Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Missile Defense Agency											Date: May 2017	
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	1,296.311	406.326	408.594	449.442	-	449.442	466.760	540.409	629.864	501.915	Continuing	Continuing
MD24: *System Engineering & Integration*	494.423	146.148	139.866	150.358	-	150.358	151.837	157.982	156.943	156.690	Continuing	Continuing
MT23: *Enabling - Test*	18.225	16.043	17.749	22.767	-	22.767	20.811	20.735	22.008	21.751	Continuing	Continuing
MD28: *Intelligence & Security*	107.954	39.085	41.254	44.708	-	44.708	44.557	47.744	48.732	49.477	Continuing	Continuing
MD30: *BMD Information Management Systems*	234.332	90.685	92.628	84.499	-	84.499	81.337	89.036	91.592	95.019	Continuing	Continuing
MC30: *Cyber Operations*	31.503	27.194	22.881	41.458	-	41.458	45.070	56.616	73.479	56.086	Continuing	Continuing
MD31: *Modeling & Simulation*	125.432	39.972	44.458	49.824	-	49.824	63.465	97.374	140.616	51.374	Continuing	Continuing
MC31: *Engineering Cyber Operations*	0.204	0.613	0.253	3.838	-	3.838	6.500	13.308	34.988	13.448	Continuing	Continuing
MD32: *Quality, Safety, and Mission Assurance*	177.382	28.864	31.022	30.516	-	30.516	29.796	31.387	31.901	32.550	Continuing	Continuing
MD40: *Program-Wide Support*	106.856	17.722	18.483	21.474	-	21.474	23.387	26.227	29.605	25.520	Continuing	Continuing

Program MDAP/MAIS Code: 362

Note
 N/A

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 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
- Assess architecture alternatives to address advanced threats and provide recommendations for future BMDS configurations to keep pace with evolving threats

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Missile Defense Agency		Date: May 2017
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*

- Provide Information Management tools and products supporting the development of BMDS capabilities while safeguarding networks and critical program information
- Provide MDA secure communication networks, IT systems, special purpose processing nodes, operations and monitoring centers, and disaster recovery and continuity of operations requirements
- Evaluate quality, technical safeguards, and mission assurance effectiveness
- Assess System ability to maintain integrity and superiority with advances in technology development

This Program Element includes BMDS threat discrimination improvements, which will 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 improvements are funded from the Enabling (0603890C), Midcourse (0603882C), BMD Sensors (0603884C), BMD Command, Control, Battle Management and Communications (C2BMC) (0603896C), and Aegis BMD (0603892C) PEs.

This effort also investigates concepts and explores system engineering issues associated with innovative space applications for missile defense intercept and defeat system.

FY 2017 Amended Budget Request Justification: $+7.000M is required to address Joint Emergent Operational Need and emergency warfighting readiness requirements to ensure readiness of the BMDS.

+$6.700 million project MD24 to begin NDAA-directed efforts to develop a Hypersonic Threat Defense program. Efforts include 180-day study, plume and hardbody signature data for threat analyses, an accelerated Analysis of Alternatives, leveraging DoD-level resources to augment promising technology analysis, and participation in a target of opportunity mission to obtain sensor data. This is a Joint Emergent Operational Need requirement.

+$0.300 million project MT23 to provide additional M&S support for BMDS ground test planning and execution to ensure readiness of the BMDS.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	404.780	401.594	404.993	-	404.993
Current President's Budget	406.326	408.594	449.442	-	449.442
Total Adjustments	1.546	7.000	44.449	-	44.449
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	9.994	0.000			
• SBIR/STTR Transfer	-8.448	0.000			
• Other Adjustment	0.000	7.000	44.449	-	44.449

Exhibit R-2, **RDT&E Budget Item Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
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*	

Change Summary Explanation

The increase in FY2018 from PB17 to PB18 supports emerging Department of Defense priorities, including:

-- Aegis Ashore Defense ($10.000 million)

-- M&S improvements ($5.320 million)

-- Discrimination Improvements and Countermeasures Mitigation ($3.172 million)

FY 2017 Amended Budget Request Justification: $+7.000M is required to address Joint Emergent Operational Need and emergency warfighting readiness requirements to ensure readiness of the BMDS.

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MD24: *System Engineering & Integration*	494.423	146.148	139.866	150.358	-	150.358	151.837	157.982	156.943	156.690	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
In FY 2018, $10.585 million of IT funding was realigned from MD24 into MC30 for Cybersecurity priority efforts.
In FY 2018, $10.000 million was added to MD24 for Aegis Ashore Defense.
In FY 2018, consolidated $4.343 million of IT funding from MD24 to MD30 for more efficient execution.
In FY 2018, $6.900 million was added to MD24 for Post Intercept Assessment.

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

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

The BMDS discrimination improvements effort will develop and field integrated Element capabilities to improve 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 improved capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
Title: Requirements and Design	28.871	29.100	34.118
Articles:	-	-	-

Description: The Requirements and Design effort develops the BMD System level requirements and specifications for the Phased Adaptive Approach (PAA) Phases and beyond, 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.
- 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 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.

FY 2016 Accomplishments:
- Conducted activities listed in Description section (SEE ABOVE).
- Developed Specification Change Notices for post- PAA Phase 3 requirements changes, to include mitigation strategies to address BMDS Discrepancy Reports.
- Delivered requirements language for Mid Term discrimination improvement capabilities to executing elements, in collaboration with BMDS Program Elements.
- Refined Redesigned Exoatmospheric Kill Vehicle (RKV) and Long Range Discrimination Radar (LRDR) requirements for BMDS 2020 Homeland Defense.

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 **I** 4	**R-1 Program Element (Number/Name)** PE 0603890C **I** *BMD Enabling Programs*	**Project (Number/Name)** MD24 **I** *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
- Completed BMDS 2020 System Requirements Review (SRR) for enhanced homeland defense, to include the RKV, LRDR, and Mid-term discrimination improvements. ***FY 2017 Plans:*** - Conduct activities listed in Description section (SEE ABOVE). - Define BMDS technical content expectations and develop system requirements, to include integration of new capabilities, such as the Navy's Air and Missile Defense Radar (SPY-6). - Develop initial requirements for Far-term BMD content to pace the evolving threat. - Deliver requirements for Far-Term discrimination improvements. ***FY 2018 Plans:*** FY 2018 increase is due to requirements and design work required to incorporate Post Intercept Assessment (PIA) into the BMDS. - Conduct activities listed in Description section (SEE ABOVE). - Define BMDS technical content expectations and develop system requirements, to include integration of new capabilities, such as Overhead Persistent Infrared (OPIR) interfaces and improved regional sensor discrimination - Develop requirements for Additional Protection Techniques. - Conduct initial experimentation for Post Intercept Assessment (PIA). - Refine approach to implement and assess BMD System Track capability. - Assure the successful integration of evolving DoD Position, Navigation, and Timing services into the BMDS.			
Title: Integrated Air and Missile Defense (IAMD) **Articles:** *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. The initial work will provide improved performance such as an improved air picture to enable engagement coordination decision making, increase battlespace, and improve track continuity. Follow-on increments will address critical joint Command and Control and interoperability needs such as integrated fire control. ***FY 2016 Accomplishments:*** - Continued analysis of technical options for improving the air picture to support coordinated decision making in a joint warfighting environment. -- Supported Joint Integrated Air and Missile Defense Organization (JIAMDO) in completing the IAMD Increment 1 Operational Benefits Assessment	15.200 -	15.989 -	16.911 -

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
-- Assessed options and conducted Alternative Systems Review to select technical option(s)for the first Joint IAMD capability increment (improved air picture) -- Expanded the IAMD M&S capabilities developed in FY 2014 and FY 2015 to support derivation of more detailed Joint Track Management Control (JTMC) requirements and evaluate performance of the selected technical approach for achieving the Joint Requirements Oversight Council (JROC) approved JTMC operational requirements to include the capability to support advanced engagement coordination across the air domain. -- Developed the IAMD increment 1 joint system architecture which is consistent with the JROC approved IAMD operational architecture. -- Defined engineering tasks for IAMD Increment 2 capability. *FY 2017 Plans:* - Maintain and deliver updates to an IAMD system of systems level requirements specification, documenting the technical requirements for allocation to the affected air defense programs of record. - Conduct Joint IAMD System Requirements Reviews with affected service systems to incorporate IAMD Increment 1 capability. - Execute the joint system engineering tasks for IAMD Increment 2 capability. - Expand IAMD M&S capabilities to support derivation of more detailed JTMC requirements for Increment 1 capability and to support IAMD Increment 2 concept development defined in FY 2016 to address critical joint Command and Control and interoperability needs. - Develop an IAMD joint system architecture for IAMD Increment 2 capability that is consistent with the JROC approved IAMD operational architecture. *FY 2018 Plans:* - Update IAMD M&S capabilities to support requirements development for the option(s) selected at the improved air picture Alternative System Review - Continue to conduct additional systems engineering and prototyping to address issues uncovered for IAMD Increment 1 -- Conduct Joint IAMD System Requirements Reviews with the affected service systems to incorporate IAMD Increment 1 capability - Improve upon the IAMD joint system architecture description by incorporating IAMD Increment 2 capabilities such as Combat Identification and/or planning capabilities as appropriate - Continue to conduct long-range planning for future capability increments			
Title: System-Level Verification and Assessment ***Articles:***	14.686 -	15.196 -	18.462 -
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.			

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
- Develop and manage assessment plans and requirements for BMDS capability increments: -- 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, instrumental to understanding BMDS interoperability and performance, and anchoring 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. - 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 status 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. *FY 2016 Accomplishments:* - Conducted activities listed in Description section (SEE ABOVE). - Conducted system assessment in support of European Phased Adaptive Approach (EPAA) Phase 2 TCD - Assessed BMDS Element hardware and software for OCB decision: Aegis BMD Baseline 9.B1/C1, AN/TPY-2 CX 2.1.0, Fort Drum IDT, PATRIOT 7.2 - Implemented Warfighter Integrated Master Assessment Plan (IMAP) Synchronization Team (WIST) to support CCMD assessment planning and requirements development - Developed assessment plan for EPAA Phase 3 TCD - Developed assessment plans and requirements for BMDS Enhanced Homeland Defense - Developed BMDS 2020 System Assessment Strategy - Assisted Director, Operational Test & Evaluation (DOT&E) in developing achievable way forward to implement the 2015 BMDS OTA Accreditation Plan. - Accredited the following M&S: -- WILMA Raid Simulation Scenario Execution Suite. -- Version 15.1 Sea-Based X-Band, Cobra Dane, AN/TPY-2 Forward Based Mode, and Upgraded Early Warning Radar Models for Radar Discrimination/ Classification.			

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
-- BMDS M&S used in the Ground Test Integrated - 06 (GTI-06) Part 2 Test Event. *FY 2017 Plans:* - Conduct activities listed in Description section (SEE ABOVE). - Assess BMDS Enhanced Homeland Defense performance for TCD. - Develop assessment plans and requirements for EPAA Phase 3 and Robust Intermediate Range Ballistic Missile (IRBM) Defense. *FY 2018 Plans:* FY 2018 increase is based on additional work required to implement Operational Test Agency (OTA) Accreditation Plan. - Conduct activities listed in Description section (SEE ABOVE). - Conduct system assessment in support of BMDS EPAA Phase 3 TCD. - Develop assessment plans and requirements for BMDS 2020 Homeland Defense and Mid-term Discrimination Improvements. - Implement the BMDS OTA Accreditation Plan by generating additional VV&A evidence to meet M&S accreditation requirements for ground tests in support of BMDS TCDs and Operational Acceptance.			
Title: Knowledge Centers **Articles:**	14.252 -	14.142 -	15.469 -
Description: Title: Knowledge Centers 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. - 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: -- Provide Subject Matter Expertise and analytical support for Independent Review Teams, mission assurance assessments, Failure Review Boards and Failure Investigation Teams -- Identify and provide recommendations to mitigate technical risks, including innovative and unconventional approaches -- Promote knowledge sharing between external technical sources and MDA. - Perform independent technical assessments of critical BMDS and Element program issues: -- Define element knowledge points (KPs), establish closure criteria, and provide closure recommendations -- Continue to provide BMD System and Element performance assessments. - Conduct assessments of emerging technologies as required. *FY 2016 Accomplishments:* - Conducted activities listed in Description section (SEE ABOVE).			

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
- Supported Knowledge Point definition for new programs, including LRDR and RKV. *FY 2017 Plans:* - Conduct activities listed in Description section (SEE ABOVE). *FY 2018 Plans:* - Conduct activities listed in Description section (SEE ABOVE).			
Title: Future Concepts and Planning *Articles:* *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). - 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 yearly update to the Achievable Capabilities List (ACL) per the R4 summary. - Lead collaborative effort to improve foreign partners' understanding of existing system capabilities, architectural performance and operational concepts of the BMDS *FY 2016 Accomplishments:* - Conducted activities listed in Description section (SEE ABOVE). - Completed BMDS inputs to Office of the Secretary of Defense (OSD) Cost Assessment and Program Evaluation's (CAPE) Homeland and Regional Missile Defense Mission Sensor AoA, to analyze alternatives for future MDA and DoD BMDS Sensor architectures - Conducted analyses of architecture alternatives, including:	17.585 -	19.186 -	13.120 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018
-- Space-Based Interceptor concepts and potential space sensor architectures -- Directed energy concepts -- Electro-Optical/Infrared sensors -- Architectures to counter the evolving threat - Provided Missile Defense systems engineering expertise to support OSD initiatives, such as Advanced Threat Missile Defeat (ATMD) part 1 and Gun-Based Defense *FY 2017 Plans:* - Conduct activities listed in Description section (SEE ABOVE). - Participate in designated OSD activities or analyses, as directed by Congress - Conduct analyses of architecture alternatives, including: -- Sensor options for Enhanced Defense of Hawaii -- Other advanced sensor concepts -- Potential space layer technologies -- Rail Gun concepts - Conduct systems engineering as part of NDAA-directed Hypersonic Defense program: -- Conduct architecture studies and initiate Analyses of Alternatives (AoA) to include required M&S modifications -- Define and develop M&S tools to support analysis activities -- Define and produce threat data to support architecture analyses efforts -- Collaborate across DoD to leverage expertise and on-going activities *FY 2018 Plans:* FY 2018 decrease reflects transfer of Hypersonic Defense activities to Project MD29, Hypersonic Defense, in PE 0604181C. - Conduct activities listed in Description section (SEE ABOVE). - Participate in designated OSD activities or analyses, as directed by Congress - Conduct analyses of architecture alternatives, including: -- Space sensor technologies -- Boost phase concepts			
Title: Systems Engineering, Engineering Analysis and Quick Response Team *Articles:*	9.504 -	9.865 -	10.620 -
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: - Conduct system level analyses to support ongoing BMDS Architecture and Systems Engineering efforts. - Analyze expected performance of BMDS Architecture options: -- Analyze and predict the performance of future BMDS capabilities			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
Appropriation/Budget Activity 0400 I 4	R-1 Program Element (Number/Name) PE 0603890C I BMD Enabling Programs	Project (Number/Name) MD24 I System Engineering & Integration

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018
-- 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. **FY 2016 Accomplishments:** - Conducted activities listed in Description section (SEE ABOVE). - Continued performance analysis to support the development of Homeland Defense system architecture development and employment options. - Conducted system level performance analyses for ongoing BMDS Architecture and Systems Engineering efforts, including: -- BMD System performance analysis in support of the Global Sensor Analysis of Alternatives -- Achievable Capabilities List for 2016 -- Spaced Based Interceptor Study -- Advanced Threat Missile Defense Study Part 1 -- Siting studies for Terminal High Altitude Area Defense (THAAD) in South Korea, the Long Range Discrimination Radar, the Pacific Radar, and an Atlantic Radar -- Support for Pre-SCN development of requirements for the Pacific Radar -- Congressional Studies for Defense of Hawaii, Defense of the East Coast **FY 2017 Plans:** - Conduct activities listed in Description section (SEE ABOVE). - Analyze expected performance of options for Enhanced Homeland Defense and Regional system architectures, including: -- BMD System performance analysis in support of the Advanced Threat Missile Defense Study Part 2 -- Analysis of Railgun -- Analysis of advanced sensor and weapon concepts against advanced threats. **FY 2018 Plans:** - Conduct activities listed in Description section (SEE ABOVE).			
Title: Discrimination	28.955	18.754	12.774
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 generate threat data to support analysis and testing activities.			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
Appropriation/Budget Activity 0400 **I** 4	R-1 Program Element (Number/Name) PE 0603890C **I** *BMD Enabling Programs*	Project (Number/Name) MD24 **I** *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018
FY 2016 Accomplishments: - Completed integration phase for Near-Term ground testing via GTI-06 - Monitored Near-term ground testing via GTI-06 and GTD-06 and analyzed test results - Assessed Near-Term capability readiness for fielding - Supported Element Mid-Term discrimination improvement requirements definition in support of Element design refinement - Completed system testing environment Objective Simulation Framework updates for Mid-term capabilities - Assisted in development of data collection requirements for of Mid-Term capability flight tests - Defined & developed Far-term threat models for engineering analysis, requirements development, capabilities development, and test and verification - Planned, managed, and conducted trades and analysis tasks across the elements for Far-term discrimination improvements and countermeasures mitigation technology application to the Far-term threat *FY 2017 Plans:* FY 2017 decrease reflects completion of Near-term discrimination improvements testing and assessment activities, and completion of the Mid-term discrimination improvement requirements definition and performance specification development activities. - Complete Mid-term discrimination improvements systems engineering work and integrate element level design solutions -- Complete analysis to support test planning and assessment of the integrated capability -- Perform cross element and system level integration of Mid-term discrimination improvements design solutions. - Conduct Far-term discrimination and countermeasure mitigation capability development -- Define Far-term decision logic improvement solutions which are mature enough to initiate preliminary design -- Develop definition of fire control/weapon handover improvements and initiate preliminary design -- Execute system requirements review for radar electronic protection improvements. *FY 2018 Plans:* FY 2018 decrease is in-line with efforts to transition focus from top-level systems engineering to element engineering. - Identify and address Mid-term discrimination integration issues and work resolution with BMDS Elements in preparation for 2021 Technical Capability Declaration. - Support modifications to Mid-term discrimination content in the integrated master assessment plan and integrated master test plan. - Develop detailed plan to support Mid-term discrimination Technical Capability Declaration.			
Title: Risk Management	7.272	7.619	8.145
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018
Description: The Risk Management task identifies BMDS element and component technical risks, and tracks status and risk mitigation progress. - Convene and chair Risk Management Working Group. - Execute the risk management and mission readiness working group process. - Maintain a risk database using the Failure Reporting and Corrective Action System. - Review and approve program element risks, on quarterly basis. *FY 2016 Accomplishments:* - Conducted activities listed in Description section (SEE ABOVE). *FY 2017 Plans:* - Conduct activities listed in Description section (SEE ABOVE). *FY 2018 Plans:* - Conduct activities listed in Description section (SEE ABOVE).			
Title: Anti-Tamper & Engineering Manufacturing Readiness Level Development *Articles:* *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. - Develop anti-tamper approaches to enable international fielding, support coalition warfare, and extend the effective operational life of the BMDS. - Engage and support the Services in understanding and transitioning BMDS Element Anti-Tamper activities. - 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. - Monitor application of EMRLs to evaluate engineering and manufacturing maturity of BMDS elements, systems, and components. - Assess and report readiness of MDA development efforts for transition to production. *FY 2016 Accomplishments:* - Conducted activities listed in Description section (SEE ABOVE). *FY 2017 Plans:* - Conduct activities listed in Description section (SEE ABOVE). *FY 2018 Plans:*	5.382 -	5.353 -	5.795 -

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
- Conduct activities listed in Description section (SEE ABOVE).			
Title: Manufacturing and Producibility	4.441	4.662	4.944
Articles:	-	-	-
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. - 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. ***FY 2016 Accomplishments:*** - Conducted activities listed in Description section (SEE ABOVE). ***FY 2017 Plans:*** - Conduct activities listed in Description section (SEE ABOVE). ***FY 2018 Plans:*** - Conduct activities listed in Description section (SEE ABOVE).			
Title: Aegis Ashore Defense	0.000	0.000	10.000
Articles:	-	-	-

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
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. This effort will build upon a previously-conducted study that assessed potential options to fulfill this requirement. *FY 2016 Accomplishments:* N/A *FY 2017 Plans:* N/A *FY 2018 Plans:* - Demonstrate a viable, organic capability for Aegis Ashore sites in Romania and Poland in accordance with the NDAA. -- Conduct testing, analysis and assessment utilizing the land-based test facility at White Sands Missile Range (WSMR). -- Partner with MDA Functional and Navy/Army Program Offices to conduct two demonstrations at WSMR in FY18. - Develop and implement an architecture, and prove a target track provided by an Army sensor can effectively provide enough track data to allow the Aegis Combat System (ACS) to develop an engagement order. - Integrate Navy's Sea Rolling Airframe Missile (SeaRAM) with the ACS to characterize architecture and functionality. - Conduct a live missile test to prove missile performance over land.			
Accomplishments/Planned Programs Subtotals	146.148	139.866	150.358

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	197.617	209.072	230.162	-	230.162	194.328	253.778	264.377	267.254	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,260.480	862.080	828.097	-	828.097	630.842	651.047	567.451	551.701	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	233.020	230.077	247.345	-	247.345	247.643	362.850	401.267	497.503	Continuing	Continuing
• 0603892C: *AEGIS BMD*	804.211	959.066	852.052	-	852.052	805.051	789.217	656.164	695.306	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	425.996	456.267	430.115	-	430.115	461.275	501.956	496.411	514.139	Continuing	Continuing

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• 0603914C: *Ballistic Missile Defense Test*	290.267	293.441	305.791	-	305.791	295.042	351.626	336.137	334.678	Continuing	Continuing

Remarks

D. Acquisition Strategy

In order to optimize the performance of the BMDS, MDA leverages the nation's engineering Centers of Excellence at government agencies and Military Services, FFRDCs, UARCs, and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution 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

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency														Date: May 2017	

Appropriation/Budget Activity
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R-1 Program Element (Number/Name)
PE 0603890C / BMD Enabling Programs

Project (Number/Name)
MD24 / System Engineering & Integration

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
 N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Requirements and Design - Reqts & Design - Lethality Spt - FFRDC/UARC	MIPR	SNL : CA	0.684	0.357	Oct 2015	0.364	Nov 2016	1.046	Nov 2017	-		1.046	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - Lethality Spt - CSS	C/CPAF	Corvid : NC	0.715	0.744	Nov 2015	0.758	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - CSS 1	C/CPFF	MiDAESS / TEAMS : AL	30.638	3.509	Oct 2015	1.886	Nov 2016	3.654	Nov 2017	-		3.654	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - CSS 3	C/CPFF	MEI : AL	0.600	0.281	Oct 2015	0.286	Nov 2016	0.509	Nov 2017	-		0.509	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - FFRDC/UARC 1	MIPR	ORNL : TN	0.984	0.000		0.000		0.391	Nov 2017	-		0.391	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - FFRDC/UARC 2	MIPR	MITRE : VA	0.000	0.555	Oct 2015	0.762	Nov 2016	2.074	Nov 2017	-		2.074	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - HAENS Spt	MIPR	NSWC Crane : IN	0.514	0.460	Oct 2015	0.469	Nov 2016	0.479	Nov 2017	-		0.479	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	0.000		1.300	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - Industry	C/CPAF	Boeing : AL	86.218	11.128	Oct 2015	9.486	Nov 2016	8.077	Nov 2017	-		8.077	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Requirements and Design - Reqts & Design - MDA	Allot	MDA : AL, VA	25.071	9.699	Nov 2015	11.917	Oct 2016	8.800	Oct 2017	-		8.800	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - OGA	MIPR	AMRDEC : AL	3.449	2.138	Oct 2015	1.872	Nov 2016	2.188	Nov 2017	-		2.188	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - Post Intercept Assessment	Various	Various : Various	0.000	0.000		0.000		6.900	Dec 2017	-		6.900	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - FFRDC	Various	Various : AL, VA, MD	1.037	1.510	Nov 2015	0.000		0.000		-		0.000	0	2.547	0
Integrated Air and Missile Defense (IAMD) - IAMD - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	0.000		0.670	Nov 2016	0.000		-		0.000	0	0.670	0
Integrated Air and Missile Defense (IAMD) - IAMD - OGA	MIPR	AMRDEC : AL	0.000	0.000		4.319	Nov 2016	4.448	Nov 2017	-		4.448	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - Support	C/CPFF	MiDAESS / TEAMS : AL, VA, CO	1.109	2.282	Nov 2015	0.499	Nov 2016	1.498	Nov 2017	-		1.498	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - Various	MIPR	DoD Activities : Various	10.750	11.408	Nov 2015	10.501	Nov 2016	10.965	Nov 2017	-		10.965	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - CSS	C/CPFF	MiDAESS / TEAMS : AL	3.941	1.424	Nov 2015	1.044	Nov 2016	3.368	Nov 2017	-		3.368	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - CSS 2	C/CPFF	MiDAESS / TEAMS : AL, CO	0.000	0.000		2.046	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 1	MIPR	Aerospace : CA	15.296	1.495	Oct 2015	1.433	Nov 2016	1.700	Nov 2017	-		1.700	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 2	MIPR	JHU/APL : MD, VA	9.102	0.894	Oct 2015	0.962	Nov 2016	1.100	Nov 2017	-		1.100	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency															Date: May 2017	
Appropriation/Budget Activity 0400 *I* 4							**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*						**Project (Number/Name)** MD24 *I System Engineering & Integration*			

Support ($ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Prior Years**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 6	MIPR	MIT/LL : MA	16.666	1.860	Oct 2015	1.372	Nov 2016	1.400	Nov 2017	-		1.400	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 7	MIPR	MITRE : VA	14.342	2.225	Oct 2015	1.599	Nov 2016	1.618	Nov 2017	-		1.618	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	0.993	Oct 2015	1.200	Nov 2016	0.000		-		0.000	0	2.193	0
System-Level Verification and Assessment - Sys V&A - M&S Accreditation	Various	Various : Various	0.000	0.000		0.000		2.000	Nov 2017	-		2.000	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - MDA	Allot	MDA : VA, AL	6.102	0.547	Oct 2015	0.619	Oct 2016	2.389	Oct 2017	-		2.389	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - OGA	MIPR	AMRDEC : AL	6.698	2.130	Oct 2015	1.043	Nov 2016	1.369	Oct 2017	-		1.369	Continuing	Continuing	Continuing
System-Level Verification and Assessment - V&A Industry Support	C/CPFF	Boeing : AL	6.986	3.118	Oct 2015	3.878	Nov 2016	3.518	Nov 2017	-		3.518	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 1	MIPR	Aerospace : CA	10.026	1.438	Oct 2015	1.716	Nov 2016	1.793	Nov 2017	-		1.793	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 2	MIPR	MIT/LL : MA	5.564	1.453	Oct 2015	0.983	Nov 2016	1.027	Nov 2017	-		1.027	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 3	FFRDC	MITRE : VA	5.702	1.366	Oct 2015	0.998	Nov 2016	1.042	Nov 2017	-		1.042	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 4	FFRDC	JHU/APL : VA	5.401	1.077	Oct 2015	0.657	Nov 2016	0.820	Nov 2017	-		0.820	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 7	MIPR	GTRI : GA	3.939	0.000		0.347	Nov 2016	0.363	Nov 2017	-		0.363	Continuing	Continuing	Continuing
Knowledge Centers - KC - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.432	0.900	Oct 2015	1.700	Nov 2016	0.000		-		0.000	0	3.032	0

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency		**Date:** May 2017	
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Knowledge Centers - KC - MDA	Various	MDA : AL, VA	17.608	6.443	Oct 2015	6.125	Nov 2016	5.099	Oct 2017	-		5.099	Continuing	Continuing	Continuing
Knowledge Centers - KC - TEAMS	C/CPFF	MiDAESS / TEAMS : AL	0.000	0.000		0.000		3.276	Nov 2017	-		3.276	Continuing	Continuing	Continuing
Knowledge Centers - KC - Various	MIPR	Various : Various	2.448	1.575	Oct 2015	1.616	Nov 2016	2.049	Nov 2017	-		2.049	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Architecture CSS	C/CPFF	MiDAESS / TEAMS : AL	3.621	2.994	Oct 2015	3.371	Nov 2016	3.740	Nov 2017	-		3.740	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Architecture Support	Various	Various : VA, AL	2.897	3.510	Oct 2015	1.109	Nov 2016	1.780	Oct 2017	-		1.780	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - CSS	C/CPFF	MiDAESS / TEAMS : AL	20.428	1.106	Oct 2015	1.498	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 1	MIPR	SNL : CA	2.105	0.577	Oct 2015	0.385	Nov 2016	0.391	Nov 2017	-		0.391	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 3	MIPR	MIT/LL : MA	0.999	2.532	Oct 2015	0.385	Nov 2016	0.783	Nov 2017	-		0.783	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 4	MIPR	JHU/APL : MD, VA	3.698	0.755	Oct 2015	0.790	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 5	MIPR	MITRE : VA	1.595	0.387	Oct 2015	0.462	Nov 2016	0.478	Nov 2017	-		0.478	Continuing	Continuing	Continuing
Future Concepts and Planning - Future	MIPR	Aerospace : CA	1.885	0.453	Oct 2015	0.385	Nov 2016	0.391	Nov 2017	-		0.391	Continuing	Continuing	Continuing

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency														**Date:** May 2017		
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Support ($ in Millions)				**FY 2016**		**FY 2017**		**FY 2018 Base**		**FY 2018 OCO**		**FY 2018 Total**			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Prior Years**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Concepts - FFRDC / UARC 6															
Future Concepts and Planning - Future Concepts - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	0.000		0.450	Nov 2016	0.000		-		0.000	0	0.450	0
Future Concepts and Planning - Future Concepts - Industry	C/CPAF	Boeing : AL	25.989	2.567	Oct 2015	1.078	Nov 2016	2.000	Nov 2017	-		2.000	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Support	Allot	MDA : VA / AL	4.768	2.704	Oct 2015	2.573	Oct 2016	3.557	Oct 2017	-		3.557	Continuing	Continuing	Continuing
Future Concepts and Planning - Hypersonic Defense - CSS	C/CPFF	MiDAESS / TEAMS : AL, VA	0.000	0.000		0.800	Apr 2017	0.000		-		0.000	0	0.800	0
Future Concepts and Planning - Hypersonic Defense - FFRDC	Various	Various : AL, NM, MA, VA	0.000	0.000		2.017	Apr 2017	0.000		-		0.000	0	2.017	0
Future Concepts and Planning - Hypersonic Defense - Industry	C/CPAF	Boeing : AL	0.000	0.000		1.000	Apr 2017	0.000		-		0.000	0	1.000	0
Future Concepts and Planning - Hypersonic Defense - UARC	MIPR	JHU / APL : MD, VA	0.000	0.000		1.413	Apr 2017	0.000		-		0.000	0	1.413	0
Future Concepts and Planning - Hypersonic Defense - Various	Various	Various : Various	0.000	0.000		1.470	Apr 2017	0.000		-		0.000	0	1.470	0
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.232	0.793	Oct 2015	0.270	Nov 2016	0.000		-		0.000	0	1.295	0
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - CSS	C/CPFF	MiDAESS / TEAMS : AL	26.770	4.590	Oct 2015	4.682	Nov 2016	2.421	Nov 2017	-		2.421	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency														Date: May 2017	
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Support ($ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - CSS 2	C/CPFF	SAIC : VA, AL	9.666	4.121	Oct 2015	4.556	Nov 2016	7.650	Nov 2017	-		7.650	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - MDA	Various	MDA : VA, AL	2.912	0.000		0.357	Nov 2016	0.549	Oct 2017	-		0.549	Continuing	Continuing	Continuing
Discrimination - Discrimination - CSS	C/CPFF	MiDAESS / TEAMS : AL	7.878	4.860	Nov 2015	1.998	Nov 2016	2.489		-		2.489	Continuing	Continuing	Continuing
Discrimination - Discrimination - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	0.000		2.006	Nov 2016	0.000		-		0.000	0	2.006	0
Discrimination - Discrimination - Industry	C/CPAF	Boeing : AL, VA	8.567	11.005	Nov 2015	2.000	Nov 2016	3.172	Nov 2017	-		3.172	Continuing	Continuing	Continuing
Discrimination - Discrimination - Support	Allot	MDA : AL, VA	7.357	9.658	Nov 2015	8.400	Oct 2016	3.337	Oct 2017	-		3.337	Continuing	Continuing	Continuing
Discrimination - Discrimination - Various	Various	Various : AL, VA	6.419	3.432	Nov 2015	4.350	Nov 2016	3.776	Nov 2017	-		3.776	Continuing	Continuing	Continuing
Discrimination - Prior year Discrimination Improvements no longer funded in FYDP	Various	Various : Various	25.213	0.000		0.000		0.000		-		0.000	0	25.213	0
Risk Management - Risk Mgt - Analysis	Various	MDA : VA, AL	7.493	5.238	Oct 2015	5.892	Oct 2016	6.824	Oct 2017	-		6.824	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - Analysis Spt	C/CPAF	MiDAESS / TEAMS : AL	1.849	0.864	Nov 2015	0.250	Nov 2016	0.733	Nov 2017	-		0.733	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - FFRDC/UARC	MIPR	MITRE : VA	3.870	0.377	Oct 2015	0.577	Nov 2016	0.588	Nov 2017	-		0.588	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.432	0.793	Oct 2015	0.900	Nov 2016	0.000		-		0.000	0	2.125	0
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT	MIPR	NSWC Crane : IN	6.059	0.209	Nov 2015	0.213	Nov 2016	0.498	Nov 2017	-		0.498	Continuing	Continuing	Continuing

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency													**Date:** May 2017	
Appropriation/Budget Activity 0400 *I* 4						**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*						**Project (Number/Name)** MD24 *I System Engineering & Integration*		

Support ($ in Millions)				**FY 2016**		**FY 2017**		**FY 2018 Base**		**FY 2018 OCO**		**FY 2018 Total**		
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Prior Years**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
& EMRL - Anti-Tamper Support															
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - MDA	Allot	MDA : AL, VA	11.139	4.859	Oct 2015	4.927	Oct 2016	5.297	Oct 2017	-		5.297	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - OGA Support	MIPR	AMRDEC : AL	0.455	0.314	Nov 2015	0.213	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - Prior year AT & EMRL no longer funded in FYDP	Various	Various : Various	2.001	0.000		0.000		0.000		-		0.000	0	2.001	0
Manufacturing and Producibility - Core Standards	C/CPFF	Boeing : AL	1.109	1.091	Nov 2015	1.113	Nov 2016	1.500	Nov 2017	-		1.500	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility	Allot	MDA : AL	1.287	0.645	Oct 2015	0.491	Oct 2016	1.475	Oct 2017	-		1.475	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	0.500		0.950	Nov 2016	0.000		-		0.000	0	1.450	0
Manufacturing and Producibility - Mfg and Producibility - OGA Support	MIPR	AMRDEC : AL	3.708	2.205	Nov 2015	2.108	Nov 2016	1.969	Nov 2017	-		1.969	Continuing	Continuing	Continuing
Aegis Ashore Defense - Concept Dev	Various	Various : Various	0.000	0.000		0.000		10.000	Nov 2017	-		10.000	Continuing	Continuing	Continuing
Subtotal			494.423	146.148		139.866		150.358		-		150.358	-	-	-

Remarks
N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

Test and Evaluation ($ in Millions)					FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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			-	-		-		-		-		-	-	-	-

Remarks
 N/A

Management Services ($ in Millions)					FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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			-	-		-		-		-		-	-	-	-

Remarks
 N/A

	Prior Years	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Project Cost Totals	494.423	146.148	139.866	150.358	-	150.358	-	-	-

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.

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency		Date: May 2017
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 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2016	▲						
Ballistic Missile Defense System Specification (BMD SS)	▲						
Element Design Reviews - FY 2016	▲						
System Engineering Plan (SEP) Update - FY 2016	▲						
Ballistic Missile Defense System (BMDS) Requirements Review	▲						
Ballistic Missile Defense System Description Document (BMD SDD)	▲						
Ballistic Missile Defense System Engineering Review - FY 2016	▲						
Ballistic Missile Defense System Interface Control Documents (SICD) Part I - FY 2016	▲						
Update Master Integration Plan (MIP) - FY 2016	▲						
BMD SS - FY 2016	▲						
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2016	▲						
Provide Independent Assessments to MDA - FY 2016	▲						
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2016	▲						
Update to BMD SDD - FY 2017		△					
Update to IMAP - 1Q FY 2017		△					
BMD SS - FY 2017		△					
Element Design Reviews - FY 2017		△					
Ballistic Missile Defense System Engineering Review - FY 2017		△					
Update to IMAP - 3Q FY 2017		△					
Update Achievable Capabilities List - FY 2017		△					
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2017		△					
Provide Independent Assessments to MDA - FY 2017		△					
Update MIP - FY 2017		△					
Update to BMD SDD - FY 2018			△				

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency		Date: May 2017
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 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Update to IMAP - 1Q FY 2018			△				
Element Design Reviews - FY 2018			△				
BMD SS - FY 2018			△				
BMD SER - FY 2018			△				
Update Achievable Capabilities List - FY 2018			△				
Update to IMAP - 3Q FY 2018			△				
E/CCA - 4Q - FY 2018			△				
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2018			△				
Update MIP - FY 2018			△				
Update to IMAP - 1Q FY 2019				△			
Update to BMD SDD - FY 2019				△			
Deliver Assessment for EPAA Phase 3 – FY 2019				△			
BMD SS - FY 2019				△			
Element Design Reviews - FY 2019				△			
SEP Update - FY 2019				△			
Update to IMAP - 3Q FY 2019				△			
BMD SER - FY 2019				△			
Update Achievable Capabilities List - FY 2019				△			
Update MIP - FY 2019				△			
E/CCA 4Q - FY 2019				△			
Update to IMAP - 1Q FY 2020					△		
Update to BMD SDD - FY 2020					△		
SEP Update - FY 2020					△		
BMD SS - FY 2020					△		

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency		**Date:** May 2017
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 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
BMD SER - 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						△	
BMD SER - FY 2021						△	
Update to IMAP - 3Q FY 2021						△	
Update Achievable Capabilities List - FY 2022						△	
Update MIP - FY 2021							△
E/CCA - 4Q FY 2021							△
Update to BMD SDD - FY 2022							△
SEP Update FY 2022							△
BMD SS - FY 2022							△
Updates to IMAP -3Q FY 2022							△
BMD SER - FY 2022							△
Update MIP - FY2022							△
E/CCA - 4Q FY 2022							△

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency		Date: May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

Schedule Details

Events	Start		End	
	Quarter	**Year**	**Quarter**	**Year**
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2016	1	2016	1	2016
Ballistic Missile Defense System Specification (BMD SS)	1	2016	1	2016
Element Design Reviews - FY 2016	2	2016	2	2016
System Engineering Plan (SEP) Update - FY 2016	2	2016	2	2016
Ballistic Missile Defense System (BMDS) Requirements Review	2	2016	2	2016
Ballistic Missile Defense System Description Document (BMD SDD)	2	2016	2	2016
Ballistic Missile Defense System Engineering Review - FY 2016	3	2016	3	2016
Ballistic Missile Defense System Interface Control Documents (SICD) Part I - FY 2016	3	2016	3	2016
Update Master Integration Plan (MIP) - FY 2016	3	2016	3	2016
BMD SS - FY 2016	3	2016	3	2016
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2016	4	2016	4	2016
Provide Independent Assessments to MDA - FY 2016	4	2016	4	2016
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2016	4	2016	4	2016
Update to BMD SDD - FY 2017	1	2017	1	2017
Update to IMAP - 1Q FY 2017	1	2017	1	2017
BMD SS - FY 2017	2	2017	2	2017
Element Design Reviews - FY 2017	2	2017	2	2017
Ballistic Missile Defense System Engineering Review - FY 2017	3	2017	3	2017
Update to IMAP - 3Q FY 2017	3	2017	3	2017
Update Achievable Capabilities List - FY 2017	3	2017	3	2017
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2017	4	2017	4	2017
Provide Independent Assessments to MDA - FY 2017	4	2017	4	2017
Update MIP - FY 2017	4	2017	4	2017

Exhibit R-4A, **RDT&E Schedule Details:** FY 2018 Missile Defense Agency				**Date:** May 2017	
Appropriation/Budget Activity 0400 *I* 4		**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*		**Project (Number/Name)** MD24 *I System Engineering & Integration*	

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

Exhibit R-4A, **RDT&E Schedule Details:** FY 2018 Missile Defense Agency				**Date:** May 2017	
Appropriation/Budget Activity 0400 *I* 4		**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*		**Project (Number/Name)** MD24 *I System Engineering & Integration*	

Events	Start		End	
	Quarter	Year	Quarter	Year
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
BMD SER - 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
BMD SER - FY 2022	3	2022	3	2022
Update MIP - FY2022	4	2022	4	2022
E/CCA - 4Q FY 2022	4	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency										Date: May 2017	

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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MT23: *Enabling - Test*	18.225	16.043	17.749	22.767	-	22.767	20.811	20.735	22.008	21.751	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

FY 2018 increase keeps pace with projected FY 2018-FY 2022 IMTP events, and reflects System-level test analyses, M&S integration, and supporting validation and assessment activities required for EPAA Phase 3 Technical Capability Declaration (TCD).

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.

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
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 2016**	**FY 2017**	**FY 2018**
Title: Engineering and Analysis	16.043	17.749	22.767
Articles:	-	-	-

Description: The Engineering and Analysis effort provides essential BMDS ground and flight test event planning, execution, and evaluation activities for each test event:
- Designing test architecture, defining test objectives and evaluation criteria, defining target requirements, and generating ground and flight test scenarios appropriate to the data collection requirements to assess BMDS performance and anchor Models and Simulations.
- Producing the threat data for BMDS ground and flight tests.
- Coordinating with BMDS Operational Test Agency (OTA) to address test issues, disposition them, coordinate them, with the OTA and recommend action plans to achieve closure.
- Delivering HWIL M&S integration test cases.
- Conducting M&S HWIL Integration Benchmark and integrating the BMDS HWIL M&S framework with MDA and non-MDA Elements into the test event BMDS architecture.
- Integrating, testing, functionally qualifying, and delivering end-to-end BMDS simulations supporting ground test missions.
- Analyzing System-level interoperability.
- Conducting modeling and technical analysis for Combatant Command wargames and exercises.
- Utilizing M&S for pre-test assessment and post-test review, as well as M&S updates.
- Providing test configuration management; risk assessments; and anomaly/deficiency review, assessment and closure.
- Analyzing test results to identify verification and validation data collection shortfalls and reassigning objectives to future test events as required.
- Documenting BMDS test observations for system-level test anomalies and coordinating the resulting BMDS Discrepancy Reports within the Failure Reporting, Analysis, and Corrective Action System (FRACAS)
- Upgrading test analysis tools in concert with the BMDS evolution (e.g., Modular Analysis and Reporting Suite (MARS)) to enhance analysis capability and efficiency.
Specific unique accomplishments per FY are as follows:

FY 2016 Accomplishments:
see above

FY 2017 Plans:
FY 2017 increase keeps pace with projected FY 2017-FY 2021 IMTP events.

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
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 2016**	**FY 2017**	**FY 2018**
- Validate test event data collection and conduct post-test analyses supporting delivery of Near-term Discrimination Improvements and Enhanced Homeland Defense capabilities. - Participate in target-of-opportunity missions to collect sensor data. *FY 2018 Plans:* FY 2018 increase keeps pace with projected FY 2018-FY 2022 IMTP events, and reflects System-level test analyses, M&S integration, and supporting validation and assessment activities required for EPAA Phase 3 Technical Capability Declaration (TCD). - Validate test event data collection and conduct post-test analyses supporting the EPAA Phase 3 TCD.			
Accomplishments/Planned Programs Subtotals	16.043	17.749	22.767

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• 0603914C: *Ballistic Missile Defense Test*	290.267	293.441	305.791	-	305.791	295.042	351.626	336.137	334.678	Continuing	Continuing
• 0604878C: *Aegis BMD Test*	78.468	95.012	134.468	-	134.468	73.059	82.570	113.856	97.660	Continuing	Continuing

Remarks

D. Acquisition Strategy

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

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency													Date: May 2017	
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	Award Date	FY 2017 Cost	Award Date	FY 2018 Base Cost	Award Date	FY 2018 OCO Cost	Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
 N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	Award Date	FY 2017 Cost	Award Date	FY 2018 Base Cost	Award Date	FY 2018 OCO Cost	Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Analysis - Engineering & Analysis - CSS Support	C/CPFF	MiDAESS / TEAMS : AL	1.000	0.494	Oct 2015	1.514	Oct 2016	1.526	Nov 2017	-		1.526	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - FFRDC	MIPR	Aerospace : AL	0.000	0.346	Nov 2015	0.385	Nov 2016	0.391	Nov 2017	-		0.391	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Industry	C/CPAF	Boeing : VA, AL	5.594	2.111	Oct 2015	2.382	Nov 2016	4.486	Nov 2017	-		4.486	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Integration Support CSS	C/CPAF	COLSA : AL, CO	2.790	5.076	Nov 2015	5.328	Nov 2016	7.505	Nov 2017	-		7.505	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - OGA Support	MIPR	AMRDEC : AL	6.557	6.182	Oct 2015	7.301	Nov 2016	7.032	Nov 2017	-		7.032	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - OGA Support - NME	MIPR	LTPO : AL	0.000	0.000		0.000		1.652	Nov 2017	-		1.652	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Technical Support	C/CPAF	Northrop Grumman : VA, AL	1.354	1.205	Oct 2015	0.000		0.000		-		0.000	0	2.559	0
Engineering and Analysis - Engineering & Analysis - Test Engineering Support	Various	Various : AL, CO, VA	0.930	0.629	Nov 2015	0.839	Nov 2016	0.175	Nov 2017	-		0.175	Continuing	Continuing	Continuing
Subtotal			18.225	16.043		17.749		22.767		-		22.767	-	-	-

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency			**Date:** May 2017
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
N/A

	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	18.225	16.043	17.749	22.767	-	22.767	-	-	-

Remarks
N/A

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency		Date: May 2017
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 ▲	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 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Integrated Master Test Plan (IMTP) Engineering Inputs - 1Q - 2016	▲						
Integrated Master Test Plan (IMTP) Engineering Inputs - 4Q - FY 2016	▲						
Integrated Master Test Plan (IMTP) Engineering Inputs - 1Q - FY 2017		△					
Integrated Master Test Plan (IMTP) Engineering Inputs - 3Q - FY 2017		△					
IMTP Engineering Inputs - 1Q - FY 2018			△				
IMTP Engineering Inputs - 3Q - FY 2018			△				
FT0-03 E1 (OTA, Intercept Flight Test)			△				
IMTP Engineering Inputs - 1Q - FY 2019				△			
IMTP Engineering Inputs - 3Q - FY 2019				△			
FT0-03 E2 (OTA, Intercept Flight Test)				△			
IMTP Engineering Inputs - 1Q - FY 2020					△		
IMTP Engineering Inputs - 3Q - FY 2020					△		
IMTP Engineering Inputs - 1Q - FY 2021						△	
IMTP Engineering Inputs - 2Q - FY 2016						△	
IMTP Engineering Inputs - 1Q - FY2022							△
IMTP Engineering Inputs - 3Q - FY 2022							△

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Exhibit R-4A, **RDT&E Schedule Details:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0603890C **/** *BMD Enabling Programs*	**Project (Number/Name)** MT23 **/** *Enabling - Test*

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Integrated Master Test Plan (IMTP) Engineering Inputs - 1Q - 2016	1	2016	1	2016
Integrated Master Test Plan (IMTP) Engineering Inputs - 4Q - FY 2016	4	2016	4	2016
Integrated Master Test Plan (IMTP) Engineering Inputs - 1Q - FY 2017	1	2017	1	2017
Integrated Master Test Plan (IMTP) Engineering Inputs - 3Q - FY 2017	3	2017	3	2017
IMTP Engineering Inputs - 1Q - FY 2018	1	2018	1	2018
IMTP Engineering Inputs - 3Q - FY 2018	3	2018	3	2018
FT0-03 E1 (OTA, Intercept Flight Test)	3	2018	3	2018
IMTP Engineering Inputs - 1Q - FY 2019	1	2019	1	2019
IMTP Engineering Inputs - 3Q - FY 2019	3	2019	3	2019
FT0-03 E2 (OTA, Intercept Flight Test)	2	2019	2	2019
IMTP Engineering Inputs - 1Q - FY 2020	1	2020	1	2020
IMTP Engineering Inputs - 3Q - FY 2020	3	2020	3	2020
IMTP Engineering Inputs - 1Q - FY 2021	1	2021	1	2021
IMTP Engineering Inputs - 2Q - FY 2016	3	2021	3	2021
IMTP Engineering Inputs - 1Q - FY2022	1	2022	1	2022
IMTP Engineering Inputs - 3Q - FY 2022	3	2022	3	2022

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency									Date: May 2017	

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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MD28: Intelligence & Security	107.954	39.085	41.254	44.708	-	44.708	44.557	47.744	48.732	49.477	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
Beginning in FY 2018, funding for Cyber related portion of Insider Threat mitigation has been transferred to project MC31, Engineering - Cyber.

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 (formerly Research, Development, and Acquisition (RDA) Security); 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 2016	FY 2017	FY 2018
Title: Intelligence	8.510	9.203	10.324
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: - Serve as designated intelligence broker between MDA and the Intelligence Community			

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
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 2016	FY 2017	FY 2018
-- Maintain and communicate prioritized, specific BMDS intelligence requirements to the Intelligence Community. -- Maintain a focused dialog with members of the Intelligence Community to ensure understanding, urgency and context of MDA intelligence requirements. - Provide Current, Technical, Acquisition, Collection and Cyber intelligence to the BMDS throughout the acquisition life cycle. - 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. - 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. - Maintain Missile Intelligence Secure Link (MISL) classified portal (full operational capability). *FY 2016 Accomplishments:* - Conducted activities listed in Description section (SEE ABOVE). *FY 2017 Plans:* - Conduct activities listed in Description section (SEE ABOVE). *FY 2018 Plans:* FY 2018 increase reflects need for additional, dedicated support to new BMDS programs (e.g., LRDR). - Conduct activities listed in Description section (SEE ABOVE).			
Title: Counterintelligence *Articles:*	5.876 -	6.389 -	6.919 -
Description: The Counterintelligence Program detects, exploits 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: - 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. -- Engage National, Combatant Command and DoD CI resources to share and obtain threat information impacting MDA personnel, facilities, information, technologies, programs and activities, worldwide. -- 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. - 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.			

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
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 2016**	**FY 2017**	**FY 2018**
- 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. *FY 2016 Accomplishments:* - Conducted activities listed in Description section (SEE ABOVE). - Expanded Insider Threat Mitigation Cell activity to address Presidentially mandated Full Operational Capability (FOC) compliance. *FY 2017 Plans:* - Conduct activities listed in Description section (SEE ABOVE). *FY 2018 Plans:* FY 2018 increase reflects need for additional Cyber Assessment Team assets. - Conduct activities listed in Description section (SEE ABOVE).			
Title: Cybersecurity Engineering Program **Articles:** *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: - 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.	4.687 -	4.958 -	4.537 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		**Date:** May 2017
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 2016	FY 2017	FY 2018
-- Perform cybersecurity systems engineering assessments for proposed BMD System Specification and interface changes and additions. - Provide and recommend updates to cybersecurity systems engineering policy and guidance for BMDS system design and acquisition to enhance BMDS resiliency against cyber threats - Implement cybersecurity engineering resiliency techniques. - Provide objectives and requirements for Cybersecurity testing. - Provide independent cybersecurity reviews at critical engineering milestones. - Provide information system security engineering by assessing cybersecurity requirements, design, and implementations and provide recommendations to address architecture gaps or shortfalls. - 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. - Coordinate evaluation of cybersecurity capability during BMDS tests. - Develop verification and assessment strategies for system cybersecurity requirements. *FY 2016 Accomplishments:* - Conducted activities listed in Description section (SEE ABOVE). *FY 2017 Plans:* - Conduct activities listed in Description section (SEE ABOVE). *FY 2018 Plans:* Beginning in FY 2018, funding for Cyber related portion of Insider Threat mitigation has been transferred to project MC31, Engineering - Cyber. - Conduct activities listed in Description section (SEE ABOVE).			
Title: Program Protection Articles: *Description:* Program Protection (formerly RDA Security) 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: - 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. - Perform Information Security program management and oversee implementation by MDA programs -- Perform internal program reviews, policy oversight and implementation, and training to identify and fix deficiencies and protect critical BMDS information	10.072 -	10.965 -	11.998 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
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 2016	FY 2017	FY 2018
-- Collect information required for annual reports and communicate security posture to leadership - Provide security oversight for the Agency's classified contracts by drafting and coordinating DD254 "Contract Security Classification Specification" documents. - Execute an effective SCRM program to prevent unmitigated risks from degrading the performance of components and systems across the BMDS supply chain. - 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. - Perform systematic Declassification reviews on historical Agency information to prevent unauthorized disclosures due to automatic declassification requirements. - 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. - Provide effective physical protection to low density/high demand emerging warfighter capability. - Expand security activities to include FMS. - 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. - Keep pace with mission growth in program protection, system security engineering, acquisition security, and SCRM. *FY 2016 Accomplishments:* - Conducted activities listed in Description section (SEE ABOVE). *FY 2017 Plans:* - Conduct activities listed in Description section (SEE ABOVE). *FY 2018 Plans:* - Conduct activities listed in Description section (SEE ABOVE).			
Title: Threat Systems Engineering Articles:	9.940 -	9.739 -	10.930 -
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 -- Perform Threat Verification and Validation analysis to verify missile models meet specifications and are consistent with intelligence assessments.			

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD28 *I Intelligence & Security*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
- 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. *FY 2016 Accomplishments:* - Conducted activities listed in Description section (SEE ABOVE). *FY 2017 Plans:* - Conduct activities listed in Description section (SEE ABOVE). *FY 2018 Plans:* FY 2018 increase enables threat systems engineering team to maintain flexibility needed to address threat variations. - Conduct activities listed in Description section (SEE ABOVE).			
Accomplishments/Planned Programs Subtotals	39.085	41.254	44.708

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• 0305103C: *Cyber Security Initiative*	0.941	0.969	0.986	-	0.986	0.997	1.031	1.051	1.073	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 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.

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD28 / *Intelligence & Security*

E. Performance Metrics
  N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency		**Date:** May 2017
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 2016**		**FY 2017**		**FY 2018 Base**		**FY 2018 OCO**		**FY 2018 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			-	-		-		-		-		-	-	-	-

Remarks
 N/A

Support ($ in Millions)				**FY 2016**		**FY 2017**		**FY 2018 Base**		**FY 2018 OCO**		**FY 2018 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	12.741	4.126	Nov 2015	3.832	Oct 2016	4.779	Oct 2017	-		4.779	Continuing	Continuing	Continuing
Intelligence - Intelligence Support	C/CPFF	MIDAESS / TEAMS : AL, VA, CO	13.041	3.809	Nov 2015	4.746	Nov 2016	4.988	Nov 2017	-		4.988	Continuing	Continuing	Continuing
Intelligence - Intelligence Support (2)	C/CPFF	Northrop Grumman : AL, CO	0.856	0.575	Nov 2015	0.625	Nov 2016	0.557	Nov 2017	-		0.557	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	7.770	0
Counterintelligence - CI Analysis & Support	Allot	MDA : AL, CO, VA	4.829	2.109	Nov 2015	1.468	Oct 2016	1.892	Oct 2017	-		1.892	Continuing	Continuing	Continuing
Counterintelligence - CI Analysis and Support 3	C/CPFF	MIDAESS / TEAMS : AL, CO, VA	7.820	3.105	Nov 2015	4.514	Nov 2016	4.020	Nov 2017	-		4.020	Continuing	Continuing	Continuing
Counterintelligence - CI Insider Threat Analysis	C/CPFF	MIDAESS / TEAMS : VA	0.000	0.662	Nov 2015	0.407	Nov 2016	0.000		-		0.000	0	1.069	0
Counterintelligence - CI Surveillance Gear	Various	Various : Various	0.000	0.000		0.000		1.007	Dec 2017	-		1.007	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity - FFRDC	FFRDC	Aerospace : CA, VA	1.770	0.755	Nov 2015	0.754	Nov 2016	0.384	Nov 2017	-		0.384	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity - FFRDC (2)	FFRDC	MITRE : VA, AL	1.204	0.755	Nov 2015	0.754	Nov 2016	1.145	Nov 2017	-		1.145	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency													Date: May 2017		
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	Award Date	FY 2017 Cost	Award Date	FY 2018 Base Cost	Award Date	FY 2018 OCO Cost	Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Cybersecurity Engineering Program - Cybersecurity Engineering	Allot	MDA : VA, AL	7.072	2.259	Nov 2015	2.355	Oct 2016	2.467	Oct 2017	-		2.467	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity Engineering CSS	C/CPFF	MIDAESS / TEAMS : VA, AL	0.815	0.918	Nov 2015	1.095	Nov 2016	0.541	Nov 2017	-		0.541	Continuing	Continuing	Continuing
Program Protection - Declassification Analysis	C/CPFF	MIDAESS / TEAMS : VA, AL	4.020	1.623	Nov 2015	1.853	Nov 2016	2.183	Nov 2017	-		2.183	Continuing	Continuing	Continuing
Program Protection - Program Protection Analysis	Allot	MDA : VA, AL	13.050	3.592	Nov 2015	4.250	Oct 2016	4.550	Oct 2017	-		4.550	Continuing	Continuing	Continuing
Program Protection - Program Protection Analysis & Support	C/CPFF	MIDAESS / TEAMS : AL, AK, CA, CO, VA	10.866	4.346	Nov 2015	4.322	Nov 2016	4.665	Nov 2017	-		4.665	Continuing	Continuing	Continuing
Program Protection - Program Protection Support	Various	Various : AL, VA, CO	1.666	0.511	Nov 2015	0.540	Nov 2016	0.600	Nov 2017	-		0.600	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering	Various	MDA : VA, AL, CO	5.280	3.153	Nov 2015	2.116	Oct 2016	5.353	Oct 2017	-		5.353	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - CSS	C/CPFF	MIDAESS / TEAMS : AL, MD, VA	7.679	3.878	Nov 2015	4.218	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - CSS (2)	C/CPFF	MIDAESS / TEAMS : VA, AL	2.049	1.958	Nov 2015	2.230	Nov 2016	2.971	Nov 2017	-		2.971	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - FFRDC	FFRDC	MIT/LL : MA	1.869	0.000		0.000		1.174	Nov 2017	-		1.174	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat	FFRDC	JHU/APL : MD	2.233	0.000		0.000		1.432	Nov 2017	-		1.432	Continuing	Continuing	Continuing

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Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency											**Date:** May 2017		
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering - UARC															
Threat Systems Engineering - Unique RCS	FFRDC	NSWC Corona : CA, MD	1.324	0.951	Nov 2015	1.175	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			107.954	39.085		41.254		44.708		-		44.708	-	-	-

Remarks

NASIC - National Air and Space Intelligence Center

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	107.954	39.085	41.254	44.708	-	44.708	-	-	-

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency									**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4				**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*			**Project (Number/Name)** MD28 *I Intelligence & Security*		

	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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.

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency		Date: May 2017
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 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
MD28 Intelligence & Security	◇◇◇◇	◇◇◇◇	◇◇◇◇	◇◇◇◇	◇◇◇◇	◇◇◇◇	◇◇◇◇
Adversary Data Package (ADP) - 2017			△				
Submit Annual MDA OPSEC Report to USD(I) - 2017			△				
Complete Annual Declassification Review - 2017			△				
ADP - 2018				△			
Submit Annual MDA OPSEC Report to USD(I) - 2018				△			
Complete Annual Declassification Review - 2018				△			
ADP - 2019					△		
Submit Annual MDA OPSEC Report to USD(I) - 2019					△		
Complete Annual Declassification Review - 2019					△		
ADP - 2020						△	
Submit Annual MDA OPSEC Report to USD(I) - 2020						△	
Complete Annual Declassification Review - 2020						△	
ADP - 2021							△
Submit Annual MDA OPSEC Report to USD(I) - 2021							△
Complete Annual Declassification Review - 2021							△
ADP - 2022							△
Submit Annual MDA OPSEC Report to USD(I) - 2022							△
Complete Annual Declassification Review - 2022							△

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency		**Date:** May 2017
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	2016	4	2022
Adversary Data Package (ADP) - 2017	4	2017	4	2017
Submit Annual MDA OPSEC Report to USD(I) - 2017	4	2017	4	2017
Complete Annual Declassification Review - 2017	4	2017	4	2017
ADP - 2018	4	2018	4	2018
Submit Annual MDA OPSEC Report to USD(I) - 2018	4	2018	4	2018
Complete Annual Declassification Review - 2018	4	2018	4	2018
ADP - 2019	4	2019	4	2019
Submit Annual MDA OPSEC Report to USD(I) - 2019	4	2019	4	2019
Complete Annual Declassification Review - 2019	4	2019	4	2019
ADP - 2020	4	2020	4	2020
Submit Annual MDA OPSEC Report to USD(I) - 2020	4	2020	4	2020
Complete Annual Declassification Review - 2020	4	2020	4	2020
ADP - 2021	4	2021	4	2021
Submit Annual MDA OPSEC Report to USD(I) - 2021	4	2021	4	2021
Complete Annual Declassification Review - 2021	4	2021	4	2021
ADP - 2022	4	2022	4	2022
Submit Annual MDA OPSEC Report to USD(I) - 2022	4	2022	4	2022
Complete Annual Declassification Review - 2022	4	2022	4	2022

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Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency | **Date:** May 2017

Appropriation/Budget Activity 0400 I 4	R-1 Program Element (Number/Name) PE 0603890C I BMD Enabling Programs	Project (Number/Name) MD30 I BMD Information Management Systems

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MD30: *BMD Information Management Systems*	234.332	90.685	92.628	84.499	-	84.499	81.337	89.036	91.592	95.019	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2018, consolidated $4.343 million of IT funding from MD24 to MD30 for more efficient execution.

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 was realigned into the following inter-agency mission critical IT services and the associated plans to align 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

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
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6. Business Automation Services

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018
Title: End User Support	19.326	18.859	19.694
Articles:	-	-	-
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).			
FY 2016 Accomplishments: Refer to the Description section - See above. -Implemented secure Public Key Infrastructure (PKI) identity management for external system users (Defense Industrial Base (DIB)) and Combatant Commands that require access to MDA systems, networks and RDT&E data stores. *FY 2017 Plans:* Refer to the Description section - See above. *FY 2018 Plans:* Refer to the Description section - See above.			
Title: Special Purpose Processing Nodes (SPPNs) (formerly Network and Infrastructure Services)	30.613	30.636	19.301
Articles:	-	-	-
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			

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD30 *I BMD Information Management Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
and implement sustainment projects for general IT services and business systems consistent with the IT architecture roadmap. In addition, funds will be used to execute BMDS Positioning, Navigation and Timing (PNT) Last Mile Integration for six (6) Ballistic Missile Defense System (BMDS) sites leveraging the DoD Chief Information Officer Regional Clock installations at BMDS locations. 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. *FY 2016 Accomplishments:* Refer to the Description section - see above. -Implemented a network surveillance capability to manage network performance during BMDS global test events (NetScout) -Implemented DoD-compliant solution for position, navigation and timing -Implemented an MDA RDT&E cloud environment for compute and storage to enable rapid provisioning during BMDS test events *FY 2017 Plans:* Refer to the Description section - see above. *FY 2018 Plans:* Refer to the Description section - see above. The $11.335 million decrease from FY 2017 to FY 2018 reflects the cost sharing strategy for SPPN services used by the MDA BMDS Programs to accomplish their RDT&E mission.			
Title: Information Technology (IT) Planning and Solutions **Articles:**	13.333 -	14.375 -	14.998 -
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. *FY 2016 Accomplishments:* Refer to the Description section - see above. *FY 2017 Plans:*			

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD30 *I BMD Information Management Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018
Refer to the Description section - see above.			
FY 2018 Plans: Refer to the Description section - see above.			
Title: Unified Communications **Articles:**	13.617 -	13.997 -	14.998 -
Description: Provides for the management, operations and sustainment of classified and unclassified globally deployed video teleconferencing capabilities and equipment. Also includes unclassified desktop instant messaging, wireless services, and collaboration capabilities. Provides and implements engineering solutions for all unified communications services. Supports MDA global RDT&E mission for classified and unclassified voice and data circuits (wide area, local area and metropolitan area networks) and interfaces with the Defense Information System Network (DISN) Video Services Global (DVSG), the Defense Research and Engineering Network (DREN), Joint Service Provider (JSP) and commercial vendors. Maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment (classified and unclassified mobile and desktop telephony devices). *FY 2016 Accomplishments:* -Deployed a DoD-compliant enterprise solution for MDA wireless communications (email and voice) to support the global RDT&E mission *FY 2017 Plans:* Refer to the Description section - See above. *FY 2018 Plans:* Refer to the Description section - See above.			
Title: Business Automation Services **Articles:**	7.266 -	7.930 -	8.087 -
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).			

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
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 2016	FY 2017	FY 2018
FY 2016 Accomplishments: - Began implementation of Business Intelligence capability			
FY 2017 Plans: Refer to the Description section - See above.			
FY 2018 Plans: Refer to the Description section - See above.			
Title: Portal and Data Services	6.530	6.831	7.421
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. **FY 2016 Accomplishments:** -Implemented critical end-of-life replacement of MDA Knowledge On-line Portal infrastructure (SharePoint 2013) -Implemented a web-based capability to support global integration BMDS test, planning and execution (Microsoft Project) **FY 2017 Plans:** Refer to the Description section - see above. **FY 2018 Plans:** Refer to the Description section - see above.			
Accomplishments/Planned Programs Subtotals	90.685	92.628	84.499

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• 0603176C: Advanced Concepts and Performance Assessment	11.853	17.880	12.996	-	12.996	13.741	15.048	15.319	16.361	Continuing	Continuing
• 0603177C: Discrimination Sensor Technology	27.981	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• 0603178C: Weapons Technology	50.263	71.843	5.495	-	5.495	0.000	0.000	0.000	0.000	Continuing	Continuing
• 0603180C: Advanced Research	16.987	27.733	20.184	-	20.184	20.695	21.555	21.936	22.361	Continuing	Continuing

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Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD30 *I BMD Information Management Systems*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• 0603294C: *Common Kill Vehicle Technology*	60.851	0.000	252.879	-	252.879	321.175	110.934	0.000	0.000	Continuing	Continuing
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	197.617	209.072	230.162	-	230.162	194.328	253.778	264.377	267.254	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,260.480	862.080	828.097	-	828.097	630.842	651.047	567.451	551.701	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	233.020	230.077	247.345	-	247.345	247.643	362.850	401.267	497.503	Continuing	Continuing
• 0603892C: *AEGIS BMD*	804.211	959.066	852.052	-	852.052	805.051	789.217	656.164	695.306	Continuing	Continuing
• 0603893C: *Space Tracking and Surveillance System*	27.262	32.129	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• 0603895C: *Ballistic Missile Defense System Space Programs*	21.040	20.690	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	425.996	456.267	430.115	-	430.115	461.275	501.956	496.411	514.139	Continuing	Continuing
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	47.566	47.776	48.954	-	48.954	49.524	52.628	53.573	54.636	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	46.191	54.750	53.265	-	53.265	54.505	57.588	58.574	59.738	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	81.265	93.287	130.695	-	130.695	114.545	126.250	97.666	97.659	Continuing	Continuing
• 0603913C: *Israeli Cooperative Programs*	267.595	103.835	105.354	-	105.354	108.002	109.742	111.901	114.219	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	290.267	293.441	305.791	-	305.791	295.042	351.626	336.137	334.678	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	517.589	563.576	410.425	-	410.425	373.203	407.909	405.458	427.508	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• 0604880C: Land Based SM-3 (LBSM3)	29.288	43.293	30.486	-	30.486	31.816	33.024	31.707	30.924	Continuing	Continuing
• 0604881C: AEGIS SM-3 Block IIA Co-Development	165.456	106.038	9.739	-	9.739	0.000	0.000	0.000	0.000	0	281.233
• 0901598C: Management HQ - MDA	35.871	31.160	29.947	-	29.947	28.024	27.269	27.878	28.450	Continuing	Continuing

Remarks

D. Acquisition Strategy

This acquisition strategy to provide IT services for MDA consists of three MDA issued contracts. The Joint National Integration Center Research and Development Contract (JRDC) provides IT design, engineering, implementation and sustainment services. The JRDC contract expires in July 2017 and is being re-competed as Full and Open under the name of Integration, Research and Engineering Solutions (IRES).

The Network Management Resources (NMR) contract provides Video Teleconferencing, Portal, Data and Business Automation services. The NMR contract expires in November 2017 and is being re competed as a Service Disabled Veteran Owned Small Business Set Aside under the new name of Research & Development Enterprise Collaboration Services (RECS).

MDA issues multiple Military Interdepartmental Purchase Requisitions (MIPRs) for leased communications including DISA, DREN and the US Army.

E. Performance Metrics

N/A

| **Exhibit R-3**, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency | | | | | | | | | | | | | **Date:** May 2017 |

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MD30 *I BMD Information Management Systems* |

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
 N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
End User Support - End User Civilian Pay/Travel/PCS	Allot	MDA Civilian Pay : AL, CO, NM, VA	8.564	3.121	Oct 2015	3.148	Oct 2016	3.213	Oct 2017	-		3.213	Continuing	Continuing	Continuing
End User Support - End User Civilian Travel	Allot	MDA Civilian Travel : AL, AK, CA, CO, HI, NM, VA	0.652	0.223	Oct 2015	0.228	Oct 2016	0.232	Oct 2017	-		0.232	Continuing	Continuing	Continuing
End User Support - End User IT Hardware/ Software Support	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	16.577	8.590	Oct 2015	7.483	Oct 2016	7.071	Feb 2018	-		7.071	Continuing	Continuing	Continuing
End User Support - End User IT Licenses	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	9.538	1.138	Oct 2015	1.161	Oct 2016	1.744	Feb 2018	-		1.744	Continuing	Continuing	Continuing
End User Support - End User Operational Support	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	31.632	6.254	Oct 2015	6.839	Oct 2016	7.434	Feb 2018	-		7.434	Continuing	Continuing	Continuing
Special Purpose Processing Nodes (SPPNs) (formerly Network and Infrastructure Services) - SPPN Civilian Pay/Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	3.445	1.271	Oct 2015	1.259	Oct 2016	1.280	Oct 2017	-		1.280	Continuing	Continuing	Continuing
Special Purpose Processing Nodes (SPPNs) (formerly	C/CPAF	Northrop Grumman : AL, CO, VA	38.075	13.275	Oct 2015	13.450	Oct 2016	9.037	Feb 2018	-		9.037	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												**Date:** May 2017		

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Network and Infrastructure Services) - SPPN Licenses															
Special Purpose Processing Nodes (SPPNs) (formerly Network and Infrastructure Services) - SPPN Operational Support	C/CPAF	Northrop Grumman : AL, CO, VA	33.930	16.067	Oct 2015	15.927	Oct 2016	8.984	Feb 2018	-		8.984	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Advisory and Assistance Services	C/CPFF	Colsa : AL, CO, VA	6.070	4.563	Mar 2016	4.713	Mar 2017	5.755	Mar 2018	-		5.755	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Civilian Pay/Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	2.696	0.936	Oct 2015	0.955	Oct 2016	0.960	Oct 2017	-		0.960	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	0.670	0.164	Oct 2015	0.167	Oct 2016	0.128	Mar 2018	-		0.128	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Operational Support	C/CPAF	Northrop Grumman : AL, CO, VA	15.373	7.670	Oct 2015	7.664	Feb 2017	8.155	Feb 2018	-		8.155	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - MDA Agency Business Operations	Allot	MDA Business Operations : AL, CO, VA	1.904	0.000		0.876		0.000		-		0.000	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Civilian Pay/Travel/PCS	Allot	MDA Civilian Pay : Al, CO, VA	3.725	0.780	Oct 2015	1.102	Oct 2016	1.120	Oct 2017	-		1.120	Continuing	Continuing	Continuing

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Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency | **Date:** May 2017

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Project (Number/Name)
MD30 *I BMD Information Management Systems*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Unified Communications - Unified Communications Leased Communications/ Licenses	MIPR	DISA/DREN/IT2S : AL, AK, CA, CO, HI, NM, VA	13.776	2.001	Oct 2015	2.074	Oct 2016	2.813	Oct 2017	-		2.813	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Operational Support	C/CPAF	Northrop Grumman : AL, CO, VA	4.827	2.008	Feb 2016	2.047	Feb 2017	2.088	Feb 2018	-		2.088	Continuing	Continuing	Continuing
Unified Communications - Unified Communications VTC Operations Support	C/CPIF	NMR : AL, AK, CO, NM, VA	15.406	6.707	Nov 2015	6.802	Nov 2016	6.966	Nov 2017	-		6.966	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Wireless Services	C/FFP	AT&T : AL, CO, VA	0.000	2.121	Nov 2015	1.972	Nov 2016	2.011	Nov 2017	-		2.011	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Civilian Pay/ Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	2.247	0.468	Oct 2015	0.472	Oct 2016	0.480	Oct 2017	-		0.480	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Licenses	C/CPAF	Northrop Grumman : AL, CO, VA	2.646	0.916	Oct 2015	0.934	Oct 2016	0.953	Feb 2018	-		0.953	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Operational Support	C/CPAF	Northrop Grumman : AL, CO, VA	4.383	5.863	Oct 2015	6.503	Oct 2016	6.632	Feb 2018	-		6.632	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Services Support	MIPR	CACI : AL, CO, VA	0.040	0.019	Mar 2016	0.021	Oct 2016	0.022	Oct 2017	-		0.022	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Civilian Pay/Travel/PCS	Allot	MDS Civilian Pay : AL, CO, VA	2.696	0.936	Oct 2015	0.944	Oct 2016	0.800	Oct 2017	-		0.800	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Licenses and Maintenance	C/CPAF	Northrop Grumman : AL, CO, VA	5.216	1.573	Oct 2015	1.605	Oct 2016	1.627	Feb 2018	-		1.627	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency		**Date:** May 2017
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Portal and Data Services - Portal and Data Services Operational	C/CPAF	Online Subscriptions Services : AL, CO, VA	1.022	0.408	Oct 2015	0.416	Oct 2016	0.408	Oct 2017	-		0.408	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Operational Support	C/FFP	NMR : AL, CO, VA	9.222	3.613	Oct 2015	3.866	Oct 2016	4.586	Nov 2017	-		4.586	Continuing	Continuing	Continuing
Subtotal			234.332	90.685		92.628		84.499		-		84.499	-	-	-

Remarks
N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
N/A

	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	234.332	90.685	92.628	84.499	-	84.499	-	-	-

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency									**Date:** May 2017

Appropriation/Budget Activity 0400 *I* 4				**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*			**Project (Number/Name)** MD30 *I BMD Information Management Systems*		

	Prior Years	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks
 N/A

Exhibit R-4, **RDT&E Schedule Profile:** FY 2018 Missile Defense Agency		**Date:** May 2017
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 ▲	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 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
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	◇◇◇◇	◇◇◇◇	◇◇◇◇	◇◇◇◇	◇◇◇◇	◇◇◇◇	◇◇◇◇
Test Asset Flyaway Kit Interface Testing			◇◇◇				
PNT Last Mile Integration 3 BMDS Sites			◇				
PNT Last Mile Integration 3 Additional BMDS Sites				◇			
PNT BMDS Last Mile Capability Operations & Sustainment				◇			

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency		**Date:** May 2017
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	2016	4	2022
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - Follow-On	1	2016	4	2022
Operate and Maintain General Information Technology Services 18 hours per day, 6 days per week - Follow-On	1	2016	4	2022
Revise and Test Contingency Plans for Information Technology Systems - Follow-On	1	2016	4	2022
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - Follow-On	1	2016	4	2022
Procure, Implement, and Asset Control for Information Technology Operational Systems -Follow-On	1	2016	4	2022
Provide 18 hours per day, 6 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - Follow-On	1	2016	4	2022
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - Follow-On	1	2016	4	2022
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - Follow-On	1	2016	4	2022
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - Follow-On	1	2016	4	2022
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - Follow-On	1	2016	4	2022
Sustain the Information Technology Infrastructure Across the MDA Enterprise - Follow-On	1	2016	4	2022
Test Asset Flyaway Kit Interface Testing	2	2018	4	2018
PNT Last Mile Integration 3 BMDS Sites	3	2018	3	2018
PNT Last Mile Integration 3 Additional BMDS Sites	4	2018	4	2018

Exhibit R-4A, **RDT&E Schedule Details:** FY 2018 Missile Defense Agency		**Date:** May 2017
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Events	**Start**		**End**	
	Quarter	**Year**	**Quarter**	**Year**
PNT BMDS Last Mile Capability Operations & Sustainment	4	2018	4	2018

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency											**Date:** May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
MC30: *Cyber Operations*	31.503	27.194	22.881	41.458	-	41.458	45.070	56.616	73.479	56.086	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2018, this MC30 Cyber Operations Budget Project will consist of new Accomplishments that will map to the Office of Management and Budget (OMB) and Office of the Secretary of Defense (OSD) approved Cybersecurity Taxonomy. The new Accomplishments are: 1) Preventing Malicious Activity; 2) Detect, Analyze and Mitigate Intrusions, 3) Planning, Policy Development and Workforce Management and 4) Continuous Monitoring.

In FY 2018, $10.585 million of IT funding was realigned from MD24 to MC30 for Cyber Operations priority efforts.

Increase from FY 2017 to FY 2018 of $4.2M is for Positioning, Navigation and Timing (PNT) Last Mile Integration. Effort is non-cyber and will be realigned to Budget Project MD30.

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.

The Cyber Operations budget project in the Enabling Program Element is executed by the MDA Chief Information Officer who has responsibility over the Agency Authorizing Official (AO). The 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. It 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. It supports the monitoring and tracking of Cybersecurity mitigations detailed in IT security POA&Ms. Activities include preparation of C&A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
Appropriation/Budget Activity 0400 **/** 4	R-1 Program Element (Number/Name) PE 0603890C **/** *BMD Enabling Programs*	Project (Number/Name) MC30 **/** *Cyber Operations*

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).

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.

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

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

Beginning in FY 2018, new Accomplishments will map to the Cybersecurity Taxonomy approved by OMB and OSD. The following are the recurring activities in each new accomplishment.

Recurring Activities for the Prevent Malicious Cyber Attacks Accomplishment:
-Maintain a current Information Assurance risk and residual risk assessment of the BMDS.
-Provide coordination on all IT projects and remote sites for 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.

Recurring Activities for the Detect, Analyze and Mitigate Intrusions Accomplishment:
-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.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
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-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 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.
-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.

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.
-Provide Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs.

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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
Title: Information Assurance/Computer Network Defense (IA/CND)	27.194	22.881	0.000
Articles:	-	-	-
Description: Provides for the certification of Information Technology networks and systems, monitoring and computer emergency response services. ***FY 2016 Accomplishments:***			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018
See the R2A Mission Description and Budget Item Justification for recurring FY 2016 IA/Computer Network Defense activities. *FY 2017 Plans:* See the R2A Mission Description and Budget Item Justification for recurring FY 2017 IA/Computer Network Defense activities. *FY 2018 Plans:* N/A			
Title: Detect, Analyze and Mitigate Intrusions *Articles:*	0.000 -	0.000 -	20.100 -
Description: Beginning in FY 2018, this new Accomplishment will map to the Office of Management and Budget (OMB) and the Office of the Secretary of Defense (OSD) approved Cybersecurity Taxonomy. The cybersecurity activities funded within this Accomplishment include: Federal Incident Response Centers; National Institute of Standards for Technology (NIST) SP 800-37 Implementation; Cyber Threat Analysis; Cyber Continuity of Operations (COOP); Incident Response and Remediation; Forensics and Damage Assessment; and Computer Emergency Response Teams. *FY 2016 Accomplishments:* N/A *FY 2017 Plans:* N/A *FY 2018 Plans:* See recurring Planned Program 2018 activities in the Mission Description and Budget Item Justification.			
Title: Preventing Malicious Activity *Articles:*	0.000 -	0.000 -	13.885 -
Description: Beginning in FY 2018, this new Accomplishment will map to the Office of Management and Budget (OMB) and the Office of the Secretary of Defense (OSD) approved Cybersecurity Taxonomy. The efforts funded in this Accomplishment include: 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. *FY 2016 Accomplishments:* N/A *FY 2017 Plans:*			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018
N/A *FY 2018 Plans:* -See recurring Planned Program FY 2018 activities in the Mission Description and Budget Item Justification. -$4.2M increase in FY2018 is for Positioning, Navigation and Timing, Last Mile Integration at Ballistic Missile Defense System (BMDS) locations.			
Title: Continuous Monitoring **Articles:** *Description:* Beginning in FY 2018, this new Accomplishment will map to the Office of Management and Budget (OMB) and the Office of the Secretary of Defense (OSD) approved Cybersecurity Taxonomy. The cybersecurity activities funded within this Accomplishment include: IT Security Tools and Other Continuous Monitoring. *FY 2016 Accomplishments:* N/A *FY 2017 Plans:* N/A *FY 2018 Plans:* See recurring Planned Program FY 2018 activities in the Mission Description and Budget Item Justification.	0.000 -	0.000 -	4.827 -
Title: Planning, Policy Development, Workforce Training & Force Management **Articles:** *Description:* Beginning in FY 2018, this new Accomplishment will map to the Office of Management and Budget (OMB) and the Office of the Secretary of Defense (OSD) approved Cybersecurity Taxonomy. The cybersecurity activities funded within this Accomplishment include: National Initiative for Cybersecurity Education (NICE); Workforce Development; Security Training for Employees with Significant Security Responsibilities; and Cybersecurity Strategic Planning, Policy, Oversight and Management *FY 2016 Accomplishments:* N/A *FY 2017 Plans:* N/A *FY 2018 Plans:* See recurring Planned Program FY 2018 activities in the Mission Description and Budget Item Justification.	0.000 -	0.000 -	2.646 -
Accomplishments/Planned Programs Subtotals	27.194	22.881	41.458

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
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C. Other Program Funding Summary ($ in Millions)

 N/A

Remarks

D. Acquisition Strategy

 N/A

E. Performance Metrics

 N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency														**Date:** May 2017
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
 N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total 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	1.271	1.679	Mar 2016	1.334	Oct 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Information Assurance/Computer Network Defense (IA/CND) - CND/IA Advisory and Assistance Services	C/CPFF	Torch Technologies : AL, CO, VA	5.520	2.430	Mar 2016	2.580	Oct 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Information Assurance/Computer Network Defense (IA/CND) - CND/IA Civilian Travel	Allot	MDA Civilian Travel : AL, AK, CA, CO, HI, NM, VA	0.193	0.223	Oct 2015	0.106	Oct 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Information Assurance/Computer Network Defense (IA/CND) - CND/IA Civilian pay/Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	4.842	1.850	Oct 2015	2.844	Oct 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Information Assurance/Computer Network Defense (IA/CND) - CND/IA Comsec	MIPR	NSA : AL, CO, VA	0.209	0.123	Oct 2015	0.110	Oct 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Information Assurance/Computer Network Defense (IA/CND) - CND/IA Licenses	C/CPAF	Northrop Grumman : AL, CO, VA	3.737	2.924	Oct 2015	5.218	Oct 2016	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency													**Date:** May 2017	
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 2016**		**FY 2017**		**FY 2018 Base**		**FY 2018 OCO**		**FY 2018 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 Operational Support	C/FFP	Northrop Grumman : AL, CO, VA	15.731	11.294	Oct 2015	10.689	Oct 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Information Assurance/ Computer Network Defense (IA/CND) - Cyber Compliance Projects	C/CPAF	Northop Grumman : AL, CO, VA	0.000	6.671	Jun 2016	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - A&AS Cyber IT Mgmt	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		0.000		0.164	Mar 2018	-		0.164	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - A&AS, CSM/CND	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		0.000		1.140	Mar 2018	-		1.140	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - A&AS, Cyber Risk Mgmt	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		0.000		2.856	Mar 2018	-		2.856	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Civilian Pay	Allot	Civilian Pay : AL, CO, NM,, VA	0.000	0.000		0.000		3.255	Oct 2017	-		3.255	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Cyber CSS	C/CPAF	IRES, TBD : AL, CO, VA	0.000	0.000		0.000		12.685	Feb 2018	-		12.685	Continuing	Continuing	Continuing
Preventing Malicious Activity - A&AS CSM/CND	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		0.000		0.570	Apr 2018	-		0.570	Continuing	Continuing	Continuing
Preventing Malicious Activity - A&AS IT Mgmt	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		0.000		0.328	Mar 2018	-		0.328	Continuing	Continuing	Continuing
Preventing Malicious Activity - Civpay	Allot	Civilian Pay : AL, CO, VA, NM	0.000	0.000		0.000		2.945	Oct 2017	-		2.945	Continuing	Continuing	Continuing
Preventing Malicious Activity - Cyber CSS	C/CPAF	IRES, TBD : AL, COL, VA	0.000	0.000		0.000		5.842	Feb 2018	-		5.842	Continuing	Continuing	Continuing
Preventing Malicious Activity - PNT Last Mile Integration Contract	C/CPAF	IRES, TBD : AL, CO, VA	0.000	0.000		0.000		4.200	Feb 2018	-		4.200	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency		Date: May 2017

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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Continuous Monitoring - Continuous Monitoring - IT Security Tools	C/CPAF	IRES, TBD : AL, CO, VA	0.000	0.000		0.000		4.827		-		4.827	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training & Force Management - A&AS Cyber CRM	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		0.000		0.329	Mar 2018	-		0.329	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training & Force Management - A&AS Cyber CSM/CND	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		0.000		0.612	Mar 2018	-		0.612	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training & Force Management - Civilian PayTravel/PCS	Allot	Civilian Pay : AL, CO, NM, VA	0.000	0.000		0.000		1.705	Oct 2017	-		1.705	Continuing	Continuing	Continuing
Subtotal			31.503	27.194		22.881		41.458		-		41.458	-	-	-

Remarks
 N/A

	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	31.503	27.194	22.881	41.458	-	41.458	-	-	-

Remarks
 N/A

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency		Date: May 2017
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 ▲	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 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
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	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇

Exhibit R-4A, **RDT&E Schedule Details:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0603890C **/** *BMD Enabling Programs*	**Project (Number/Name)** MC30 **/** *Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - Follow-On	1	2016	4	2022
Monitor Networks and Systems to Defend Mission, Test, and Administrative Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - Follow-On	1	2016	4	2022
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - Follow-On	1	2016	4	2022
Procure, Implement, and Asset Control of Hardware maintenance and Software Licenses for Monitoring Systems of Information Assurance - Follow-On	1	2016	4	2022
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - Follow-On	1	2016	4	2022
Complete Annual Information Assurance user Training for MDA Workforce - Follow-On	1	2016	4	2022
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - Follow-On	1	2016	4	2022

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency										Date: May 2017	

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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MD31: Modeling & Simulation	125.432	39.972	44.458	49.824	-	49.824	63.465	97.374	140.616	51.374	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 and 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 2016	FY 2017	FY 2018
Title: M&S Requirements, Design Support, Scenario Optimization	7.146	7.919	8.022
Articles:	-	-	-

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
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 2016	FY 2017	FY 2018
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: - 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 Phased Adaptive Approach (PAA) and Homeland Defense. *FY 2016 Accomplishments:* - Conduct activities listed in Description section (SEE ABOVE). *FY 2017 Plans:* - Conduct activities listed in Description section (SEE ABOVE). *FY 2018 Plans:* - Conduct activities listed in Description section (SEE ABOVE).			
Title: BMDS Simulations & Tools	10.648	11.836	11.593
Articles:	-	-	-
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: Event Integration/Support Operations: - 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. - Integrate, test, and verify the M&S enterprise supporting BMDS testing, assessment, exercises, and wargaming, including testing infrastructure.			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
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 2016	FY 2017	FY 2018
- 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 BMDS component models of PATRIOT weapon system 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. - Deploy System Interface Units (SIUs) for BMDS testing. Maintain and sustain the SIU fleet, including cybersecurity, to support Developmental and Operational testing with the full BMDS to meet EPAA Phase 3 requirements. - Conduct M&S system integration and verification to support M&S system architecture development. Conduct developmental integration testing. M&S Operations: - Provide digital representations of BMDS elements/components using MDA's BMD International Simulation (I-SIM) in support of 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. - 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. Note: this accomplishment was renamed from M&S Digital Framework, Simulation, Models to reduce confusion between similarly named accomplishments.			

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
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 2016	FY 2017	FY 2018
FY 2016 Accomplishments: - Conduct activities listed in Description section (SEE ABOVE). *FY 2017 Plans:* - Conduct activities listed in Description section (SEE ABOVE). *FY 2018 Plans:* - Conduct activities listed in Description section (SEE ABOVE). - Provide Integrated Threat Packages of red-force representations (kinematic trajectories, radar cross sections, and infrared signature data) for use in BMDS Ground Test events only. - Begin transition off of Discrete Event Simulation (DESIM).			
Title: M&S Objective Simulation Framework (OSF)	12.508	13.948	14.049
Articles:	-	-	-
Description: The following actions are required on a continuing basis to accomplish the OSF mission: - 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. - Sustain and enhance framework products to maintain capabilities to support stakeholders. - 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. - Develop, maintain, test, field, and operate model representations for use in 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. - Support MDA's Experimental End-to-end Digital Integrated System-level Simulation (X-EDISS) requirements, referred to Tier 2 Digital in previous reports,including hardware and software, data storage and transmission, and verification tools. - Contro and 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 System 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.			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD31 *I Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018
Note: this accomplishment was renamed from M&S HWIL Framework, Simulations, Models to reduce confusion between similarly named accomplishments. ***FY 2016 Accomplishments:*** - Conduct activities listed in Description section (SEE ABOVE). ***FY 2017 Plans:*** - Conduct activities listed in Description section (SEE ABOVE). ***FY 2018 Plans:*** - Conduct activities listed in Description section (SEE ABOVE).			
Title: M&S Core Truth Modeling *Articles:*	9.670 -	10.755 -	10.840 -
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: - 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. - Provided 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. - Continue re-establishment of the 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. ***FY 2016 Accomplishments:***			

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
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 2016**	**FY 2017**	**FY 2018**
- Conduct activities listed in Description section (SEE ABOVE). ***FY 2017 Plans:*** - Conduct activities listed in Description section (SEE ABOVE). - Identify SBIR Technology to be transitioned to core program in support of increasing capabilities across the CTM areas. ***FY 2018 Plans:*** - Conduct activities listed in Description section (SEE ABOVE).			
Title: M&S Improvements ***Articles:***	0.000 -	0.000 -	5.320 -
Description: This effort funds M&S improvements that will provide enhancements to digital and ground test capabilities. Planned improvements include an experimental, developmental M&S prototype capability necessary to achieve an SRD-compliant End-to-end Digital Integrated System-level Simulation (EDISS). The X-EDISS effort designs and develops an integrated high-fidelity digital simulation capability that will provide assessment data for the BMDS, supplemental to Ground Test and Flight Test, and in areas that those venues cannot address, and with statistically significant numbers of runs. X-EDISS provides a capability to supplement and eventually replace current stand-alone/sequential approach to digital predictive pre-mission analysis of MDA flight tests. ***FY 2016 Accomplishments:*** N/A ***FY 2017 Plans:*** N/A ***FY 2018 Plans:*** This effort is a follow-on to planning and design efforts begun in FY 2016-2017. FY 2018 increase is due to additional MDA focus on improvement of M&S digital capability to support Technical Capability Declarations. - Design and develop prototype, including hardware for development and execution platforms, of enterprise-wide digital interface and new functionality in time-management and modeling of simulated BMDS communications, based on FY 2017 government/CSS design work.			
Accomplishments/Planned Programs Subtotals	39.972	44.458	49.824

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD31 / *Modeling & Simulation*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	197.617	209.072	230.162	-	230.162	194.328	253.778	264.377	267.254	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,260.480	862.080	828.097	-	828.097	630.842	651.047	567.451	551.701	Continuing	Continuing
• 0603892C: *AEGIS BMD*	804.211	959.066	852.052	-	852.052	805.051	789.217	656.164	695.306	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

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency												**Date:** May 2017	

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 2016**		**FY 2017**		**FY 2018 Base**		**FY 2018 OCO**		**FY 2018 Total**			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Prior Years**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
M&S Requirements, Design Support, Scenario Optimization - FFRDC & UARC	MIPR	Various : CO, AL	1.460	1.404	Nov 2015	1.728	Nov 2016	1.632	Nov 2017	-		1.632	Continuing	Continuing	Continuing
M&S Requirements, Design Support, Scenario Optimization - Prior Yr Requirements & Scenario Design no longer funded in FYDP	Various	Various : AL	1.933	0.000		0.000		0.000		-		0.000	0	1.933	0
M&S Requirements, Design Support, Scenario Optimization - Requirements & Design - CSS 2	C/CPFF	MiDAESS / TEAMS : CO	5.375	5.012	Nov 2015	5.433	Nov 2016	6.390	Nov 2017	-		6.390	Continuing	Continuing	Continuing
M&S Requirements, Design Support, Scenario Optimization - Requirements & Design - OGA	MIPR	SMDC : AL	0.476	0.456	Nov 2015	0.482	Nov 2016	0.000		-		0.000	0	1.414	0
M&S Requirements, Design Support, Scenario Optimization - Requirements & Design Support	Various	MDA : CO, AL	4.236	0.274	Oct 2015	0.276	Nov 2016	0.000		-		0.000	0	4.786	0
BMDS Simulations & Tools - Digital Framework Development	C/CPAF	Northrop Grumman : CO	10.095	5.067	Oct 2015	4.720	Nov 2016	6.884	Nov 2017	-		6.884	Continuing	Continuing	Continuing
BMDS Simulations & Tools - Digital Simulation Development / Support	MIPR	SMDC : AL	2.623	0.924	Oct 2015	0.000		0.000		-		0.000	0	3.547	0
BMDS Simulations & Tools - M&S / Digital Framework Support	Various	MDA : CO, AL	1.114	0.551	Oct 2015	0.895	Nov 2016	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency													Date: May 2017		
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 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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 Support - CSS	C/CPFF	MiDAESS / TEAMS : CO	0.000	0.000		2.000	Nov 2016	1.300	Nov 2017	-		1.300	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support - Industry	C/CPFF	TBE : AL	0.000	0.000		0.959	Nov 2016	0.891	Nov 2017	-		0.891	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support - OGA	MIPR	AMRDEC : AL	6.573	4.106	Oct 2015	3.262	Nov 2016	2.518	Nov 2017	-		2.518	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL - CSS	C/CPFF	MiDAESS / TEAMS : CO	0.000	0.000		2.200	Nov 2016	0.800	Nov 2017	-		0.800	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL - Industry	C/CPAF	Northrop Grumman : CO	2.608	2.962	Oct 2015	0.620	Nov 2016	0.350	Nov 2017	-		0.350	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL Framework Development and Support	C/CPFF	Teledyne Brown Engineering : AL, CO	11.717	3.928	Oct 2015	3.405	Nov 2016	9.434	Nov 2017	-		9.434	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL Simulations / Models Development	MIPR	AMRDEC : AL	14.741	4.457	Oct 2015	4.411	Nov 2016	0.550	Nov 2017	-		0.550	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL Support / GT re-architecture	Various	MDA : AL, CO	1.908	1.161	Oct 2015	3.312	Nov 2016	2.915	Nov 2017	-		2.915	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling - OGA	MIPR	AFRL : CO	0.000	0.000		1.300	Nov 2016	1.400	Nov 2017	-		1.400	Continuing	Continuing	Continuing
M&S Core Truth Modeling - Core Truth Models Validation	Various	MDA : CO, AL	5.047	0.597	Oct 2015	0.500	Oct 2016	1.000	Nov 2017	-		1.000	Continuing	Continuing	Continuing

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency		**Date:** May 2017
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
M&S Core Truth Modeling - M&S Core Truth Modeling - CSS	C/CPFF	Peopletec : AL, CO	0.000	0.000		0.000		1.591	Nov 2017	-		1.591	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling - Lethality/ Phenomenology Modeling	MIPR	AMRDEC : AL	27.565	2.437	Oct 2015	2.400	Nov 2016	1.310		-		1.310	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling Simulation System	C/CPAF	Northrop Grumman : CO	27.961	6.636	Oct 2015	6.555	Nov 2016	5.539	Nov 2017	-		5.539	Continuing	Continuing	Continuing
M&S Improvements - M&S Improvement - X-EDISS	Various	Various : CO, AL	0.000	0.000		0.000		5.320	Dec 2017	-		5.320	Continuing	Continuing	Continuing
Subtotal			125.432	39.972		44.458		49.824		-		49.824	-	-	-

Remarks
 N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
 N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency			**Date:** May 2017
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks
  N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
  N/A

	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	125.432	39.972	44.458	49.824	-	49.824	-	-	-

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.

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency		Date: May 2017
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 ▲	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 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
International Simulation v.8.3 – 1Q-FY 2016	▲						
Missile Defense Space Warning Tool (MDST) v16.1 - 1Q-FY 2016	▲						
CTV-02 HWIL System Pre-Mission Test (SPMT)	▲						
Flight Test Operational (FTO) 02 E1a Count Down Exercise	▲						
Ground Test, Distributed 06 Part 1 (GTD-06 Part 1)	▲						
Combatant Command Exercise (Keen Edge 16)	▲						
Release Update to Objective Simulation Framework (OSF) - 3Q-FY 2016	▲						
Flight Test, Operational (FTO) 02 E2a HWIL System Post Flight Reconstruction (SPFR)	▲						
Ground Test, Integrated 06 Part 2 (GTI-06 Part 2)	▲						
Ground Test, Integrated ISR 16	▲						
Ground Test, Distributed 06 Part 2 (GTD-06 Part 2)	▲						
Flight Test Operational (FTO) 02 E1a System Post Flight Reconstruction (SPFR)	▲						
International Simulation v 8.4 – 1Q-FY 2017		△					
Missile Defense Space warning Tool (MDST) v16.2 - 1Q-FY 2017		△					
Objective Simulation Framework (OSF) v1.0.4.x - 1Q FY 2017		△					
(EX) Global Lightning 17		✧ ✧					
FTG-15 (GM Intercept Flight Test) HWIL System Post Flight Reconstruction (SPFR)			△				
FTM-29 (AEGIS 5.1 Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)			△				
Single Stimulation Framework (SSF) 1.1.7.Z			△				
(EX) KEEN Sword 17		✧	✧ ✧				
(WG) Multi-National Missile Defense Conference (MNC) 17		✧	✧				
Release Update to OSF - FY 2018			△				
MDST v16.3			△				
International Simulation v8.5			△				

PE 0603890C: *BMD Enabling Programs*
Missile Defense Agency

Exhibit R-4, **RDT&E Schedule Profile:** FY 2018 Missile Defense Agency		**Date:** May 2017
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 ▲	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 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
FTG-11 HWIL System Pre-Mission Test (SPMT)			△				
FTG-11 Count Down Exercise			△				
International Simulation v8.6				△			
Release Update to OSF - FY 2019				△			
GTI-07b (N/P) (BMDS Ground Test)				✧			
GTD-07b (N/P) (BMDS Ground Test)				✧ ✧			
International Simulation v8.7					△		
GTX-08 Part 2					△		
Release Update to OSF - 2Q FY 2020					△		
GTI-08 (N/P)(BMDS Ground Test)					✧ ✧		
GTD-08 (E/C) (BMDS Ground Test)					✧ ✧		
Release Update to OSF - FY 2021						△	
GTD-08 (N/P) (BMDS Ground Test)						✧	
International Simulation v8.8 - 1Q-FY 2021						△	
GTX-09						△	
Release Update to OSF - FY 2022							△

Exhibit R-4A, **RDT&E Schedule Details:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0603890C **/** *BMD Enabling Programs*	**Project (Number/Name)** MD31 **/** *Modeling & Simulation*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
International Simulation v.8.3 1Q-FY 2016	1	2016	1	2016
Missile Defense Space Warning Tool (MDST) v16.1 - 1Q-FY 2016	1	2016	1	2016
CTV-02 HWIL System Pre-Mission Test (SPMT)	1	2016	1	2016
Flight Test Operational (FTO) 02 E1a Count Down Exercise	1	2016	1	2016
Ground Test, Distributed 06 Part 1 (GTD-06 Part 1)	1	2016	1	2016
Combatant Command Exercise (Keen Edge 16)	2	2016	2	2016
Release Update to Objective Simulation Framework (OSF) - 3Q-FY 2016	3	2016	3	2016
Flight Test, Operational (FTO) 02 E2a HWIL System Post Flight Reconstruction (SPFR)	3	2016	3	2016
Ground Test, Integrated 06 Part 2 (GTI-06 Part 2)	3	2016	3	2016
Ground Test, Integrated ISR 16	3	2016	3	2016
Ground Test, Distributed 06 Part 2 (GTD-06 Part 2)	4	2016	4	2016
Flight Test Operational (FTO) 02 E1a System Post Flight Reconstruction (SPFR)	4	2016	4	2016
International Simulation v 8.4 1Q-FY 2017	1	2017	1	2017
Missile Defense Space warning Tool (MDST) v16.2 - 1Q-FY 2017	1	2017	1	2017
Objective Simulation Framework (OSF) v1.0.4.x - 1Q FY 2017	1	2017	1	2017
(EX) Global Lightning 17	1	2017	2	2017
FTG-15 (GM Intercept Flight Test) HWIL System Post Flight Reconstruction (SPFR)	3	2017	3	2017
FTM-29 (AEGIS 5.1 Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)	3	2017	3	2017
Single Stimulation Framework (SSF) 1.1.7.Z	3	2017	3	2017
(EX) KEEN Sword 17	3	2017	1	2018
(WG) Multi-National Missile Defense Conference (MNC) 17	4	2017	1	2018
Release Update to OSF - FY 2018	1	2018	1	2018
MDST v16.3	1	2018	1	2018

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency					Date: May 2017

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD31 / Modeling & Simulation

Events	Start		End	
	Quarter	Year	Quarter	Year
International Simulation v8.5	1	2018	1	2018
FTG-11 HWIL System Pre-Mission Test (SPMT)	2	2018	2	2018
FTG-11 Count Down Exercise	4	2018	4	2018
International Simulation v8.6	1	2019	1	2019
Release Update to OSF - FY 2019	1	2019	1	2019
GTI-07b (N/P) (BMDS Ground Test)	1	2019	1	2019
GTD-07b (N/P) (BMDS Ground Test)	3	2019	4	2019
International Simulation v8.7	1	2020	1	2020
GTX-08 Part 2	1	2020	1	2020
Release Update to OSF - 2Q FY 2020	2	2020	2	2020
GTI-08 (N/P)(BMDS Ground Test)	2	2020	3	2020
GTD-08 (E/C) (BMDS Ground Test)	3	2020	4	2020
Release Update to OSF - FY 2021	1	2021	1	2021
GTD-08 (N/P) (BMDS Ground Test)	1	2021	1	2021
International Simulation v8.8 - 1Q-FY 2021	1	2021	1	2021
GTX-09	4	2021	4	2021
Release Update to OSF - FY 2022	1	2022	1	2022

Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency											Date: May 2017	
Appropriation/Budget Activity 0400 *I* 4					**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*					**Project (Number/Name)** MC31 *I Engineering Cyber Operations*		

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MC31: *Engineering Cyber Operations*	0.204	0.613	0.253	3.838	-	3.838	6.500	13.308	34.988	13.448	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

FY 2018 increase is to fund additional cybersecurity support needed to ensure BMDS networks and MDA Engineering content on external networks is protected, and to monitor those networks in accordance with DoD mandates.

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 2016	FY 2017	FY 2018
Title: Information Assurance / Cyber Network Defense	0.613	0.253	3.838
Articles:	-	-	-
Description: This activity funds network defense and Information System Security Manager (ISSM) activities for MDA Engineering. Specific tasks include: - Conduct Cybersecurity/information assurance engineering and architecture planning for Engineering information technology systems. - Plan and test the information assurance controls for Engineering systems. - Implement RMF system engineering principles to ensure sufficient protections exist from a threat and risk based approach - Conduct Controls Validation Testing of systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies.			

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MC31 *I Engineering Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
- 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. *FY 2016 Accomplishments:* - Conduct activities listed in Description section (SEE ABOVE). *FY 2017 Plans:* - Conduct activities listed in Description section (SEE ABOVE). *FY 2018 Plans:* FY 2018 increase is to fund additional cybersecurity support needed to ensure BMDS networks and MDA Engineering content on external networks is protected, and to monitor those networks in accordance with DoD mandates. Also beginning in FY 2018, funding for MDA Insider Threat mitigation has been transferred to this project from project MD28, Intelligence and Security. - Conduct activities listed in Description section (SEE ABOVE). - Augment Insider Threat mitigation capabilities, including enhancements for defense of IT systems. - Complete upgrades to MDA Engineering networks, including the Threat Modeling Center network and the BMDS I-SIM development network.			
Accomplishments/Planned Programs Subtotals	0.613	0.253	3.838

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• 0305103C: *Cyber Security Initiative*	0.941	0.969	0.986	-	0.986	0.997	1.031	1.051	1.073	Continuing	Continuing

Remarks

D. Acquisition Strategy
 N/A

E. Performance Metrics
 N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency			**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*		**Project (Number/Name)** MC31 *I Engineering Cyber Operations*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
 N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Information Assurance / Cyber Network Defense - Cybersecurity Upgrades	C/CPAF	Northrop Grumman : CO	0.000	0.000		0.000		1.150	Dec 2017	-		1.150	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - IT / Cybersecurity Support	C/CPFF	MiDAESS / TEAMS : CO, AL, VA	0.204	0.613	Nov 2015	0.253	Nov 2016	1.559	Nov 2017	-		1.559	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Insider Threat Mitigation Cell IT Network Defense	Various	MDA : Various	0.000	0.000		0.000		1.129	Dec 2017	-		1.129	Continuing	Continuing	Continuing
Subtotal			0.204	0.613		0.253		3.838		-		3.838	-	-	-

Remarks
 N/A

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.204	0.613		0.253		3.838		-		3.838	-	-	-

Remarks
 N/A

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MC31 / *Engineering Cyber Operations*

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 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
MC31 M&S Cyber Operations	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency		Date: May 2017
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**
MC31 M&S Cyber Operations	1	2016	4	2022

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
MD32: Quality, Safety, and Mission Assurance	177.382	28.864	31.022	30.516	-	30.516	29.796	31.387	31.901	32.550	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.

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD32 *I Quality, Safety, and Mission Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
Title: Quality, Safety & Mission Assurance	28.864	31.022	30.516
Articles:	-	-	-
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. *FY 2016 Accomplishments:* SEE ABOVE Description *FY 2017 Plans:* SEE ABOVE Description *FY 2018 Plans:* SEE ABOVE Description			
Accomplishments/Planned Programs Subtotals	28.864	31.022	30.516

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

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency													**Date:** May 2017	

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 2016**		**FY 2017**		**FY 2018 Base**		**FY 2018 OCO**		**FY 2018 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			-	-		-		-		-		-	-	-	-

Remarks
 N/A

Support ($ in Millions)				**FY 2016**		**FY 2017**		**FY 2018 Base**		**FY 2018 OCO**		**FY 2018 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	2.067	0.260	Oct 2015	0.266	Dec 2016	0.260	Dec 2017	-		0.260	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Audits & Quality On-site Support	MIPR	NSWC Corona : AL, CA	16.839	3.000	Oct 2015	3.338	Dec 2016	3.316	Dec 2017	-		3.316	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Mission Assurance Agency Operations	C/CPFF	AI Solutions : AL	6.547	1.198	Oct 2015	1.009	Dec 2016	1.100	Dec 2017	-		1.100	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Quality Support	C/CPFF	AI Solutions : AL	6.597	1.300	Oct 2015	1.710	Dec 2016	1.500	Dec 2017	-		1.500	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Safety	C/CPFF	APT, INC : AL	8.448	1.180	Oct 2015	1.208	Dec 2016	1.200	Dec 2017	-		1.200	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Safety Officers	MIPR	AMRDEC : AL	3.698	0.318	Oct 2015	0.281	Dec 2016	0.300	Dec 2017	-		0.300	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - HQ & Core Management	MIPR	AMRDEC : AL	2.150	0.300	Oct 2015	0.300	Dec 2016	0.275	Dec 2017	-		0.275	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - In-Plant Quality Support (MARS)	C/CPFF	Various Multi : AL, AK, AZ, CA, CO, FL,	10.071	1.355	Oct 2015	1.413	Dec 2016	1.415	Dec 2017	-		1.415	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency													Date: May 2017	
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		HI, NJ, MA, MO, MD, UT													
Quality, Safety & Mission Assurance - Independent Readiness Review Team	C/CPFF	AI Solutions : AL	4.269	0.540	Oct 2015	0.550	Dec 2016	0.540	Dec 2017	-		0.540	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Mission Assurance Subject Matter Experts	C/CPFF	APT, INC. : AL	6.590	0.522	Oct 2015	0.531	Dec 2016	0.520	Dec 2017	-		0.520	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Operations Support	MIPR	Various Multi : AL, CA	4.609	0.200	Oct 2015	0.200	Dec 2016	0.200	Dec 2017	-		0.200	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Parts, Materials and Processes (PMP) Program	MIPR	Various Multi : AL, CA, IN	9.865	2.155	Oct 2015	2.015	Dec 2016	1.961	Dec 2017	-		1.961	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Parts, Materials and Processes - PMP - Program	C/CPFF	APT, INC : AL	3.445	0.641	Oct 2015	0.600	Dec 2016	0.600	Dec 2017	-		0.600	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Pedigree & Design Certification - FFRDC	MIPR	Aerospace : AL, CA	18.067	3.000	Oct 2015	3.000	Dec 2016	3.000	Dec 2017	-		3.000	Continuing	Continuing	Continuing
Subtotal			103.262	15.969		16.421		16.187		-		16.187	-	-	-

Remarks
N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

| **Exhibit R-3**, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency | | | | | | | | | | | **Date:** May 2017 | | |

| **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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
 N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance HQ & Core Management (MDA CIV)	Allot	MDA QS : AL, VA, MD, CA, AZ, HI, AK, MA, NJ, FL, AR, UT	52.749	11.117	Oct 2015	11.751	Oct 2016	11.794	Oct 2017	-		11.794	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance Operations Support	C/CPFF	MDA QS : AL, DC, VA	7.715	0.818	Oct 2015	1.527	Nov 2016	1.345	Nov 2017	-		1.345	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance Operations Support (Travel/PCS)	Allot	MDA QS : AL, CO, AK, DC, VA	13.656	0.960	Oct 2015	1.323	Nov 2016	1.190	Nov 2017	-		1.190	Continuing	Continuing	Continuing
Subtotal			74.120	12.895		14.601		14.329		-		14.329	-	-	-

Remarks
 N/A

	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	177.382	28.864	31.022	30.516	-	30.516	-	-	-

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency									**Date:** May 2017

Appropriation/Budget Activity 0400 *I* 4				**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*			**Project (Number/Name)** MD32 *I Quality, Safety, and Mission Assurance*		

	Prior Years	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 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.

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency		Date: May 2017
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*

Significant Event Complete ▲	Milestone Decision Complete ★	Element Test Complete ◆
Significant Event Planned △	Milestone Decision Planned ☆	Element Test Planned ◇

System Level Test Complete ●	Complete Activity ✦
System Level Test Planned ○	Planned Activity ✧

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
MD32 Quality, Safety, and Mission Assurance	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency			Date: May 2017	
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	2016	4	2022

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency										**Date:** May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
MD40: *Program-Wide Support*	106.856	17.722	18.483	21.474	-	21.474	23.387	26.227	29.605	25.520	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, Program Wide Support (PWS) reflects a proportional change as a result of decreases in BMD Enabling Programs and in FY 2017 PWS reflects a proportional change as a result of increases in BMD Enabling Programs.
Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts and Military Interdepartmental Purchase Requests on the R-3.

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 Global Deployment personnel and support 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; and similar operating expenses. PWS is allocated on a pro-rata basis and therefore, fluctuates by year based on the adjusted RDT&E profile (which excludes: 0305103C Cyber Security Initiative, 0603274C Special Programs, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2016**	**FY 2017**	**FY 2018**
Title: Program Wide Support	17.722	18.483	21.474
Articles:	-	-	-
Description: N/A			
FY 2016 Accomplishments: N/A			
FY 2017 Plans: N/A			
FY 2018 Plans: N/A			
Accomplishments/Planned Programs Subtotals	17.722	18.483	21.474

Exhibit R-2A, **RDT&E Project Justification:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD40 / *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)
 N/A

Remarks

D. Acquisition Strategy
 N/A

E. Performance Metrics
 N/A

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency													Date: May 2017	
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 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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.	8.123	6.481	Jan 2016	7.063	Jan 2017	4.299	Jan 2018	-		4.299	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, CA, CO, VA	5.416	0.000		0.236	Jul 2017	0.429	Jul 2018	-		0.429	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		0.000		-		0.000	32.378	64.486	0
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, CO, CA, VA	55.607	10.436	Nov 2015	10.253	Nov 2016	16.746	Nov 2017	-		16.746	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services (Reqn)	Reqn	Various : Multi: AK, AL, CA, CO, VA	0.000	0.805	Nov 2015	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		0.000		-		0.000	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		0.931	Jul 2017	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	106.856	17.722		18.483		21.474		-		21.474	-	-	-

Remarks
 N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** FY 2018 Missile Defense Agency							**Date:** May 2017		

Appropriation/Budget Activity 0400 *I* 4		**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*					**Project (Number/Name)** MD40 *I Program-Wide Support*		

	Prior Years	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Project Cost Totals	106.856	17.722	18.483	21.474	-	21.474	-	-	-

Remarks
 N/A

Exhibit R-4, **RDT&E Schedule Profile:** FY 2018 Missile Defense Agency		**Date:** May 2017
Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0603890C **/** *BMD Enabling Programs*	**Project (Number/Name)** 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 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
MD40 Program-Wide Support	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency					**Date:** May 2017
Appropriation/Budget Activity 0400 / 4		**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*		**Project (Number/Name)** MD40 / *Program-Wide Support*	

<div align="center">Schedule Details</div>

Events	Start		End	
	Quarter	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2022