR	Various : VA, AL	0.000	0.000		2.876	Nov 2018	1.000	Nov 2019	-		1.000	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Assistance Teams - Contractor Support	C/CPFF	TEAMS : VA, AL	0.000	0.806	Jun 2018	7.362	Nov 2018	3.860	Nov 2019	-		3.860	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Assistance Teams - Hardware	Various	Various : VA, AL	0.000	0.291	May 2018	1.401	Nov 2018	1.184	Nov 2019	-		1.184	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Assistance Teams - Intelligence Reporting	C/CPAF	Deloitte : AL, VA	0.000	1.018	Aug 2018	2.160	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Assistance Teams - Software/Licenses	C/CPAF	Splunk : AL, VA	0.000	0.000		2.401	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - IT / Cybersecurity Support	C/CPFF	TEAMS : CO, AL, VA	1.703	1.559	Nov 2017	1.194	Nov 2018	2.220	Nov 2019	-		2.220	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense -	C/CPAF	Northrop Grumman : CO	1.250	1.150	Dec 2017	0.510	Dec 2018	0.520	Dec 2019	-		0.520	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MC31 / Engineering Cyber Operations					

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Insider Threat Mitigation Cell - IT															
Information Assurance / Cyber Network Defense - Insider Threat Mitigation Cell IT Network Defense	C/CPFF	TEAMS : CO, AL, VA	0.500	1.129	Dec 2017	0.862	Dec 2018	0.880	Dec 2019	-		0.880	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Software Assurance	Various	MDA : Various	0.344	0.513	Jul 2018	1.900	Nov 2018	1.900	Nov 2019	-		1.900	Continuing	Continuing	Continuing
Subtotal			3.797	6.466		20.666		11.564		-		11.564	Continuing	Continuing	N/A

Remarks N/A															
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	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.797	6.466		20.666		11.564		-		11.564	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 2020 Missile Defense Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MC31 / Engineering Cyber Operations

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Engineering Cyber Operations	1	2018	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD32 / Quality, Safety, and Mission Assurance			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD32: Quality, Safety, and Mission Assurance	236.059	30.291	29.319	29.986	-	29.986	30.528	30.976	31.738	32.373	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

Quality, Safety, and Mission Assurance verifies that all systems are functioning and tracking against actual verified targets and that all associated processes and procedures are strictly followed.

Quality: Provides on-site Quality Assurance (QA) inspection for all ground and flight tests to ensure that all processes and procedures are adhered to and no short cuts or deviations occur. Quality management system audits are performed on the sub tier supply chain to determine adequacy of contractor requirement flow down and sub tier supplier compliance to industry standards. Quality Subject Matter Experts (SMEs) attend BMDS configuration control boards to ensure quality is implemented across all Programs. Provides quality on-site formal inspection and resolution when troubled suppliers are identified and also initiates and leads on-site Joint Government and Industry Team field support and expertise to assist when critical sole source suppliers are failing. Conducts initiatives to revamp sole source suppliers by assisting them to get healthy and perform at world class levels, establishes consistent acquisition and award fee contractual requirements to ensure that a strategic approach is applied to all mission critical systems and maintains MDA Assurance Provisions for the Agency.

Safety: Responsible for system safety of the BMDS and for the Safety and Occupational Health of personnel located in the National Capital Region (NCR); Huntsville, Alabama; Fort Greely, Alaska; Vandenberg Air Force Base (VAFB), California; and, Dahlgren, VA. Additionally responsible for ensuring the overall safety of the civilian, contractor and military workforce. BMDS Safety Officers (BSOs) provide on-site support 24 hours a day, 365 days a year to ensure operational safety of systems.

Mission Assurance: Provides in-plant MDA Assurance Representatives (MARs) for the MDA at government and contractor facilities. MARs are Government Mission Assurance and Quality experts who provide quality and technical oversight of contractor manufacturing. Mission Assurance Audits are conducted which focus on design margin, the effectiveness of acceptance testing and the sufficiency of manufacturing processes. Audits are performed for contractual requirements, internal requirements, and industry best practices. These audits are one of MDA's most effective methods of enabling change among the MDA contractors and suppliers. Quality, Safety, and Assurance provides Subject Matter Experts (SMEs) who attend all technical reviews (i.e. Design, Test, Mission Readiness Reviews, and Failure Review Boards) to ensure mission assurance principles are consistently implemented across the Ballistic Missile Defense System (BMDS). Quality, Safety, and Mission Assurance develops overarching design and quality standards such as the MDA Assurance Provisions (MAP) for MDA which enhances BMDS reliability. Hardware acceptance reviews and pedigree documentation reviews are performed to ensure all manufacturing rework and repair is performed within approved processes.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019	
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD32 / Quality, Safety, and Mission Assurance	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019
Title: Quality, Safety & Mission Assurance Description: Quality, Safety, and Mission Assurance verifies that all systems are functioning and tracking against actual verified targets and that all associated processes and procedures are strictly followed. Specific and/or unique accomplishments to each FY are as follows: FY 2019 Plans: - SEE ABOVE. FY 2020 Plans: - SEE ABOVE. FY 2019 to FY 2020 Increase/Decrease Statement: N/A		30.291 -	29.319 -
Articles:		-	-
Accomplishments/Planned Programs Subtotals		30.291	29.319
C. Other Program Funding Summary (\$ in Millions) N/A			
Remarks			
D. Acquisition Strategy 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.			
E. Performance Metrics N/A			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs						Project (Number/Name) MD32 / Quality, Safety, and Mission Assurance			
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A
Remarks N/A															
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Quality, Safety & Mission Assurance - Agency Safety & Occupational Health	C/CPFF	Various Multi : AL, CO, AK, DC	2.554	0.250	Dec 2017	0.273	Nov 2018	0.220	Nov 2019	-		0.220	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Audits & Quality On-site Support	MIPR	NSWC Corona : AL, CA	22.256	2.896	Dec 2017	3.305	Nov 2018	3.500	Nov 2019	-		3.500	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Mission Assurance Agency Operations	C/CPFF	AI Solutions : AL	8.754	0.750	Dec 2017	0.714	Nov 2018	0.750	Nov 2019	-		0.750	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Quality Support	C/CPFF	AI Solutions : AL	9.607	0.800	Dec 2017	0.762	Nov 2018	0.800	Nov 2019	-		0.800	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Safety	C/CPFF	APT, INC : AL	10.836	0.750	Dec 2017	1.191	Nov 2018	0.600	Nov 2019	-		0.600	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Safety Officers	MIPR	AMRDEC : AL	4.297	0.090	Dec 2017	0.101	Nov 2018	0.092	Nov 2019	-		0.092	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - HQ & Core Management	MIPR	AMRDEC : AL	2.750	0.226	Dec 2017	0.221	Nov 2018	0.222	Nov 2019	-		0.222	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - In-Plant Quality Support (MARS)	C/CPFF	Various Multi : AL, AK, AZ, CA, CO, FL,	12.839	1.600	Dec 2017	1.417	Nov 2018	1.600	Nov 2019	-		1.600	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs						Project (Number/Name) MD32 / Quality, Safety, and Mission Assurance			
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		HI, NJ, MA, MO, MD, UT													
Quality, Safety & Mission Assurance - Independent Readiness Review Team	C/CPFF	AI Solutions : AL	5.359	0.200	Dec 2017	0.191	Nov 2018	0.200	Nov 2019	-		0.200	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Mission Assurance Subject Matter Experts	C/CPFF	APT, INC. : AL	7.643	0.520	Dec 2017	0.476	Nov 2018	0.500	Nov 2019	-		0.500	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Operations Support	MIPR	Various Multi : AL, CA	5.009	0.450	Dec 2017	0.200	Nov 2018	0.200	Nov 2019	-		0.200	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Parts, Materials and Processes (PMP) Program	MIPR	Various Multi : AL, CA, IN	14.035	2.000	Dec 2017	2.727	Nov 2018	2.300	Nov 2019	-		2.300	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Parts, Materials and Processes - PMP - Program	C/CPFF	AI Solutions : AL	4.686	2.876	Dec 2017	0.700	Nov 2018	1.666	Nov 2019	-		1.666	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Pedigree & Design Certification - FFRDC	MIPR	Aerospace : AL, CA	23.969	2.800	Dec 2017	2.752	Nov 2018	3.000	Nov 2019	-		3.000	Continuing	Continuing	Continuing
Subtotal			134.594	16.208		15.030		15.650		-		15.650	Continuing	Continuing	N/A
Remarks N/A															
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs						Project (Number/Name) MD32 / Quality, Safety, and Mission Assurance			
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks N/A															
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
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	75.679	12.150	Oct 2017	11.822	Oct 2018	11.836	Oct 2019	-		11.836	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance Operations Support	C/CPFF	MDA QS : AL, DC, VA	10.060	0.962	Nov 2017	1.467	Nov 2018	1.500	Nov 2019	-		1.500	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance Operations Support (Travel/PCS)	Allot	MDA QS : AL, CO, AK, DC, VA	15.726	0.971	Nov 2017	1.000	Nov 2018	1.000	Nov 2019	-		1.000	Continuing	Continuing	Continuing
Subtotal			101.465	14.083		14.289		14.336		-		14.336	Continuing	Continuing	N/A
Remarks N/A															
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			236.059	30.291		29.319		29.986		-		29.986	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency							Date: March 2019		
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs		Project (Number/Name) MD32 / Quality, Safety, and Mission Assurance			
	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
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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PE 0603890C: *BMD Enabling Programs*
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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD32 / Quality, Safety, and Mission Assurance	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD32 Quality, Safety, and Mission Assurance	1	2018	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD40 / Program-Wide Support			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD40: Program-Wide Support	139.584	24.128	20.550	23.562	-	23.562	27.583	24.977	28.096	27.500	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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

A. Mission Description and Budget Item Justification

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

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

	FY 2018	FY 2019	FY 2020
Title: Program Wide Support	24.128	20.550	23.562
Articles:	-	-	-
<p>Description: PWS contains non-headquarters management costs in support of MDA functions and activities across the entire BMDS. It Includes Government Civilians and Contract Support Services. This provides integrity and oversight of the BMDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs include: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; Facilities Sustainment, Restoration and Modernization (SRM) program, (formerly Real Property Maintenance) to keep the Department's inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.</p>			
FY 2019 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD40 / Program-Wide Support		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
- SEE ABOVE.				
FY 2020 Plans: - SEE ABOVE.				
FY 2019 to FY 2020 Increase/Decrease Statement: Increase from FY 2019 to FY 2020 reflects the PWS allocation on a pro-rata basis across multiple Agency PE's each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.				
Accomplishments/Planned Programs Subtotals		24.128	20.550	23.562
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
N/A				
E. Performance Metrics				
N/A				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD40 / Program-Wide Support					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Facilities and Maintenance (MIPR)	MIPR	Various Multi: : AL, CO, CA, VA etc.	19.897	4.299	Jan 2018	3.635	Mar 2019	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, CA, CO, VA	5.416	0.429	Jul 2018	0.311	Jul 2019	0.356	Jul 2020	-		0.356	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations User Services	C/CPAF	Various : Multi: AL, CO, NM, VA, various	5.602	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	MDA : AK, AL, CA, CO, VA	32.108	0.000		0.000		16.012	Oct 2019	-		16.012	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, CO, CA, VA	75.756	19.400	Nov 2017	16.604	Apr 2019	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services (Reqn)	Reqn	Various : Multi: AK, AL, CA, CO, VA	0.805	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services MIPRs	MIPR	Various : Multi: AK, AL, CO, CA, HI, MD, VA, NJ, NY, OCONUS	0.000	0.000		0.000		5.442	Nov 2019	-		5.442	Continuing	Continuing	Continuing
Program Wide Support - FFRDC	C/CPFF	JHU : CA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Facilities and Maintenance SRM	MIPR	Various : Multi: AL, CA, AL, AK	0.000	0.000		0.000		1.752	May 2020	-		1.752	Continuing	Continuing	Continuing
Subtotal			139.584	24.128		20.550		23.562		-		23.562	Continuing	Continuing	N/A
Remarks N/A															

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency											Date: March 2019			
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD40 / Program-Wide Support					
		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		139.584	24.128		20.550		23.562		-		23.562	Continuing	Continuing	N/A

Remarks

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

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency														Date: March 2019															
Appropriation/Budget Activity										R-1 Program Element (Number/Name)										Project (Number/Name)									
0400 / 4										PE 0603890C / BMD Enabling Programs										MD40 / Program-Wide Support									
Significant Event Complete ▲					Milestone Decision Complete ★					Element Test Complete ◆					System Level Test Complete ●					Complete Activity ◆									
Significant Event Planned △					Milestone Decision Planned ☆					Element Test Planned ◇					System Level Test Planned ○					Planned Activity ◇									
										FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024							
MD40 Program-Wide Support										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD40 / Program-Wide Support

Schedule Details

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