Department of Defense
Fiscal Year (FY) 2016 President's Budget Submission

February 2015

Missile Defense Agency

Defense Wide Justification Book Volume 2a of 2

Research, Development, Test & Evaluation, Defense-Wide

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Introduction & Explanation of Contents

The Department of Defense FY2016 President's Budget RDT&E (Includes Procurement, O&M, and MILCON), Defense-wide Volume 2, Missile Defense Agency (MDA) justification materials consists of two books titled Volume 2a and 2b. Justification documents are provided in the books as listed below.

Volume 2a

- R-1 Comptroller Exhibit
- MDA FY 2016 Budget Estimate Overview
- MDA Appropriation Summary
- Congressional Reporting Requirements
- Program Assessment Rating Tool (PART) Submission
- Acronyms
- RDT&E Exhibits in BA-03, BA-04, and BA-06

Volume 2b

- P-1 Comptroller Exhibit
- MDA Operation and Maintenance Exhibit
- MDA MILCON Exhibits
- MDA Procurement Exhibits

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Defense-Wide
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

22 Jan 2015

Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
29	0603175C	Ballistic Missile Defense Technology	03	10,372							U
30	0603176C	Advanced Concepts and Performance Assessment	03	6,919	8,470		8,470	12,139		12,139	U
31	0603177C	Discrimination Sensor Technology	03	29,642	36,610		36,610	28,200		28,200	U
32	0603178C	Weapons Technology	03	45,268	54,068		54,068	45,389		45,389	U
33	0603179C	Advanced C4ISR	03	35,421	13,284		13,284	9,876		9,876	U
34	0603180C	Advanced Research	03	23,025	16,584		16,584	17,364		17,364	U
37	0603274C	Special Program - MDA Technology	03	35,822	40,433		40,433	64,708		64,708	U
42	0603294C	Common Kill Vehicle Technology	03	67,796	25,639		25,639	46,753		46,753	U
		Advanced Technology Development		254,265	195,088		195,088	224,429		224,429	
76	0603881C	Ballistic Missile Defense Terminal Defense Segment	04	251,899	163,892		163,892	228,021		228,021	U
77	0603882C	Ballistic Missile Defense Midcourse Defense Segment	04	1,064,445	873,923		873,923	1,284,891		1,284,891	U
79	0603884C	Ballistic Missile Defense Sensors	04	340,391	270,901		270,901	233,588		233,588	U
80	0603890C	BMD Enabling Programs	04	368,965	401,971		401,971	409,088		409,088	U
81	0603891C	Special Programs - MDA	04	266,749	310,261		310,261	400,387		400,387	U
82	0603892C	AEGIS BMD	04	885,704	764,224		764,224	843,355		843,355	U
83	0603893C	Space Tracking & Surveillance System	04	41,618	31,331		31,331	31,632		31,632	U
84	0603895C	Ballistic Missile Defense System Space Programs	04	6,412	6,389		6,389	23,289		23,289	U
85	0603896C	Ballistic Missile Defense Command and Control, Battle Management and Communicati	04	390,207	428,277		428,277	450,085		450,085	U

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 22, 2015 at 12:12:27

Defense-Wide
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

22 Jan 2015

Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
86	0603898C	Ballistic Missile Defense Joint Warfighter Support	04	41,051	46,387		46,387	49,570		49,570	U
87	0603904C	Missile Defense Integration & Operations Center (MDIOC)	04	50,271	58,503		58,503	49,211		49,211	U
88	0603906C	Regarding Trench	04	14,525	16,199		16,199	9,583		9,583	U
89	0603907C	Sea Based X-Band Radar (SBX)	04	70,336	64,409		64,409	72,866		72,866	U
90	0603913C	Israeli Cooperative Programs	04	283,782	268,842		268,842	102,795		102,795	U
91	0603914C	Ballistic Missile Defense Test	04	342,695	366,302		366,302	274,323		274,323	U
92	0603915C	Ballistic Missile Defense Targets	04	501,170	455,068		455,068	513,256		513,256	U
96	0604115C	Technology Maturation Initiatives	04					96,300		96,300	U
105	0604873C	Long Range Discrimination Radar (LRDR)	04		50,500		50,500	137,564		137,564	U
106	0604874C	Improved Homeland Defense Interceptors	04		99,500		99,500	278,944		278,944	U
107	0604876C	Ballistic Missile Defense Terminal Defense Segment Test	04		111,366		111,366	26,225		26,225	U
108	0604878C	Aegis BMD Test	04		89,628		89,628	55,148		55,148	U
109	0604879C	Ballistic Missile Defense Sensor Test	04		71,309		71,309	86,764		86,764	U
110	0604880C	Land-Based SM-3 (LBSM3)	04	124,568	123,444		123,444	34,970		34,970	U
111	0604881C	AEGIS SM-3 Block IIA Co-Development	04	297,169	263,695		263,695	172,645		172,645	U
112	0604887C	Ballistic Missile Defense Midcourse Segment Test	04		79,877		79,877	64,618		64,618	U
115	0305103C	Cyber Security Initiative	04	912	961		961	963		963	U
		Advanced Component Development And Prototypes		5,342,869	5,417,159		5,417,159	5,930,081		5,930,081	

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 22, 2015 at 12:12:27

Defense-Wide
FY 2016 President's Budget
Exhibit R-1 FY 2016 President's Budget
Total Obligational Authority
(Dollars in Thousands)

22 Jan 2015

Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
152	0605502C	Small Business Innovation Research - MDA	06	74,888							U
174	0901598C	Management HQ - MDA	06	34,712	35,598		35,598	35,871		35,871	U
		Management Support		109,600	35,598		35,598	35,871		35,871	
Total Research, Development, Test & Eval, DW				5,706,734	5,647,845		5,647,845	6,190,381		6,190,381	

R-1C1: FY 2016 President's Budget (Published Version of PB Position), as of January 22, 2015 at 12:12:27

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Budget Activity 03: Advanced Technology Development (ATD)
Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

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29	03	0603175C	Ballistic Missile Defense Technology	Volume 2a - 1
30	03	0603176C	Advanced Concepts and Performance Assessment	Volume 2a - 9
31	03	0603177C	Discrimination Sensor Technology	Volume 2a - 17
32	03	0603178C	Weapons Technology	Volume 2a - 31
33	03	0603179C	Advanced C4ISR	Volume 2a - 43
34	03	0603180C	Advanced Research	Volume 2a - 53
37	03	0603274C	Special Program - MDA Technology	Volume 2a - 63
42	03	0603294C	Common Kill Vehicle Technology	Volume 2a - 65

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)
Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
76	04	0603881C	Ballistic Missile Defense Terminal Defense Segment	Volume 2a - 73

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)
Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

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77	04	0603882C	Ballistic Missile Defense Midcourse Defense Segment	Volume 2a - 117
79	04	0603884C	Ballistic Missile Defense Sensors	Volume 2a - 171
80	04	0603890C	BMD Enabling Programs	Volume 2a - 223
81	04	0603891C	Special Programs - MDA	Volume 2a - 377
82	04	0603892C	AEGIS BMD	Volume 2a - 379
83	04	0603893C	Space Tracking and Surveillance System	Volume 2a - 457
84	04	0603895C	Ballistic Missile Defense System Space Programs	Volume 2a - 481
85	04	0603896C	Ballistic Missile Defense Command and Control, Battle Management & Communication	Volume 2a - 503
86	04	0603898C	Ballistic Missile Defense Joint Warfighter Support	Volume 2a - 577
87	04	0603904C	Missile Defense Integration and Operations Center (MDIOC)	Volume 2a - 625
88	04	0603906C	Regarding Trench	Volume 2a - 671
89	04	0603907C	Sea Based X-Band Radar (SBX)	Volume 2a - 673
90	04	0603913C	Israeli Cooperative Programs	Volume 2a - 689
91	04	0603914C	Ballistic Missile Defense Test	Volume 2a - 711
92	04	0603915C	Ballistic Missile Defense Targets	Volume 2a - 753
96	04	0604115C	Technology Maturation Initiatives	Volume 2a - 797
105	04	0604873C	Long Range Discrimination Radar (LRDR)	Volume 2a - 831

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)
Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
106	04	0604874C	Improved Homeland Defense (HLD) Interceptors	Volume 2a - 845
107	04	0604876C	Ballistic Missile Defense Terminal Defense Segment Test	Volume 2a - 861
108	04	0604878C	Aegis BMD Test	Volume 2a - 877
109	04	0604879C	Ballistic Missile Defense Sensor Test	Volume 2a - 897
110	04	0604880C	Land Based SM-3 (LBSM3)	Volume 2a - 915
111	04	0604881C	AEGIS SM-3 Block IIA Co-Development	Volume 2a - 941
112	04	0604887C	Ballistic Missile Defense Midcourse Defense Segment Test	Volume 2a - 967
115	04	0305103C	Cyber Security Initiative	Volume 2a - 983

Budget Activity 06: RDT&E Management Support
Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
152	06	0605502C	Small Business Innovation Research - MDA	Volume 2a - 991
174	06	0901598C	Management HQ - MDA	Volume 2a - 997

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AEGIS SM-3 Block IIA Co-Development	0604881C	111	04	Volume 2a - 941
Advanced C4ISR	0603179C	33	03	Volume 2a - 43
Advanced Concepts and Performance Assessment	0603176C	30	03	Volume 2a - 9
Advanced Research	0603180C	34	03	Volume 2a - 53
Aegis BMD Test	0604878C	108	04	Volume 2a - 877
BMD Enabling Programs	0603890C	80	04	Volume 2a - 223
Ballistic Missile Defense Command and Control, Battle Management & Communication	0603896C	85	04	Volume 2a - 503
Ballistic Missile Defense Joint Warfighter Support	0603898C	86	04	Volume 2a - 577
Ballistic Missile Defense Midcourse Defense Segment	0603882C	77	04	Volume 2a - 117
Ballistic Missile Defense Midcourse Defense Segment Test	0604887C	112	04	Volume 2a - 967
Ballistic Missile Defense Sensor Test	0604879C	109	04	Volume 2a - 897
Ballistic Missile Defense Sensors	0603884C	79	04	Volume 2a - 171
Ballistic Missile Defense System Space Programs	0603895C	84	04	Volume 2a - 481
Ballistic Missile Defense Targets	0603915C	92	04	Volume 2a - 753
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Ballistic Missile Defense Terminal Defense Segment Test	0604876C	107	04	Volume 2a - 861
Ballistic Missile Defense Test	0603914C	91	04	Volume 2a - 711
Common Kill Vehicle Technology	0603294C	42	03	Volume 2a - 65
Cyber Security Initiative	0305103C	115	04	Volume 2a - 983
Discrimination Sensor Technology	0603177C	31	03	Volume 2a - 17
Improved Homeland Defense (HLD) Interceptors	0604874C	106	04	Volume 2a - 845
Israeli Cooperative Programs	0603913C	90	04	Volume 2a - 689
Land Based SM-3 (LBSM3)	0604880C	110	04	Volume 2a - 915
Long Range Discrimination Radar (LRDR)	0604873C	105	04	Volume 2a - 831
Management HQ - MDA	0901598C	174	06	Volume 2a - 997
Missile Defense Integration and Operations Center (MDIOC)	0603904C	87	04	Volume 2a - 625
Regarding Trench	0603906C	88	04	Volume 2a - 671
Sea Based X-Band Radar (SBX)	0603907C	89	04	Volume 2a - 673
Small Business Innovation Research - MDA	0605502C	152	06	Volume 2a - 991
Space Tracking and Surveillance System	0603893C	83	04	Volume 2a - 457
Special Program - MDA Technology	0603274C	37	03	Volume 2a - 63
Special Programs - MDA	0603891C	81	04	Volume 2a - 377
Technology Maturation Initiatives	0604115C	96	04	Volume 2a - 797

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Weapons Technology	0603178C	32	03	Volume 2a - 31

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Missile Defense Agency
Fiscal Year (FY) 2016
Budget Estimates

OVERVIEW

Approved for Public Release
15-MDA-8100 (26 January 2015)

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Missile Defense Agency (MDA) Fiscal Year 2016 Budget Overview

MDA is requesting $8.127 billion in FY 2016 to improve and expand the development of defenses for our Nation, deployed forces, allies, and international partners against increasingly capable ballistic missiles. This represents an increase of three percent from the FY 2015 Omnibus level. The FY 2016 missile defense program will support Warfighter and Combatant Commanders with the development, testing and deployment of interceptors, sensors, and Command and Control, Battle Management and Communications (C2BMC) systems that make-up the integrated Ballistic Missile Defense System (BMDS).

The budget preserves homeland and regional defense priorities as driven by Presidential and Department of Defense strategic guidance. First, MDA will maintain our commitment to operate, sustain, and expand homeland defenses. MDA is requesting $1.763 billion for the Ground-based Midcourse Defense (GMD) program to continue the development and sustainment of the GMD weapon system, which includes the planned deployment of 40 Ground-Based Interceptors (GBIs) at Fort Greely, AK, and 4 GBIs at Vandenberg AFB, CA, for a total of 44 GBIs by the end of 2017. The budget continues to fund flight testing supporting the Integrated Master Test Plan (IMTP) requirements and enhances the Stockpile Reliability Program (SRP) and component aging testing in order to understand and maintain the health of the deployed assets. The budget further continues GMD software development, testing, and deployment for the fire control and kill vehicles to improve discrimination capabilities.

In 2013, the Director of the Missile Defense Agency commissioned an Independent Expert Panel (IEP) to oversee and guide an assessment of the GMD Ground-Based Interceptor (GBI) fleet. The purpose of the IEP was to characterize the reliability of the GBI fleet and identify design, reliability, manufacturing, quality, and qualification acceptance test process improvements to enhance the reliability of GBI operations. In response to IEP recommendations, MDA is requesting $279 million to continue development of the GMD Redesigned Kill Vehicle (RKV) for improved reliability, availability, performance, and producibility. In addition, the FY 2016 budget requests funding to conduct design and reliability characterization of the current GBI fleet.

By increasing GBI reliability and availability, the BMDS achieves a higher Probability of Engagement Success for the homeland defense mission and can engage more threats with fewer GBIs. Over several years, the Missile Defense Agency plans to improve and enhance the current GBI capability, test its performance, and deliver new and upgraded interceptors.

One of our highest priorities is to continue to demonstrate homeland defense capability through GMD flight testing. GMD conducted a successful intercept test in FY 2014, designated FTG-06b, when the exo-atmospheric kill vehicle (EKV) successfully intercepted the target in the presence of countermeasures. The objective of the FTG-06b mission was to demonstrate performance of a Capability Enhancement II (CE-II) GBI against an intermediate range target vehicle launched from the Kwajalein Atoll in the Pacific Ocean. The test provided the data necessary to assess the performance and reliability of numerous BMDS elements for homeland defense. In particular, the data collected confirmed the corrective actions taken by MDA to address the FTG-06a flight test failure were effective. Planned testing of GMD in FY 2016 includes a non-intercept flight test to evaluate alternative divert thrusters and to support algorithm development for Discrimination Improvements for Homeland Defense.

Deployment of regional defenses to protect our deployed forces, allies, and coalition partners remains one of our top priorities. The FY 2016 budget continues the development and deployment of defenses against short-, medium-, and intermediate-range ballistic missiles (SRBMs, MRBMs, and IRBMs) in support of the geographic Combatant Commanders' priorities.

The European Phased Adaptive Approach (EPAA) is designed to protect U.S. deployed forces and allies in Europe from ballistic missile attacks from the Middle East. EPAA Phase 1 is now deployed and provides coverage of NATO territory in Europe. EPAA Phases 2 and 3 will be implemented in 2015 and 2018, respectively.

Aegis BMD plays a key role in each phase of the EPAA. EPAA Phase 2 includes upgraded Aegis BMD 4.0 and 5.0 Capability Upgrade (CU) versions to counter an expanded threat set for ballistic missile coverage of southern Europe, for use on land at the Aegis Ashore site in Romania and at sea on multi-mission Aegis ships with BMD capability. The system will be installed, integrated, tested and turned over to the U.S. Navy, with a technical capability declaration by the end of calendar year 2015. The SM-3 Block IB directly supports EPAA Phase 2, and will also be deployed globally by the Navy as needed for regional threats.

MDA anticipates a production decision for the SM-3 Block IB in 2nd Quarter FY 2015 and will deliver SM-3 Block IBs to the Navy for deployment on land at the Aegis Ashore site in Romania and at sea on multi-mission Aegis ships with BMD capability.

MDA is requesting $559 million in procurement for Aegis BMD. This includes the procurement of 40 Aegis SM-3 Block IB missiles, for a total of 209 SM-3 Block IB missiles procured by the end of FY 2016. Furthermore, the request provides for the procurement of two BMD 4.X shipsets, two Baseline 9.C2 (BMD 5.1) shipsets and 11 BMD 5.0 CU to 5.1 modification kits to support fleet delivery timelines.

The request also supports the installation of two BMD 4.X shipsets and one Baseline 9.C1 (BMD 5.0 CU) Aegis Ballistic Missile Defense shipset. By the end of FY 2016, MDA will deliver an additional 47 SM-3 Block IB missiles to the Fleet, for a delivery total of 107 missiles. MDA is also requesting $148 million for future buys (FY 2017 – FY 2019) utilizing Multiyear Procurement (MYP) authority to significantly reduce out-year production costs through Economic Order Quantity (EOQ) buys. These Multiyear procurement buys will result in an estimated 14 percent long term cost savings.

MDA is requesting $46 million of Operation and Maintenance funding for the SM-3 program to perform recertification of the SM-3 missile, repair efforts, demilitarization, and Ordnance Assessment/Surveillance. Funding will also support SM-3 first destination All Up Round (AUR) transportation post recertification, ballistic barrier maintenance, system maintenance spares, and SM-3 operational support to Fleet Forces. Also included are fleet support, assessing fleet feedback, analyzing test observations and troubleshooting weapons system software onboard deployed BMD ships and ashore.

MDA is co-developing the SM-3 Block IIA missile with the Government of Japan and upgrading the Aegis BMD Weapon System to increase the area that can be defended and the probability of defeating a larger set of threats. The Aegis BMD 5.1 Weapon System is scheduled to be certified in the 3rd Quarter FY 2018 for deployment on ships and ashore along with the SM-3 Block IIA. These deployments will also support EPAA Phase 3. The SM-3 Block IIA missile development is on-going and will continue to build upon established joint research investments by both the United States and Japan. In FY 2016, MDA requests $173 million for the SM-3 Block IIA cooperative development program.

The United States government is on track to complete land use agreement negotiations with the government of Poland for EPAA Phase 3. Aegis Ashore construction for EPAA Phase 3 is scheduled to begin in FY 2016, with a technical capability declaration by the end of calendar year 2018. MDA requests $169 million of military construction (MILCON) for construction of the Aegis Ashore site in Poland.

MDA is requesting $464 million for Terminal High Altitude Area Defense (THAAD) in procurement funding, which includes the purchase of 30 THAAD interceptors and training devices for the THAAD institutional training base at Fort Sill, OK. This procurement supports the fielding of THAAD batteries, based on warfighter demand and operational need. By the end of FY 2016, MDA will deliver 48 additional THAAD interceptors to the U.S. Army, for a total of 155 interceptors delivered.

MDA continues to support the AN/TPY-2 radar (Terminal Mode) as part of a forward deployed THAAD battery in Guam. As part of the continued development of THAAD, MDA will begin concept development and risk reduction activities for THAAD follow-on. The risk reduction effort will determine the technical merits of expanding system interoperability with other air and missile defense systems, and expanding the battlespace and defended area of the THAAD baseline weapon system in response to emerging threats.

The Services and the Combatant Commands, with logistical support from MDA are operating AN/TPY-2 radars (Forward Based Mode) in Japan, Israel, Turkey, and United States Central Command (USCENTCOM). With the assistance of the Japanese Ministry of Defense, the U.S. Department of Defense constructed a facility and fielded a second AN/TPY-2 radar in Japan in December 2014 for use by the U.S. Pacific Command and U.S. Northern Command. The radar will augment the AN/TPY-2 radar located at Shariki in northern Japan and will enhance the ability to defend Japan, our forward deployed forces and the U.S. homeland from the ballistic missile threat from North Korea. These radars contribute to the regional defense and some also provide a significant contribution to the defense of the U.S. homeland by acquiring threats and providing track and discrimination data through the BMDS (C2BMC) system to the GMD Fire Control (GFC). MDA is requesting $500 million to develop, deploy, and sustain AN/TPY-2 radars, the Upgraded Early Warning Radars (UEWR), and the Cobra Dane Radar.

C2BMC provides persistent tracking, cueing, discrimination, and fire control quality data to Aegis BMD, GMD, THAAD, and coalition partners to support homeland and regional defense objectives.

MDA is requesting $450 million to integrate additional space sensors into the BMDS and to enhance C2BMC track and discrimination capabilities to provide fire control quality data to BMD weapon systems in support of homeland and regional defenses. MDA is enhancing C2BMC capability in the United States Pacific Command (USPACOM), United States Northern Command (USNORTHCOM), United States Central Command (USCENTCOM), and the United States European Command (USEUCOM) to integrate space, sea, and land-based BMD sensor data for the BMDS. The currently deployed C2BMC network expands BMDS defended area by providing Launch on Remote capability. Future upgrades of the system will further increase defended area by employing Engage on Remote capability. This is an essential attribute aimed at expanding the battlespace for EPAA Phase 3.

The Sea-Based X-Band (SBX) radar continues to function as the midcourse precision tracking radar to support flight testing to demonstrate discrimination and debris mitigation improvements. The budget includes funds for improving reaction time and conducting contingency operations for defense of the homeland in USPACOM and USNORTHCOM areas of responsibility. MDA is requesting $73 million for the SBX.

The budget requests $138 million to continue the development of a Long Range Discrimination Radar (LRDR). The LRDR is a mid-course tracking radar that will provide persistent sensor coverage and improve discrimination capabilities against threats to the homeland from the Pacific theater.

MDA is performing the systems engineering required to design, build, test, assess and field an integrated BMDS. Fundamental to the assessment effort are the models and simulations that verify system performance and capability to engage and defeat complex threats across a spectrum of scenarios that cannot be tested in live fire tests. In addition, MDA is conducting future concept development to counter the emerging threat, including Discrimination Improvements for Homeland Defense to increase the tracking and discrimination capability of the BMDS sensor and interceptor architecture. As a result, the BMDS will have greater capability to discriminate and intercept reentry vehicles with a high degree of confidence.

MDA is developing fiscally sustainable, off-setting technology to address gaps in the BMDS and extend our dominance in missile defense by flipping the adversary's calculus. MDA requests $28 million for developing our Discrimination Sensor Technology; a cost-effective stepping stone to the goal of persistent discrimination coverage of enemy missiles in all theaters as well as ICBMs targeting the Homeland.

MDA requests $45 million in Weapons Technology to build the foundation for the next-generation Unmanned Aerial Vehicle (UAV) borne laser system capable of tracking and eventually destroying the enemy at a much lower cost than the existing missile defense system. Within the Directed Energy project, MDA will develop and demonstrate the technology necessary to scale laser power jointly with our Air Force and Defense Advanced Research Projects Agency (DARPA) partners.

MDA will invest in cutting edge technology for the competitive development of the next generation, solid Divert and Attitude Control System (DACS) for the Multi-Object Kill Vehicle. We will also investigate the suitability of rail gun technology for missile defense missions.

MDA is requesting $96 million for Technology Maturation Initiatives to build on the successes in the Discrimination Sensor and Weapons Technology program elements. MDA will incorporate an advanced sensor into the tactically proven Multispectral Targeting System (MTS) and MQ-9 Reaper combination to prove precision track and discrimination performance of airborne sensors at strategic ranges. MDA will also contract with industry for the design of a UAV-borne laser demonstrator to quantify the target acquisition, tracking and handover performance required for boost phase missile defense under realistic conditions.

MDA requests $46 million for the Common Kill Vehicle Technology effort. MDA is implementing Phase II of our kill vehicle strategy working jointly with industry to revolutionize our missile defense interceptor architecture, substantially reducing the inventory required to defeat an evolving and more capable threat. Together, they will define concepts and reduce technical risk for deploying multiple kill vehicles from a single booster.

Working collaboratively with Director, Operational Test & Evaluation; Deputy Assistant Secretary of Defense, Developmental Test and Evaluation; Commander, Joint Functional Component Command Integrated Missile Defense; and Service Operational Test Agencies, MDA develops an Integrated Master Test Plan and continues a robust, cost-effective flight test program integrating operationally realistic conditions. This effort allows warfighters to demonstrate BMD capabilities against current and emerging threats.

This budget continues MDA's longstanding support of U.S.-Israeli Cooperative BMD Programs, to include the David's Sling Weapon System, Upper Tier Interceptor, and Arrow Weapon System Improvements. MDA is working with the Israel Missile Defense Organization on these programs in accordance with jointly signed international agreements while also ensuring interoperability with U.S. BMDS capabilities. Moreover, the FY 2016 budget includes $55 million of procurement funding for additional Iron Dome radars and associated equipment.

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Missile Defense Agency
Fiscal Year 2016-2020 President`s Budget (PB)
FY 2016 through FY 2020 Appropriation Summary
($ Thousands)

Line Number	Program Element	Budget Project	Program	Budget Activity	FY14 Actual	FY15	FY16	FY17	FY18	FY19	FY20	FY16-20
Operations & Maintenance												
011A	0208866C		O&M	NA	377,672	403,512	432,068	446,563	446,873	461,472	460,216	2,247,192
		MD08	Ground Base Midcourse	NA	140,579	146,172	134,477	134,749	137,320	140,006	142,692	689,244
		MD07	THAAD	NA	58,661	75,689	63,660	68,554	73,311	80,393	85,138	371,056
		MD09	AEGIS	NA	12,174	11,662	46,445	55,741	42,802	44,257	41,646	230,891
		MD11	BMDS AN/TPY-2 Radars	NA	166,258	169,989	187,486	187,519	193,440	196,816	190,740	956,001
			Budget Activity NA Total	NA	377,672	403,512	432,068	446,563	446,873	461,472	460,216	2,247,192
			O&M Total	NA	377,672	403,512	432,068	446,563	446,873	461,472	460,216	2,247,192
Procurement												
NA	0208866C		PROCUREMENT	NA	1,785,174	1,758,520	1,334,969	1,343,106	1,544,329	1,719,108	1,841,617	7,783,129
23		MD07	THAAD	NA	571,851	449,824	464,067	362,605	330,002	317,414	313,631	1,787,719
24		MD09	AEGIS BMD	NA	580,814	643,810	558,916	836,676	959,471	1,152,329	1,096,631	4,604,023
25		AP09	Aegis BMD SM-3 IB Advanced Procurement	NA	0	0	147,765	51,716	20,752	78,744	198,238	497,215
26		MD11	BMDS AN/TPY-2 Radars	NA	55,800	88,140	78,634	15,965	2,741	6,840	70,439	174,619
27		MD73	Aegis Ashore Phase III	NA	131,400	225,774	30,587	62,903	70,599	0	0	164,089
28		MD83	Iron Dome	NA	445,309	350,972	55,000	0	0	0	0	55,000
		MD78	Aegis Spares	NA	0	0	0	13,241	10,077	11,583	5,174	40,075
		MD08	Ground Based Midcourse	NA	0	0	0	0	150,687	152,198	157,504	460,389
			Budget Activity NA Total	NA	1,785,174	1,758,520	1,334,969	1,343,106	1,544,329	1,719,108	1,841,617	7,783,129
			Procurement Total	NA	1,785,174	1,758,520	1,334,969	1,343,106	1,544,329	1,719,108	1,841,617	7,783,129
RDT&E												
29	0603175C		Ballistic Missile Defense Technology	3	10,372	0	0	0	0	0	0	0
		MD25	Advanced Technology Development	3	927	0	0	0	0	0	0	0
		MD85	Common Kill Vehicle Technology	3	124	0	0	0	0	0	0	0
		MD40	Program Wide Support	3	9,321	0	0	0	0	0	0	0
30	0603176C		Advanced Concepts and Performance Assessment	3	6,919	8,470	12,139	13,227	12,932	13,249	13,219	64,766
		MD71	Advanced Concepts and Performance Assessments	3	6,919	7,986	11,569	12,568	12,244	12,515	12,467	61,363
		MD40	Program-Wide Support	3	0	484	570	659	688	734	752	3,403
31	0603177C		Discrimination Sensor Technology	3	29,642	36,610	28,200	0	0	0	0	28,200
		MD95	Discrimination Sensor Technology	3	29,523	34,535	23,304	0	0	0	0	23,304
		MT95	Discrimination Sensor Tech-Flight Test Execution	3	0	0	3,749	0	0	0	0	3,749
		MC95	Cyber Operations	3	119	203	0	0	0	0	0	0
		MD40	Program-Wide Support	3	0	1,872	1,147	0	0	0	0	1,147
32	0603178C		Weapons Technology	3	45,268	54,068	45,389	48,912	70,115	54,595	66,797	285,808
		MD69	Directed Energy Research	3	26,315	13,348	30,291	46,477	66,382	51,572	62,996	257,718
		MD72	Interceptor Technology	3	18,953	40,000	12,967	0	0	0	0	12,967
		MD40	Program-Wide Support	3	0	720	2,131	2,435	3,733	3,023	3,801	15,123
33	0603179C		Advanced C4ISR	3	35,421	13,284	9,876	3,723	0	0	0	13,599
		MD01	Command & Control, Battle Management, Communications (C2BMC)	3	22,612	0	0	0	0	0	0	0
		MD73	Advanced C4ISR	3	12,809	12,605	9,412	3,538	0	0	0	12,950
		MD40	Program-Wide Support	3	0	679	464	185	0	0	0	649

Line Number	Program Element	Budget Project	Program	Budget Activity	FY14 Actual	FY15	FY16	FY17	FY18	FY19	FY20	FY16-20
34	0603180C		Advanced Research	3	23,025	16,584	17,364	18,919	20,380	21,069	21,457	99,189
		MD25	Advanced Technology Development	3	23,025	15,787	16,549	17,977	19,295	19,903	20,237	93,961
		MD40	Program-Wide Support	3	0	797	815	942	1,085	1,166	1,220	5,228
37	0603274C		Special Program - MDA Technology	3	35,822	40,433	64,708	85,594	0	0	0	150,302
		MD81	Special Programs - MDA Technology	3	35,822	40,433	64,708	85,594	0	0	0	150,302
42	0603294C		Common Kill Vehicle Technology	3	67,796	25,639	46,753	75,262	71,476	86,814	99,701	380,006
		MD85	Common Kill Vehicle Technology	3	67,796	24,327	44,558	71,515	67,671	82,007	94,027	359,778
		MD40	Program Wide Support	3	0	1,312	2,195	3,747	3,805	4,807	5,674	20,228
			Budget Activity 03 Total	3	254,265	195,088	224,429	245,637	174,903	175,727	201,174	1,021,870
76	0603881C		Ballistic Missile Defense Terminal Defense Segment	4	251,899	163,892	228,021	230,306	257,014	218,533	247,707	1,181,581
		MD07	THAAD	4	210,540	144,822	216,186	217,575	241,979	204,990	232,328	1,113,058
		MC07	Cyber Operations	4	799	647	652	664	676	688	699	3,379
		MT07	THAAD Test	4	14,086	0	0	0	0	0	0	0
		MD06	Patriot Advanced Capability-3 (PAC-3)	4	1,049	1,082	1,154	1,179	1,197	1,213	1,261	6,004
		MD40	Program-Wide Support	4	25,425	17,341	10,029	10,888	13,162	11,642	13,419	59,140
77	0603882C		Ballistic Missile Defense Midcourse Defense Segment	4	1,064,445	873,923	1,284,891	936,425	803,392	903,539	912,890	4,841,137
		MD08	Ground Based Midcourse	4	967,394	812,886	1,225,161	888,868	758,909	851,998	859,964	4,584,900
		MC08	Cyber Operations	4	3,373	2,938	3,217	3,285	3,340	3,406	3,475	16,723
		MT08	Ground Based Midcourse Test	4	59,372	0	0	0	0	0	0	0
		MX08	Ground Based Midcourse Development Support	4	2,868	0	0	0	0	0	0	0
		MD40	Program-Wide Support	4	31,438	58,099	56,513	44,272	41,143	48,135	49,451	239,514
79	0603884C		Ballistic Missile Defense Sensors	4	340,391	270,901	233,588	228,437	142,363	140,740	141,733	886,861
		MD11	BMDS Radars	4	273,056	246,107	222,076	216,365	133,764	131,901	132,694	836,800
		MC11	Cyber Operations	4	1,543	1,212	1,239	1,272	1,308	1,341	1,361	6,521
		MT11	BMDS Radars Test	4	49,925	0	0	0	0	0	0	0
		MD40	Program-Wide Support	4	15,867	23,582	10,273	10,800	7,291	7,498	7,678	43,540
80	0603890C		BMD Enabling Programs	4	368,965	401,971	409,088	423,092	417,831	420,104	433,604	2,103,719
		MD24	System Engineering & Integration	4	123,434	138,633	141,651	137,594	139,599	141,353	142,459	702,656
		MT23	Enabling - Test	4	30,298	18,961	19,576	23,709	27,677	26,632	24,968	122,562
		MD28	Intelligence & Security	4	37,969	37,131	40,263	45,182	45,773	46,108	48,378	225,704
		MD30	BMD Information Management Systems	4	79,572	95,197	95,710	97,050	83,201	82,506	87,440	445,907
		MC30	Cyber Operations	4	12,389	15,452	20,017	23,044	21,164	21,330	24,088	109,643
		MD31	Modeling & Simulation	4	36,388	41,957	43,668	45,989	48,495	48,953	50,782	237,887
		MC31	M&S Cyber Operations	4	0	223	225	227	233	235	244	1,164
		MD32	Quality, Safety, and Mission Assurance	4	25,982	30,637	29,986	30,294	30,291	30,607	31,756	152,934
		MD40	Program-Wide Support	4	22,933	23,780	17,992	20,003	21,398	22,380	23,489	105,262
81	0603891C		Special Programs - MDA	4	266,749	310,261	400,387	349,606	315,151	257,065	266,853	1,589,062
		MD27	Special Programs	4	266,749	310,261	400,387	349,606	315,151	257,065	266,853	1,589,062
82	0603892C		AEGIS BMD	4	885,704	764,224	843,355	762,740	748,354	564,827	579,585	3,498,861
		MD09	Aegis BMD	4	711,040	681,417	732,273	640,153	640,336	457,486	489,092	2,959,340
		MC09	Cyber Operations	4	820	265	870	885	891	891	891	4,428
		MT09	Aegis BMD Test	4	105,000	0	0	0	0	0	0	0
		MX09	Aegis BMD Development Support	4	20,276	28,758	73,118	85,642	68,805	76,361	58,207	362,133
		MD40	Program-Wide Support	4	48,568	53,784	37,094	36,060	38,322	30,089	31,395	172,960
83	0603893C		Space Tracking and Surveillance System	4	41,618	31,331	31,632	17,917	23,937	28,789	30,344	132,619
		MD12	Space Tracking and Surveillance System (STSS)	4	39,529	29,517	30,241	17,070	22,711	27,255	28,700	125,977
		MD40	Program-Wide Support	4	2,089	1,814	1,391	847	1,226	1,534	1,644	6,642
84	0603895C		Ballistic Missile Defense System Space Programs	4	6,412	6,389	23,289	21,433	16,108	11,933	11,952	84,715
		MD33	MD Space Exp Center (MDSEC)	4	6,075	6,020	22,265	20,420	15,283	11,297	11,305	80,570
		MD40	Program-Wide Support	4	337	369	1,024	1,013	825	636	647	4,145

Line Number	Program Element	Budget Project	Program	Budget Activity	FY14 Actual	FY15	FY16	FY17	FY18	FY19	FY20	FY16-20
85	0603896C		Ballistic Missile Defense Command and Control, Battle Management & Communication	4	390,207	428,277	450,085	461,759	423,843	442,926	460,112	2,238,725
		MD01	Command & Control, Battle Management, Communications (C2BMC)	4	244,238	254,714	277,478	286,650	249,844	269,197	279,424	1,362,593
		MC01	Cyber Operations	4	655	547	543	557	565	573	594	2,832
		MT01	C2BMC Test	4	34,776	56,237	59,172	53,115	56,069	53,581	55,537	277,474
		MX01	Command & Control, Battle Management, Communications (C2BMC) Development Support	4	91,287	91,111	93,097	99,606	95,659	95,979	99,632	483,973
		MD40	Program-Wide Support	4	19,251	25,668	19,795	21,831	21,706	23,596	24,925	111,853
86	0603898C		Ballistic Missile Defense Joint Warfighter Support	4	41,051	46,387	49,570	50,533	51,363	52,217	54,247	257,930
		MD03	Joint Warfighter Support	4	38,601	14,569	16,241	16,405	16,580	16,811	17,441	83,478
		MT03	Joint Warfighter Support Test	4	0	29,134	31,149	31,739	32,153	32,624	33,867	161,532
		MD40	Program-Wide Support	4	2,450	2,684	2,180	2,389	2,630	2,782	2,939	12,920
87	0603904C		Missile Defense Integration and Operations Center (MDIOC)	4	50,271	58,503	49,211	58,074	53,655	55,194	57,162	273,296
		MD22	Missile Defense Integration and Operations Center (MDIOC)	4	47,064	54,578	46,575	54,869	50,291	51,632	53,420	256,787
		MC22	Cyber Operations	4	514	537	472	459	616	622	645	2,814
		MD40	Program-Wide Support	4	2,693	3,388	2,164	2,746	2,748	2,940	3,097	13,695
88	0603906C		Regarding Trench	4	14,525	16,199	9,583	9,082	9,390	9,527	9,891	47,473
		MD35	Regarding Trench	4	14,525	16,199	9,583	9,082	9,390	9,527	9,891	47,473
89	0603907C		Sea Based X-Band Radar (SBX)	4	70,336	64,409	72,866	71,267	75,760	72,319	87,058	379,270
		MX46	Sea Based X-Band Radar Development Support	4	68,039	60,681	69,661	67,898	71,880	68,466	82,342	360,247
		MD40	Program-Wide Support	4	2,297	3,728	3,205	3,369	3,880	3,853	4,716	19,023
90	0603913C		Israeli Cooperative Programs	4	283,782	268,842	102,795	104,923	106,913	109,599	111,370	535,600
		MD20	Israeli Upper Tier	4	74,707	74,707	55,050	56,194	57,259	58,695	59,642	286,840
		MD26	Israeli ARROW Program	4	44,363	56,201	11,019	11,245	11,460	11,748	11,937	57,409
		MD34	Short Range Ballistic Missile Defense (SRBMD)	4	149,712	137,934	36,726	37,484	38,194	39,156	39,791	191,351
		MD83	Iron Dome	4	15,000	0	0	0	0	0	0	0
91	0603914C		Ballistic Missile Defense Test	4	342,695	366,302	274,323	298,390	345,333	330,404	350,747	1,599,197
		MT04	BMDS Test Program	4	325,325	344,850	259,808	281,787	325,103	310,206	329,099	1,506,003
		MC04	Cyber Operations	4	1,040	1,670	2,450	2,496	2,545	2,596	2,648	12,735
		MD40	Program Wide Support	4	16,330	19,782	12,065	14,107	17,685	17,602	19,000	80,459
92	0603915C		Ballistic Missile Defense Targets	4	501,170	455,068	513,256	585,727	484,242	442,202	460,945	2,486,372
		MT05	BMDS Targets Program	4	484,743	430,229	490,682	558,035	459,443	418,644	435,975	2,362,779
		MD40	Program Wide Support	4	16,427	24,839	22,574	27,692	24,799	23,558	24,970	123,593
96	0604115C		Technology Maturation Initiatives	4	0	0	96,300	109,674	117,106	208,531	198,363	729,974
		MD98	Directed Energy Prototype Development	4	0	0	19,870	23,919	52,470	82,723	77,671	256,653
		MD99	Discrimination Sensor Prototype Development	4	0	0	43,810	61,153	26,933	114,379	109,767	356,042
		MT99	Technology Maturation Initiatives Test	4	0	0	28,219	19,248	31,447	144	0	79,058
		MC98	Cyber Operations	4	0	0	166	169	259	176	179	949
		MD40	Program Wide Support	4	0	0	4,235	5,185	5,997	11,109	10,746	37,272

Line Number	Program Element	Budget Project	Program	Budget Activity	FY14 Actual	FY15	FY16	FY17	FY18	FY19	FY20	FY16-20
105	0604873C		Long Range Discrimination Radar (LRDR)	4	0	50,500	137,564	154,327	147,562	132,905	77,679	650,037
		MD96	Long Range Discrim Radar (LRDR)	4	0	50,500	131,514	147,031	140,005	125,825	73,471	617,846
		MD40	Program Wide Support	4	0	0	6,050	7,296	7,557	7,080	4,208	32,191
106	0604874C		Improved Homeland Defense (HLD) Interceptors	4	0	99,500	278,944	279,565	71,663	14,004	14,251	658,427
		MD97	Improved HD Interceptors	4	0	99,500	266,676	266,348	67,993	13,258	13,479	627,754
		MD40	Program Wide Support	4	0	0	12,268	13,217	3,670	746	772	30,673
107	0604876C		Ballistic Missile Defense Terminal Defense Segment Test	4	0	111,366	26,225	74,400	69,852	86,191	65,578	322,246
		MT07	THAAD Test	4	0	111,366	25,072	70,883	66,275	81,599	62,026	305,855
		MD40	Program Wide Support	4	0	0	1,153	3,517	3,577	4,592	3,552	16,391
108	0604878C		Aegis BMD Test	4	0	89,628	55,148	89,861	131,351	101,903	80,390	458,653
		MT09	AEGIS BMD Test	4	0	89,628	52,723	85,613	124,624	96,474	76,035	435,469
		MD40	Program Wide Support	4	0	0	2,425	4,248	6,727	5,429	4,355	23,184
109	0604879C		Ballistic Missile Defense Sensor Test	4	0	71,309	86,764	104,271	93,310	102,736	106,377	493,458
		MT11	BMDS Radars Test	4	0	71,309	82,949	99,341	88,531	97,263	100,614	468,698
		MD40	Program Wide Support	4	0	0	3,815	4,930	4,779	5,473	5,763	24,760
110	0604880C		Land Based SM-3 (LBSM3)	4	124,568	123,444	34,970	40,787	30,486	20,193	22,079	148,515
		MD68	AEGIS Ashore	4	113,720	94,999	33,432	38,859	28,925	19,117	20,883	141,216
		MT68	Aegis Ashore Test	4	4,031	21,300	0	0	0	0	0	0
		MD40	Program-Wide Support	4	6,817	7,145	1,538	1,928	1,561	1,076	1,196	7,299
111	0604881C		AEGIS SM-3 Block IIA Co-Development	4	297,169	263,695	172,645	66,828	0	0	0	239,473
		MD09	SM-3 Block IIA Co-Development	4	279,140	240,751	139,866	51,371	0	0	0	191,237
		MT09	SM-3 Block IIA Co-Development Test	4	1,897	7,680	25,186	12,298	0	0	0	37,484
		MD40	Program-Wide Support	4	16,132	15,264	7,593	3,159	0	0	0	10,752
112	0604887C		Ballistic Missile Defense Midcourse Defense Segment Test	4	0	79,877	64,618	73,485	81,385	73,848	94,954	388,290
		MT08	Midcourse Test	4	0	79,877	61,777	70,010	77,217	69,914	89,809	368,727
		MD40	Program Wide Support	4	0	0	2,841	3,475	4,168	3,934	5,145	19,563
115	0305103C		Cyber Security Initiative	4	912	961	963	976	992	1,003	1,038	4,972
		MDCS	Cyber Security Initiative	4	912	961	963	976	992	1,003	1,038	4,972
			Budget Activity 04 Total	4	5,342,869	5,417,159	5,930,081	5,603,885	5,018,356	4,801,232	4,876,909	26,230,463
152	0605502C		Small Business Innovation Research - MDA	6	74,888	0	0	0	0	0	0	0
		MD45	Small Business Innovation Research	6	74,888	0	0	0	0	0	0	0
174	0901598C		Management HQ - MDA	6	34,712	35,598	35,871	35,187	34,509	33,466	33,992	173,025
		MD38	Management Headquarters	6	34,712	35,598	35,871	35,187	34,509	33,466	33,992	173,025
			Budget Activity 06 Total	6	109,600	35,598	35,871	35,187	34,509	33,466	33,992	173,025
			RDT&E Total	6	5,706,734	5,647,845	6,190,381	5,884,709	5,227,768	5,010,425	5,112,075	27,425,358

Line Number	Program Element	Budget Project	Program	Budget Activity	FY14 Actual	FY15	FY16	FY17	FY18	FY19	FY20	FY16-20
MILCON												
			Major MILCON	NA	164,204	0	169,153	116,821	109,112	59,194	0	454,280
			Mechanical-Electrical Bldg MF #1 Ft Greely, AK	NA	80,700	0	0	0	0	0	0	0
			BMDS UEWR, Clear AFS, AK	NA	17,204	0	0	0	0	0	0	0
			AN/TPY-2 Radar Site, PACOM	NA	16,300	0	0	0	0	0	0	0
			Aegis Ashore Missile Def Sys Cmplx, Romania	NA	50,000	0	0	0	0	0	0	0
			Aegis Ashore Missile Def Sys Cmplx, Poland	NA	0	0	169,153	0	0	0	0	169,153
			Long Range Discrimination Radar	NA	0	0		116,821	109,112	59,194	0	285,127
			Minor MILCON	NA	2,000	2,000	0	1,947	1,942	1,913	1,979	7,781
				NA	2,000	2,000	0	1,947	1,942	1,913	1,979	7,781
			MILCON Planning and Design	NA	10,891	58,704	0	8,161	8,323	8,450	8,745	33,679
				NA	10,891	58,704	0	8,161	8,323	8,450	8,745	33,679
			MILCON Total	NA	177,095	60,704	169,153	126,929	119,377	69,557	10,724	495,740
			Program Total		8,046,675	7,870,581	8,126,571	7,801,307	7,338,347	7,260,562	7,424,632	37,951,419

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Missile Defense Agency Congressional Reporting Requirements		
Reporting Requirement Reference	**Reporting Requirement Language**	**Budget Documentation**
H.R. 83 – Consolidated Appropriations Act 2015 – Public Law No. 113-235; Division C -- Joint Explanatory Statement Committee Report; pp. 4-6	**ISRAELI MISSILE DEFENSE PROGRAMS** The fiscal year 2015 budget request includes $272,775,000 for Israeli missile defense programs within the Missile Defense Agency (MDA) budget, including $175,972,000 for the procurement of Iron Dome. This request concludes a previous U.S. commitment to the Government of Israel to provide $680,000,000 from fiscal years 2012 to 2015 for the Iron Dome program in response to a request from the Government of Israel. Strong bipartisan congressional support remains for Israeli missile defense programs to ensure fulfillment of Israel's missile defense needs and the retention of Israel's qualitative military edge. Long-standing and successful contributions of U.S. industry toward meeting these goal include co-production of Arrow and David's Sling; and, beginning in fiscal year 2014, co-production of Iron Dome components. Subsequent to the fiscal year 2015 budget submission, the Government of Israel increased its funding requirement for Iron Dome. Therefore, the agreement provides an additional $175,000,000 above the request for Iron Dome, which brings U.S. investment in Iron Dome production since fiscal year 2011 to over $1,200,000,000. The Iron Dome program, which was developed by Israel solely with Israeli funding, is not subject to conditions of other joint Israel-U.S. cooperative missile defense programs, but rather is governed by a Memorandum of Agreement signed in March 2014. Therefore, the agreement directs that all funds appropriated in fiscal year 2015 for Iron Dome be subject to the terms and provisions of this Memorandum of Agreement, as amended, to reflect an agreed-upon implementation plan between MDA and the Israel Missile Defense Organization (IMDO). In addition, the agreement directs that not more than $175,972,000 may be obligated or expended for Iron Dome in fiscal year 2015 until IMDO provides additional justification and documentation to MDA, and the Director of MDA certifies receipt of all such information to the congressional defense committees. The documentation should include a timeline for the expenditure of Iron Dome funds included in the fiscal year 2015 budget request and the additional funds recommended in fiscal year 2015, a delivery schedule for items funded with these and prior year funds, and a report to MDA documenting full and complete delivery by Israeli industry and acceptance by U.S. industry suppliers of all technical data packages required for U.S. co-production of Iron Dome components. Further, this report shall document that all export licenses required to enable the release of classified technical data packages from the U.S. prime contractor to U.S. subcontractors are completed; a common cost model of Iron Dome components that includes recurring and non-	Submitted with the FY2016 Budget Release

Missile Defense Agency Congressional Reporting Requirements		
	recurring engineering costs, to be jointly developed and agreed upon by MDA and IMDO; actual Iron Dome production costs beginning in fiscal year 2013; and component lead-times and delivery schedules for each fiscal year thereafter. It is expected that to fully satisfy the requirements listed above, the Government of Israel will provide to MDA copies of signed and ratified contracts, subcontracts, and teaming arrangements between Israeli and U.S. industry for all Iron Dome co-production efforts. In addition, the Director of MDA, in coordination with the Under Secretary of Defense (Acquisition, Technology, and Logistics), is directed to provide a report to the congressional defense committees with the fiscal year 2016 budget submission on the information provided in the detailed cost and schedule justification required above, including the views of the Director and the Under Secretary on its sufficiency. It is noted that moving forward with Iron Dome co-production will not negatively impact development, test, and production schedules of the Arrow and David's Sling programs. Therefore, the agreement recommends an additional $172,039,000 above the request for the Arrow and David's Sling programs.	
Sec 231 of the FY14 National Defense Authorization Act (HR 3304, TITLE II – Subtitle C) pp. 18	**SEC 231. IMPROVEMENTS TO ACQUISITION ACCOUNTABILITY REPORTS ON BALLISTIC MISSILE DEFENSE SYSTEM** (a) Improvement to Operations and Sustainment Cost Estimates- In preparing the acquisition accountability reports on the ballistic missile defense system required by section 225 of title 10, United States Code, the Director of the Missile Defense Agency shall improve the quality of cost estimates relating to operations and sustainment that are included in such reports under subsection (b)(3)(A) of such section, including with respect to the confidence levels of such cost estimates. (b) Operations and Sustainment Responsibility- Section 225 of title 10, United States Code, is amended by adding at the end the following new subsection: (e) Operations and Sustainment Cost Estimates- The Director shall ensure that each life-cycle cost estimate included in an acquisition baseline pursuant to subsection (b)(3)(A) includes-- (1) all of the operations and sustainment costs for which the Director is responsible; and (2) a description of the operations and sustainment functions and costs for which a military department is responsible.'. (c) Report- (1) IN GENERAL- Not later than one year after the date of the enactment of this Act, the Director of the Missile Defense Agency shall submit to the congressional defense committees a report outlining the plans of the Director to improve the quality of cost estimates pursuant to subsection (a). (2) ELEMENTS- The report under paragraph (1) shall include-- (A) a description of the actions planned to improve the quality of cost estimates included in the	MDA to provide BMDS Accountability Report (BAR) to Congressional Defense Committees. The BAR fully satisfies the requirement.

Missile Defense Agency Congressional Reporting Requirements		
	acquisition accountability reports on the ballistic missile defense system required by section 225 of title 10, United States Code; (B) the schedule for such planned actions, including the planned schedule for meeting the requirements of subsection (e) of such section 225, as added by subsection (b); (C) a description of any steps taken during the previous year to improve the quality of such cost estimates; (D) an assessment of how the planned improvements compare to the best practices and cost-estimation guidelines recommended by the Comptroller General of the United States for cost estimates of the ballistic missile defense system; (E) any other matters the Director considers appropriate; and (F) the views of the Comptroller General of the United States with respect to the contents of the report. (3) FORM- The report under paragraph (1) shall be submitted in unclassified form.	
Sec 234 of H.R. 1960 H. Rpt 113-02 FY14 House Armed Services Committee Report pp. 67-68	**REPORT ON IMPROVEMENTS TO ACQUISITION ACCOUNTABILITY REPORTS ON BALLISTIC MISSILE DEFENSE SYSTEM** This section would amend section 225 of title 10, United States Code, to include a requirement that the Director, Missile Defense Agency include in the annual Ballistic Missile Defense System Accountability Report certain operation and support costs, and statements as to the quality estimate level of each cost estimate as well as the steps the Director will take to ensure these estimates reach the ‘‘high-quality estimate’’ level established by the Comptroller General of the United States. (a) In General.—Section 225 of title 10, United States Code, is amended— (1) in subsection (b)(3)(A), by inserting “comprehensive” before “life-cycle”; and (2) by adding at the end the following: (e) Quality of Cost Estimates.—(1) The Director shall ensure that each cost estimate included in an acquisition baseline pursuant to subsection (b)(3) includes all operation and support costs, regardless of funding source, for which the Director is responsible. (2) In each such baseline submitted to the congressional defense committees, the Director shall state whether the underlying cost estimates in such baseline meet the criteria of the Comptroller General of the United States to be considered a high-quality estimate. If the Director states that such estimates do not meet such criteria, the Director shall include in such baseline the actions, including a schedule, that the Director plans to carry out for the estimates to meet such criteria.”.	MDA to provide BMDS Accountability Report (BAR) to Congressional Defense Committees. The BAR fully satisfies the requirement.
	(b) Report.—Not later than February 15, 2014, the Director of the Missile Defense Agency shall	

Missile Defense Agency Congressional Reporting Requirements		
	submit to the congressional defense committees a report of the plans and schedule of the Director with respect to when the Director will meet the quality and criteria of cost estimates required by section 225(e) of title 10, United States Code, as added by subsection (a)(2).	
Sec 231 of the FY12 National Defense Authorization Act (S 1867, TITLE II – Subtitle C) pp. 53-54	**SEC. 231. ACQUISITION ACCOUNTABILITY REPORTS ON THE BALLISTIS MISSIL DEFENSE SYSTEM** (a) BASELINE REQUIRED.— (1) IN GENERAL.—Chapter 9 of title 10, United States Code, is amended by inserting after section 224 the following new section: 225. Acquisition accountability reports on the ballistic missile defense system (a) BASELINES REQUIRED.—(1) In accordance with paragraph (2), the Director of the Missile Defense Agency shall establish and maintain an acquisition baseline for— (A) each program element of the ballistic missile defense system, as specified in section 223 of this title; and (B) each designated major subprogram of such program elements. (2) The Director shall establish an acquisition baseline required by paragraph (1) before the date on which the program element or major subprogram enters— (A) engineering and manufacturing development; and (B) production and deployment. (3) Except as provided by subsection (d), the Director may not adjust or revise an acquisition baseline established under this section. (b) ELEMENTS OF BASELINES.—Each acquisition baseline required by subsection (a) for a program element or major subprogram shall include the following: (1) A comprehensive schedule, including— (A) research and development milestones; (B) acquisition milestones, including design reviews and key decision points; (C) key test events, including ground and flight tests and ballistic missile defense system tests; (D) delivery and fielding schedules; (E) quantities of assets planned for acquisition and delivery in total and by fiscal year; and (F) Planned contract award dates. (2) A detailed technical description of— (A) the capability to be developed, including hardware and software; (B) system requirements, including performance requirements; (C) how the proposed capability satisfies a capability identified by the commanders of the combatant commands on a prioritized capabilities list; (D) key knowledge points that must be achieved to permit continuation of the program and to	MDA to provide BMDS Accountability Report (BAR) to Congressional Defense Committees. The BAR fully satisfies the requirement.

inform production and deployment decisions; and
(E) how the Director plans to improve the capability over time.
(3) A cost estimate, including—
(A) a life-cycle cost estimate that separately identifies the costs regarding research and development, procurement, military construction, operations and sustainment, and disposal;
(B) program acquisition unit costs for the program element;
(C) average procurement unit costs and program acquisition costs for the program element; and
(D) an identification of when the document regarding the program joint cost analysis requirements description is scheduled to be approved.
(4) A test baseline summarizing the comprehensive test program for the program element or major subprogram outlined in the integrated master test plan.
(c) ANNUAL REPORTS ON ACQUISITION BASELINES.—
(1) Not later than February 15 of each year, the Director shall submit to the congressional defense committees a report on the acquisition baselines required by subsection (a).
(2)(A) The first report under paragraph (1) shall set forth each acquisition baseline required by subsection (a) for a program element or major subprogram.
(3) Each subsequent report under paragraph (1) shall include—
(i) any new acquisition baselines required by subsection (a) for a program element or major subprogram; and
(ii) with respect to an acquisition baseline that was previously included in a report under paragraph (1), an identification of any changes or variances made to the elements described in subsection (b) for such acquisition baseline, as compared to—
(I) the initial acquisition baseline for such program element or major subprogram; and
(II) the acquisition baseline for such program element or major subprogram that was submitted in the report during the previous year.
(3) Each report under this subsection shall be submitted in unclassified form, but may include a classified annex.
(d) EXCEPTION TO LIMITATION ON REVISION.—The Director may adjust or revise an acquisition baseline established under this section if the Director submits to the congressional defense committees notification of—
(1) a justification for such adjustment or revision;
(2) the specific adjustments or revisions made to the acquisition baseline, including to the elements described in subsection (b); and
(3) the effective date of the adjusted or revised acquisition baseline.’’.
(2) CLERICAL AMENDMENT.—The table of sections at the beginning of such chapter is amended by adding at the end the following new item: section 225. Acquisition accountability

Missile Defense Agency Congressional Reporting Requirements		
	reports on the ballistic missile defense system.''. (b) CONFORMING AMENDMENTS.— (1) FISCAL YEAR 2011 NDAA.—Section 225 of the Ike Skelton National Defense Authorization Act for Fiscal Year 2011 (Public Law 111–383; 124 Stat. 4170; 10 U.S.C. 223 note) is repealed. (2) FISCAL YEAR 2008 NDAA.—Section 223 of the National Defense Authorization Act for Fiscal Year 2008 (Public Law 110–181; 122 Stat. 39; 10 U.S.C. 223 note) is amended by striking subsection (g). (3) FISCAL YEAR 2003 NDAA.—Section 221 of the Bob Stump National Defense Authorization Act for Fiscal Year 2003 (Public Law 107–314; 116 Stat. 2484; 10 U.S.C. 2431 note) is repealed.	
FY12 National Defense Authorization Act, Report Language – House Report 112-239, Subtitle C Missile Defense Matters pp. 43-44	**SEC. 232. COMPTROLLER GENERAL REVIEW AND ASSESSMENT OF MISSILE DEFENSE ACQUISITION PROGRAMS.** (a) Comptroller General Assessment- (1) IN GENERAL- The Comptroller General of the United States shall review the annual reports submitted under section 225(c) of title 10, United States Code, as added by section 231 of this Act, that cover any of fiscal years 2012 through 2015 and assess the extent to which the Missile Defense Agency has achieved its acquisition goals and objectives. (2) REPORTS- Not later than March 15, 2013, and each year thereafter through 2016, the Comptroller General shall submit to the congressional defense committees a report on the assessment under paragraph (1) with respect to the acquisition baselines for the preceding fiscal year. Each report shall include any findings and recommendations on missile defense acquisition programs and accountability therefore that the Comptroller General considers appropriate. (b) Annual Reports on Missile Defense Executive Board Activities- In each of the first three reports submitted under section 225(c) of title 10, United States Code, as added by section 231 of this Act, the Director shall include a description of the activities of the Missile Defense Executive Board during the fiscal year preceding the date of the report, including the following: (1) A list of each meeting of the Board during such year. (2) The agenda and issues considered at each such meeting. (3) A description of any decisions or recommendations made by the Board at each such meeting. (c) Repeal of Superseded Reporting Authority- Section 232 of the National Defense Authorization Act for Fiscal Year 2002 (Public Law 107-107; 115 Stat. 1037; 10 U.S.C. 2431 note) is amended by striking subsection (g).	MDA to provide BMDS Accountability Report (BAR) to Congressional Defense Committees. The BAR fully satisfies the requirement.

Missile Defense Agency Congressional Reporting Requirements		
Sec 223(a). Ballistic Missile Defense Programs: Procurement; National Defense Authorization Act for Fiscal Year 2004 (H.R. 1588, H. Rpt. 108-354, pp. 30-31)	BUDGET JUSTIFICATION MATERIALS-In the budget justification materials submitted to Congress in support of the Department of Defense budget for any fiscal year (as submitted with the budget of the President under section 1105(a) of title 31), the Secretary of Defense shall specify, for each ballistic missile defense system element for which the Missile Defense Agency is engaged in planning for production and initial fielding, the following information: (1) The production rate capabilities of the production facilities planned to be used for production of that element. (2) The potential date of availability of that element for initial fielding. (3) The estimated date on which the administration of the acquisition of that element is to be transferred from the Director of the Missile Defense Agency to the Secretary of a military department.	MDA to provide BMDS Accountability Report (BAR) to Congressional Defense Committees. The BAR partially satisfies the requirement through its schedule baseline. Exhibit P-21 – Budget Production Schedule **Procurement -MDA** **0208866C**, Terminal Defense, **0208866C,** Aegis BMD, **0208866C**, Aegis Ashore Phase III **0208866C,** BMDS AN/TPY-2 Radars **0208866C** Iron Dome
Sec 223(b). Ballistic Missile Defense Programs: Procurement; National Defense Authorization Act for Fiscal Year 2004 (H.R. 1588, H. Rpt. 108-354, pp. 30-31)	FUTURE-YEARS DEFENSE PROGRAM-The Secretary of Defense shall include in the future-years defense program submitted to Congress each year under section 221 of this title an estimate of the amount necessary for procurement for each ballistic missile defense system element, together with a discussion of the underlying factors and reasoning justifying the estimate.	**Procurement -MDA** **0208866C**, Terminal Defense, **0208866C,** Aegis BMD, **0208866C**, Aegis Ashore Phase III **0208866C,** BMDS AN/TPY-2 Radars **0208866C**, Iron Dome

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PART SUMMARY

Missile Defense

Mission:
To Develop and deploy a layered BMDS to defend the United States, its deployed forces, allies and friends from ballistic missile attacks of all ranges in all phases of flight.

In accordance with the President's Management Agenda, Budget and Performance Integration Initiative, this program has been assessed using the Program Assessment Rating Tool (PART). Remarks regarding program performance and plans for performance improvement can be located at the Expectmore.gov website –

http://www.whitehouse.gov/sites/default/files/omb/assets/omb/expectmore/index.html

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ACRONYMS AND ABBREVIATIONS

A	
A&AS	Advisory and Assistance Services
AAEA	Aegis Ashore Engineering Agent
AAFTM	Aegis Ashore Flight Test Mission
AAMDS	Aegis Ashore Missile Defense System
AAMDSC	Aegis Ashore Missile Defense System Complex
AAMDTC	Aegis Ashore Missile Defense Test Complex
AAW	Anti-Air Warfare
ABEWS	Airborne Early Warning System
ABIR	Airborne Infrared Radar
ABMD	Aegis Ballistic Missile Defense
ABS	Airborne Sensors; American Bureau of Shipping
ABWO	Assistant Ballistic Missile Defense Watch Officer
ACB	Advanced Capability Build
ACB 12	Advanced Capability Build 12
ACD	Adversary Capability Document
ACD&P	Advanced Component Development & Prototypes
ACL	Achievable Capabilities List
ACS	Aegis Combat System
ADP	Arrow Deployability Program; Automated Data Processing; Adversary Delta Package
AEDC	Arnold Engineering Development Center
AEI	Annual Integration Events
AEP	Analysis Execution Plans
AEU	Antenna Equipment Unit
AFB	Air Force Base
AFS	Avionics Flight Software
AI&T	Assembly, Integration and Test
AIE	Annual Integration Event
ALO	Aegis Light-Off
ALTB	Active Layered Theater Ballistic
AMCOM	Army Aviation and Missile Command
AMDWS	Air and Missile Defense Workstation
AMOD	Aegis Modernization (program)
AMRDEC	Aviation and Missile Research, Development and Engineering Center
AN/SPY-1	Joint Army-Navy equipment nomenclature: S -Water (surface ship), P - Radar, Y - Surveillance (target detecting and tracking) and Control (fire control and/or air control), 1 - model number [AN/SPY-1 is an equipment nomenclature, not an Acronym]
AN/TPY	Army Navy/Transportable Radar Surveillance
AN/TPY-2	Joint Army-Navy equipment nomenclature: T - Transportable (ground), P - Radar, Y - Surveillance (target detecting and tracking) and Control (fire control and/or air control), 2 - model number [AN/TPY-2 is an equipment nomenclature, not an Acronym]
AOC	Air Operations Center
AOR	Area of Responsibility
APEX	Assessment Parameter Extraction
APL	Applied Physics Laboratory
ARAV	Aegis Readiness Assessment Vehicles
ARST	Advanced Remote Sensor Technology
ARSTRST	(US) Army Forces Strategic Command
ASIP	Arrow System Improvement Program; Application Specific Integrated Circuit
AT&L	Acquisition, Technology and Logistics
ATD	Advanced Technology Development; Assistant to the Director
ATEC	Army Test and Evaluation Command

ATK	Alliant Techsystems, Inc
AUR	All Up Round
AWS	Arrow Weapon System; AEGIS Weapon System
B	
BCA	Business Case Analysis; BMDS Capability Assessment
BCF	BCF Solutions, Incorporated
BCM	C2BMC model
BCN	BMDS Communications Network
BCSC-T	BMDS Communication System Complex Transportable
BDR	BMDS Discrepancy Reports
BER	Baseline Execution Reviews
BM	Battle Management; Ballistic Missile
BMD	Ballistic Missile Defense
BMDS	Ballistic Missile Defense System
BNOSC	BMDS Network Operations and Security Center
BOA	BMDS Overhead Non-imaging Infrared (ONIR) Architecture
BoD	Boards of Director
BORRS	BMDS Operational Readiness Reporting System
BOS	Base Operations Support
BSA	Budget Sub-Activity
BSC	Battery Support Center
BSO	BMDS Safety Officers
BSP	BMD Signal Processor
BTG	BCN Teleport Gateway
BWO	BMDS Watch Officers
C	
C&A	Certification and Accreditation
C/FFP	Cost Fixed Firm Price
C2BMC	Command and Control, Battle Management, and Communications
C2P	Command and Control Processor
C4I	Command, Control, Communications, Computers and Intelligence
CAFM	Computer-aided Facilities Management
CARD	Cost Analysis and Requirements Document
CBAU	Consolidated Booster Avionics Upgrade
CCAS	Combat Capabilities Assessment Schedule
CCC	C2BMC Control Center
CCLS	Centralized Contractor Logistics Support
CCM	Counter Counter-Measures
CCMD	Combatant Commander
CD	Concept Descriptions; Cobra Dane
CDCS	Coherent Doppler Collection System
CDIN	C2BMC Deployable Interface Node
CDLMS	Common Data Link Monitoring System
CDR	Critical Design Review
CDU	Cobra Dane Upgrade
CE	Capability Enhanced
CEC	Critical Engagement Condition
CECOM	US Army Communications & Electronics Command
CENAU	Corps of Engineers European Division
CENTCOM	Central Command
CEU	Cooling Equipment Unit
CG	US Navy ship hull classification symbol for - Guided Missile Cruiser [CG is not an Acronym]
CIC	Counterintelligence in Cyberspace
CIDS	Critical Items Description Specifications
CIIA	Cyber, Identity, and Information Assurance
CIRT	Computer Incident Response Team

CLE	Command and Launch Equipment
CLS	Contractor Logistics Support
CND	Computer Network Defense
CNET	Classified Network
COCOM	Combatant Commanders
COMNET	communications network
COMSEC	Communication Security
CONOPS	Concept of Operations
CONPLAN	Concept Plan
CONPLANS	Contingency Plans
CONUS	Continental United States
COOP	Calibrated Orbiting Objects Program (COOP)
CoS	Colorado Springs
COTS	Commercial off the Shelf
CP	Computer Program
CPAF	Cost Plus Award Fee
CPCR	Computer Program Change Request
CPFF	Cost Plus Fixed Fee
CPIF	Cost-Plus-Incentive-Fee
CPRS	Computer Program Requirements Specifications
CR	Capability Release
CSC	Computer Sciences Corporation
CSCS	Center for Surface Combat Systems
CSEDS	Combat Systems Engineering Development Site
CSS	Contractor Support Services
CTM	Core Truth Models
CTTO	Concurrent Test, Training and Operations
CTV	Control Test Vehicle
CTV-01	Controlled Test Vehicle-01
CU	Capability Upgrade
CVT	Controls Validation Testing
CY	Calendar Year
D	
DAA	Designated Approving Authority
DAA	Defense Appropriations Act; Designated Approving Authority
DAC	Divert Attitude Control
DACS	Divert and Attitude Control System
DARPA	Defense Advanced Research Projects Agency
DASA	German Aerospace. Member of the MEADS Program Team.
DAU	Defense Acquisition University
DDCS	Digital Data Collection System
DDG	US Navy ship hull classification symbol for - Guided Missile Destroyer [DDG is not an Acronym]
DECC	Defense Enterprise Computing Center
DEERS	Defense Enrollment Eligibility Reporting System
DESH	MDA/DESH - Missile Defense Agency (MDA)/Modeling & Simulation Huntsville (DESH) [office symbol within MDA Engineering Directorate, not an Acronym]
DESIM	Discrete Event Simulation
DFAR	Defense Federal Acquisition Regulation
DHP	Data Handling Plan
DIA	Defense Intelligence Agency
DIACAP	DoD Information Assurance Certification and Accreditation Process; DoD Information Assurance Certification and Accreditation Program
DISA	Defense Information Systems Agency
DMETS	Distributed, Multi-Echelon Training System
DMIC	Digital M&S Integration Center
DMS	Diminished Manufacturing Support

DoD	Department of Defense
DODIC	Department of Defense Identification Code
DOT&E	Director of Operational Test and Evaluation
DPALS	Diode Pumped Alkali Laser System
DPF	MDA Facilities, MILCON & Environmental Management Directorate
DREN	Defense Research Engineering Network
DRSN	Defense Red Switch Network
DSA	Digital Simulation Architecture
DSCS	Defense Satellite Communication System
DSWS	David's Sling Weapon System
DT&E	Developmental Test and Evaluation
DTIC	Digital Test and Integration Center
DTLOMS	Doctrine, Training, Leadership, Organization, Materiel, Soldier
DTRA	Defense Threat Reduction Agency
DW	Defense Wide
DWCF	Defense Working Capital Fund
E	
E/CCA	Element/Component Characteristics for Analysis
EA	Executing Agent; Engineering Assessment
EADSIM	Extended Air Defense Simulation
EAS	Eareckson Air Station
ECS	Element Capability Specification; Engineering Change Summary
EDP	Evolutionary Development Program
EECS	Event Execution Control System
EEU	Electronics Equipment Unit
EHF	Extremely High Frequency
EKV	Exoatmospheric Kill Vehicle
E-LRALT	Enhanced Long Range Air Launch Target
EMD	Engineering, Manufacturing, and Development
EMDR	Executive Mission Data Review
EME	Empirical Measurement Events
eMRBM	Extended Medium Range Ballistic Missile
EMRL	Engineering and Manufacturing Readiness Level
EO/IR	Electro-Optical/Infrared
EoR	Engage-on-Remote
EPAA	European Phased Adaptive Approach
EQLB	Executive Quick Look Briefing
ESD	Enterprise System Directorate
ESI	External System Interface; Enterprise Software Initiative
ESL	External Sensors Lab
ESOH	Environmental, Safety and Occupational Health
ET	Embedded Test;
EUCOM	European Command
EVMS	Earned Value Management System
EWR	Early Warning Radar
EWS	Enterprise Work Stations
F	
FCS	Fire Control Section; Fire Control System (SPY/FCS - AN/SPY radar Fire Control System)
FDE	Force Developers Evaluation
FFP	Firm Fixed Price
FFPLOE	Firm Fixed Prices Level of Effort
FFRDC	Federally Funded Research and Development Center
FISMA	Federal Information Security Management Act
FLITES	Fast Line-of Sight Imagery for Target and Exhaust Plume Signatures
FMA	Foreign Material Acquisition; Foreign Military Asset
FMS	Foreign Military Sales

FOCI	Foreign Ownership, Control, and Influence
FOIA	Freedom of Information Act
FPA	Focal Plane Array
FPAF	Fixed Price Award Fee
FPIF	Fixed Price Incentive Fee
FT	Flight Test
FTF	Flexibility Target Family
FTG	Flight Test GMD
FTM	Flight Test Mission
FTO-02	Flight Test Operational-02
FTT	Flight Test - THAAD
FY	Fiscal Year
FYDP	Future Years Defense Program
G	
GBI	Ground Based Interceptor
GBR-P	Ground Based Radar Prototype
GCC	Geographic Combatant Commander
GCCS-M	Global Command and Control System - Maritime
GCN	Global Command Network; GMD Communications Network
GD	Global Deployment
GDDT	Government Directed Down Time
GEM	Global Engagement Manager; Guidance Enhancement Missiles (PATRIOT)
GENSER	General Services
GEOINT	Geospatial Intelligence
GEP	Ground Entry Point
GFC	GMD Fire Control
GFC / C	GMD Fire Control and Communications
GFE	Government Furnished Equipment
GFS	Government Furnished Services
GIG	Global Information Grid
GM	Ground-based Midcourse
GMD	Ground-based Midcourse Defense
GPS	Global Positioning System
GS	Ground Systems
GSOC	Global Security Operations Center
GT	Ground Test
GTD	Ground Test Distributed
GTI	Ground Test Integrated
GTRI	Georgia Tech Research Institute
GTX	Ground Test (Element to Element)
GWS	GEM Work Stations

H	
HAENS	High Altitude Exoatmospheric Nuclear Survivability
HEMP	High Altitude Electromagnetic Pulse
HEMTT	Heavy Expanded Mobility Tactical Truck
HIL	Human-in-the-Loop; Hardware-in-the-Loop
HMOC	Huntsville Mission Operations Center
HOSC	Huntsville Operations Support Center
HRTS	Human Resource Tracking System
HWIL	Hardware-in-the-loop
I	
I&T	Integration & Test
IA	Information Assurance
IAI	Israel Aircraft Industries
IAM	Information Assurance Manager
IAMD	Integrated Air and Missile Defense
FPAF	Fixed Price Award Fee
IAS	Interocean American Shipping
IAW	In Accordance With
ICBM	Intercontinental Ballistic Missiles
ICD	Interface Control Document
ICOFT	Institutional Conduct of Fire Trainer
ICP	Interface Change Proposal
IDIQ	Indefinite Delivery Indefinite Quantity
IDMP	Integrated Data Management Plan
IDT	In-Flight Interceptor Communications System Data Terminal
IEM	Integrated Electronics Module
IETM	Integrated Electronic Technical Manual
IETT	Integrated Event Test Team
IFICS	In-Flight Interceptor Communications System
ILP	Initial Lot Production
ILS	Integrated Logistics Support
IM	Insensitive Munitions
IMAP	Integrated Master Assessment Plan
IMD	Integrated Missile Defense
IMoD	Israeli Ministry of Defense
IMTP	Integrated Master Test Plan
IMU	Inertial Measurement Unit
IMVP	Integrated Master VV&A Plan
INFOSEC	Information Security
IPA	Intergovernmental Personnel Act
IR	Infra-red
IRBM	Intermediate-Range Ballistic Missiles
ISA&I	Israeli System Architecture and Integration
ISET	Integrated Systems Engineering Team
ISIM	International Simulation
IT	Integrated Test; Information Technology
ITB	Institutional Training Base; Israeli Test Bed
IV&V	Independent Verification and Validation
IWS	Indications and Warning System; Integrated Warfare Systems
J	
JAT	Joint Analysis Teams
JBTEC	Joint BMDS Training and Education Center
JEWL	Joint Early Warning Laboratory
JFCC	Joint Functional Component Command
JFCC-IMD	Joint Functional Component Command - Integrated Missile Defense
JHU	John Hopkins University

JHU/APL	John's Hopkins University/Applied Physics Laboratory
JMOD	Japan Ministry of Defense
JNIC	Joint National Integration Center, Schriever AFB, CO
JPOW	Joint Project Optical Windmill
JRDC	JNIC) Research and Development Contract
JRMET	Joint Reliability and Maintainability Engineering Team
JTF-GNO	Joint Task Force-Global Network Operations
JTIDS	Joint Tactical Information Data System
JTOC	JNIC Target Operations Center
JWSP	Joint Warfighter Support Program
K	
KHILS	Kinetic Kill Vehicle hardware in-the-Loop Simulator
KIDD	Kinetic Impact Debris Distribution
KV	Kill Vehicle
KW	Kinetic Warhead
L	
L&TSE	Launch and Test Support Equipment
LBSM3	Land Based SM-3 (early name for Aegis Ashore)
LCC	Launcher Control Center
LHCT	Long Haul Communications Transport
LLNL	Lawrence Livermore National Laboratory
LM	Lockheed Martin
LMSSC	Lockheed Martin Space Systems Company
LNO	Liaison Officer
LoR	Launch on Remote
LRDS	Long Range Detection Suite
LRS&T	Long Range Surveillance and Tracking; Long Range Surveillance and Track
LRU	Line Replaceable Unit'
LSC	Launch Support Systems;
LSE	Launch Support Equipment
LSS	Launch Support Systems; Launch Site Controller
LTPO	Lower Tier Program Office
M	
M&S	Materials and Structure; Modeling and simulation
MAIS	Major Automated Information System
MAP	MDA Assurance Plan; MDA Assurance Provisions
MAR	MDA Assurance Representative
MARAD	Maritime Administration
MASINT	Measures and Signals Intelligence
MAX/MIF	Maximum (number of)/Missiles In Flight
MD	Missile Defense
MDA	Missile Defense Agency
MDAHQ	Missile Defense Agency Headquarters
MDAP	Major Defense Acquisition Program
MDEB	Missile Defense Executive Board
MDIOC	Missile Defense Integrated Operations Center
MDR	Mission Data Review
MDSDC	Missile Defense Space Development Center
MDSE	Missile Defense System Exerciser
MDSEC	Missile Defense Space Experimentation Center
MDST	Missile Defense Space Warning Tool
MET	Modernization Enterprise Terminal
MFRL	Modification and Fielding Request List
MFU	Missile Firing Unit
MICS	MDA Integrated Communications Services
MiDAESS	Missile Defense Agency Engineering and Support Services

MIF	MIF
MILCON	Military Construction; Military Construction funding (type of Appropriation)
MIL-STD	Military Standards
MIP	Master Integration Plan
MIPR	Military Interdepartmental Purchase Request
MIS	MDSDC Interchange System; MDSEC Interchange System
MIT	Miniature Interceptor Technology; Massachusetts Institute of Technology
MIT/LL	Massachusetts Institute of Technology, Lincoln Laboratory, Lexington, MA
MMR	Multi-Mission Radar
MOC	Missile Defense Agency Operations Center
MoKVA	Modular open Kill Vehicle Architecture
MOU	Memorandum of Understanding
MPAT	Producibility and Manufacturing Technology
MPL	ManPower Loading
MRA	Mission Readiness Assessment
MRBM	Medium-Range Ballistic Missiles
MRT	Medium Range Target
MRTF	Major Range and Test Facilities
MSR	Minimum Sustaining Rate
MTOE	Modified Table of Organization and Equipment
MTS	Multi-Spectral Targeting System
N	
NASIC	National Air and Space Intelligence Center
NATO	North Atlantic Treaty Organization
NAVFAC	Naval Facilities Engineering Command; Naval Facility
NAVSEA	Naval Sea Systems Command
NAWC	Naval Air Warfare Center
NCR	National Capital Region
NDAA	National Defense Authorization Act
NEPA	National Environmental Policy Act
NFIRE	Near Field Infrared Experiment
NGAS	Northrop Grumman Aerospace Systems
NGST	Northrop Grumman Space Technology
NIPRNET	Non-Secure Internet Protocol Router Network
NIST	National Institute of Standards and Technology
NORAD	North American Aerospace Defense Command
NORTHCOM	Northern Command
NRE	non-recurring engineering
NRL	Naval Research Laboratory, Washington, DC
NRT	Navy Review Team
NSA	National Security Agency
NSWC	Naval Surface Warfare Center
NTD	Near-Term Discrimination
O	
O&M	Operations and Maintenance
O&S	Operations and Sustainment
OA	Open Architecture
OCO	Overseas Contingency Operations
OCONUS	Outside of CONUS
OGA	Other Government Agency
OMB	Office of Management and Budget
ONIR	Overhead Non-Imaging Infra-Red
OPIR	Overhead Persistent Infrared
OPLAN	Operations Plan
OPSCAP	Operations Capabilities
OPTISIG	Optical Signatures In-Line Generator
ORNL	Oak Ridge National Laboratory

OSA	Open Systems Architecture
OSC	Operations Support Center
OSD	Office of the Secretary of Defense
OSF	Objective Simulation Framework
OSFC	Operations Forces Standing Committee
OSM	Object Sighting Message; Open Systems Architecture Sensor Models
OSPT	Operations Support Planning Team
OSS	Off-Shore Support; Optimistic Sensor Model
OTA	Operational Test Agencies
P	
P&P	Policy and Procurement
PA	Performance Assessments; Project Arrangement
PAA	Phased Adaptive Approach
PAC-3	Patriot Advanced Capability-3
PACOM	U.S. Pacific Command
PAM	Planning Allocation Matrix
PB	President's Budget
PBL	Performance Based Logistics
PCO	Procurement Contracting Office
PDR	Preliminary Design Review
PDSS	Post Deployment Software Support
PE	Program Element
PEELS	Parametric Endo/Exo-atmospheric Lethality Simulation
PEGEM	Post Engagement Ground Effects Model
PEO IWS	Program Executive Office - Integrated Warfare Systems
PFR	Post Flight Reconstruction
PHACIL	Phacil, Incorporated
PIDS	Prime Item Development Specifications
PLET	Phenomenology, Lethality, Environment, Threat
PLT	Production Lead Time
PLUS	Plume Simulation
PM	Program Manager
PM/IAM	Program Manager/Information Assurance Manager
PMAP	Process Mission Assurance Plan
PMDCATS	Program Manager - Communications and Transmission Systems
PME	Primary Mission Equipment
PMI	preventative maintenance inspection
PMP	Parts, Materials and Processes
PMRF	Pacific Missile Range Facility, Barking Sands, Kauai, HI
PMT	Pre-Mission Test
POA&M	Plan of Action and Milestones
POC	Point of Contact
PPR	Pre-Planned Responses
PPU	Prime Power Unit
PROCAP	Protection Capability
PSEM	Patriot System Effectiveness Model
PSN	Parallel Staging Area
PTSS	Precision Tracking Space System
PWS	Program-Wide Support
PY	Prior Year
Q	
QLB	Quick Look Briefing
QoS	Quality of Service
QRT	Quick Response Team
QSMA	Quality Safety and Mission Assurance
R	

RAFU	Radar Field Upgrade
RAM	Reliability, Availability and Maintainability
RASP	RApid Scenario Prototype
RCS	Radar Cross Section
RDEC	Research, Development, and Engineering Center
RDECOM	Research, Development, Engineering Command
RDT&E	Research, Development, Test & Evaluation
RF	Radio Frequency
RFA	Requests for Analysis
RFARFI	Request for Analysis Request for Information
RFI	Requests for Information
RFP	Request for Proposal
RMOET	Radar March Order & Emplacement Trainer
ROI	Return on Investment
RPFM	Rocket Plume Flowfield Model
RSC	Radar Sustainment Contract
RSO	Resident Space Object
RTI	Return to Intercept
RTS	Ronald Reagan Test Site, Kwajalein, Marshall Islands
RV	Reentry Vehicle
S	
SATCOM	Satellite Communications
SBIR	Small Business Innovative Research
SBIR/STTR	Small Business Innovative Research/Small Business Technology Transfer
SBIRS	Space Based Infrared System
SBT	Sea Based Terminal
SBX	Sea Based Test X-Band Radar
SCD	SM-3 Cooperative Development; Standard Missile-3 Cooperative Development (Program)
SCG	Security Classification Guides
SCN	System Change Notices
SCR	SM-3 Cooperative Development; System Capability Review
SCRM	Supply Chain Risk Management
SDACS	Solid Divert Attitude Control System
SDD	System Description Document
SDL	Space Dynamics Laboratory
SDR	System Design Review; Software Design Review
SE&I	Systems Engineering and Integration
SEI	Systems Engineering & Integration
SEAR	System Engineering Assessment Report
SED	Software Engineering Design
SEPM	System Engineering Program Management
SGP	Super Green Pine
SIAO	Senior Information Assurance Officer
SIAO/CA	Senior Information Assurance Officer (SIAO)/Certification Authority (CA)
SIGNIT	Signal Intelligence
SIM	Simulation
SIPRNET	Secret Internet Protocol Router Network
SIU	SSF Interface Unit
SIV	silo interface vault
SM	Standard Missile
SM-3	Standard Missile -3
SMDC	Space and Missile Defense Command, U.S. Army
SMDC/ARSTRST	Space and Missile Defense Command/Army Forces Strategic Command
SME	Subject Matter Expert
SMM	System Mission Manager
SNL	Sandia National Lab

SNWC	Space and Naval Warfare Command
SOLD	Simulation-Over-Live Driver
SPAWAR	Naval Space and Warfare Command; Space and Naval Warfare Systems Command
SPFR	System Post Flight Reconstruction
SPMT	System Pre Mission Test
SPS	Standard Procurement System
SPURC	Standard Plume Ultraviolet Radiation Code
SRALT	Short Range Air Launch Target
SRBM	Short-Range Ballistic Missiles
SRBMD	Short Range Ballistic Missile Defense
SRHSM	Sensor Registration Health & Status Monitoring
SRP	Stockpile Reliability Program
SRR	System Requirements Review; Software Readiness Review
SS	Sole Source; Summary Screens; System Specification
SS/CPAF	Soul Source/ Cost Plus Award Fee
SS/CPFF	Soul Source/ Cost Plus Fixed Fee
SSA	Space Situational Awareness
SSC	System Security Concept
SSF	Single Stimulation Framework
STOC	System Test and Operations Center
STRATCOM	US Strategic Command
STSS	Satellite Tracking and Surveillance System; Space Tracking and Surveillance System
STTR	Small Business Technology Transfer
SYMP	Symposium
T	
T&E	Test and Evaluation
TALSS	THAAD Active Leak Sensor System
TC	Targets and Countermeasures
TCM	Total downtime due to corrective maintenance actions including logistics
TDA	Table of Distribution and Allowances
TDA	Technical Decision Authority
TDACS	Throttleable Divert and Attitude Control System
TDS	Terminal Defense Segment
TEC	Test Execution Control
TECC	Theater Enterprise Computing Center
TECHREP	Technical Representative
TFCC	THAAD Fire Control and Communications
TGx	Trajectory Generator - External
THAAD	Terminal High Altitude Area Defense
TIL	Test Integration Lab
TIM	Technical Interchange Meeting
TMC	Threat Modeling Center
TMSS	Threat Modeling Simulation System
TOO	Test of Opportunity; Target of Opportunity
TOR	Trouble Observation Reports
TPM	Technical Performance Measurement; Total downtime due to preventative maintenance actions including logistics delay
TRIMM	Transmit/Receive Integrated Microwave Module
TRM	Test Resource Manager
TRMP-T	Test Resources Mission Planning Tool
TSG	Tactical Support Groups
TSS	Training Support System
TT	Total Time
TTP	Tactics, Techniques & Procedures
U	
UARC	University Affiliated Research Center
UAV	Unmanned Aerial Vehicle

UEWR	Upgraded Early Warning Radar
ULCHI	Ulchi Freedom Guardian
UNET	Unclassified Network
USAFE	U.S. Air Forces in Europe
USDAT&L	Office of Under Secretary of Defense/Acquisitions, Technology and Logistics OUSD/AT&L
USN	United States Navy
USNORTHCOM	United States Northern Command
USPACOM	United States Pacific Command
USSTRATCOM	United States Strategic Command
UUR	University-to-University
V	
V&A	Verification & Assessment
V&V	verification and validation
VAFB	Vandenberg Air Force Base, CA
VGI	VLS GPS Interface
VLS	Vertical Launching System; Vertical Launch System
VTC	Video Teleconferencing
VV&A	Verification, Validation, and Accreditation
VVACB	Verification, Validation and Accreditation Control Board
VVAWG	VV&A working group
W	
WETLANS	Wargames, Exercises and Training Local Area Networks
WIP	Warfighter Involvement Process
WSC	Wargames Support Center
WSMR	White Sands Missile Range, White Sands, NM
WSTF	White Sands Test Facility
X	
XBR	X-Band Radar
Y	
YPG	Yuma Proving Ground

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603175C / *Ballistic Missile Defense Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	3.851	10.372	-	-	-	-	-	-	-	-	-	14.223
MD25: *Advanced Technology Development*	-	0.927	-	-	-	-	-	-	-	-	-	0.927
MD85: *Common Kill Vehicle Technology*	-	0.124	-	-	-	-	-	-	-	-	-	0.124
MD40: *Program Wide Support*	3.851	9.321	-	-	-	-	-	-	-	-	-	13.172
MDAP/MAIS Code: 362												

Note

Beginning in FY 2014, the following efforts transferred from the Ballistic Missile Defense Technology Program Element 0603175C, per the FY 2014 Consolidated Appropriations Act (P.L. 113-76).

- Advanced Concepts and Performance Assessment moved to Advanced Concepts and Performance Assessment Program Element 0603176C
- Discrimination Sensor Technology moved to Discrimination Sensor Technology Program Element 0603177C
- Weapons Technology moved to Weapons Technology Program Element 0603178C
- Advanced Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) moved to Advanced C4ISR Program Element 0603179C
- Advanced Research moved to Advanced Research Program Element 0603180C
- Common Kill Vehicle Technology moved to Common Kill Vehicle Technology Program Element 0603294C

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense (BMD) Technology Program Element develops future Ballistic Missile Defense System (BMDS) capabilities to out-pace emerging and evolving threats. Advanced Technology is the program execution arm of the Missile Defense Agency's (MDA) Architecture and Engineering thrusts. Advanced Technology identifies, develops, and readies for transition in association with the Chief Architect and the Director of Engineering the technical solutions that meet BMDS shortfalls identified by the Combatant Commanders. Advanced technology maintains a robust modeling and simulation environment to ensure emerging technology, cost-effectively increases performance when inserted into the BMDS architecture.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).
Beginning in FY15 MD40 PWS transfers to the new Technology Program Elements, 0603176C, 0603177C, 0603178C, 0603179C, and 0603180C.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603175C *I Ballistic Missile Defense Technology*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	9.321	-	-	-	-
Current President's Budget	10.372	-	-	-	-
Total Adjustments	1.051	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	1.051	-	-	-	-

Change Summary Explanation

The FY 2014 increase in this Program Element is a result of obligations incurred prior to the program element transfer direction of the FY 2014 Consolidated Appropriations Act (P.L. 113-76). $1.051M will transfer to 0603178C and 0603179C once all cost transfers are completed in accordance with the FY 2014 Consolidated Appropriations Act (P.L. 113-76).

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603175C / *Ballistic Missile Defense Technology*	Project (Number/Name) MD25 / *Advanced Technology Development*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD25: *Advanced Technology Development*	-	0.927	-	-	-	-	-	-	-	-	-	0.927

Note

The FY 2014 increase in this Program Element is a result of obligations incurred prior to the program element transfer direction of the FY 2014 Consolidated Appropriations Act (P.L. 113-76). $0.927M will transfer to 0603178C and 0603179C once all cost transfers are completed in accordance with the FY 2014 Consolidated Appropriations Act (P.L. 113-76).

A. Mission Description and Budget Item Justification

The FY 2014 increase in this Program Element is a result of obligations incurred prior to the program element transfer direction of the FY 2014 Consolidated Appropriations Act (P.L. 113-76). $0.927M will transfer to 0603178C and 0603179C once all cost transfers are completed in accordance with the FY 2014 Consolidated Appropriations Act (P.L. 113-76).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Cost Transfers	0.927	-	-
Description: The FY 2014 increase in this Program Element is a result of obligations incurred prior to the program element transfer direction of the FY 2014 Consolidated Appropriations Act (P.L. 113-76). $0.927M will transfer to 0603178C and 0603179C once all cost transfers are completed in accordance with the FY 2014 Consolidated Appropriations Act (P.L. 113-76). ***FY 2014 Accomplishments:*** The FY 2014 increase in this Program Element is a result of obligations incurred prior to the program element transfer direction of the FY 2014 Consolidated Appropriations Act (P.L. 113-76). $0.927M will transfer to 0603178C and 0603179C once all cost transfers are completed in accordance with the FY 2014 Consolidated Appropriations Act (P.L. 113-76). ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	0.927	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603175C / *Ballistic Missile Defense Technology*	**Project (Number/Name)** MD25 / *Advanced Technology Development*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603175C / *Ballistic Missile Defense Technology*	Project (Number/Name) MD85 / *Common Kill Vehicle Technology*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD85: *Common Kill Vehicle Technology*	-	0.124	-	-	-	-	-	-	-	-	-	0.124

Note

The FY 2014 increase in this Program Element is a result of obligations incurred prior to the program element transfer direction of the FY 2014 Consolidated Appropriations Act (P.L. 113-76). $0.124M will transfer to 0603178C once all cost transfers are completed in accordance with the FY 2014 Consolidated Appropriations Act (P.L. 113-76)

A. Mission Description and Budget Item Justification

The FY 2014 increase in this Program Element is a result of obligations incurred prior to the program element transfer direction of the FY 2014 Consolidated Appropriations Act (P.L. 113-76). $0.124M will transfer to 0603178C once all cost transfers are completed in accordance with the FY 2014 Consolidated Appropriations Act (P.L. 113-76)

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Cost Transfers	0.124	-	-
Description: The FY 2014 increase in this Program Element is a result of obligations incurred prior to the program element transfer direction of the FY 2014 Consolidated Appropriations Act (P.L. 113-76). $0.124M will transfer to 0603178C once all cost transfers are completed in accordance with the FY 2014 Consolidated Appropriations Act (P.L. 113-76) ***FY 2014 Accomplishments:*** The FY 2014 increase in this Program Element is a result of obligations incurred prior to the program element transfer direction of the FY 2014 Consolidated Appropriations Act (P.L. 113-76). $0.124M will transfer to 0603178C once all cost transfers are completed in accordance with the FY 2014 Consolidated Appropriations Act (P.L. 113-76) ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	0.124	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603175C / *Ballistic Missile Defense Technology*	**Project (Number/Name)** MD85 / *Common Kill Vehicle Technology*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603175C / *Ballistic Missile Defense Technology*	Project (Number/Name) MD40 / *Program Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program Wide Support*	3.851	9.321	-	-	-	-	-	-	-	-	-	13.172

Note

Program Wide Support transfers to the new Technology Program Elements beginning in FY 2015 in accordance with the FY 2014 Consolidated Appropriations Act (P.L. 113-76) and was proportionally redistributed across RDT&E program elements.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Service, and Federally Funded Research and Development Center (FFRDC) providing integrity and oversight of the BMDS as well as, supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. In addition, includes Global Deployment personnel and support performing deployment site preparation and activation. Other costs included provide facility capabilities for MDA Executing Agent locations, such as physical and technical security, legal services, travel and agency training, office and equipment leases, utilities, data and unified communications support, supplies and maintenance, materiel and readiness and central property management of equipment, and similar operating expenses. Also includes legal settlements. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	9.321	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: N/A			
FY 2016 Plans: N/A			
Accomplishments/Planned Programs Subtotals	9.321	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603175C / *Ballistic Missile Defense Technology*	**Project (Number/Name)** MD40 / *Program Wide Support*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603176C / *Advanced Concepts and Performance Assessment*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
MD71: *Advanced Concepts and Performance Assessments*	-	6.919	7.986	11.569	-	11.569	12.568	12.244	12.515	12.467	Continuing	Continuing
MD40: *Program-Wide Support*	-	-	0.484	0.570	-	0.570	0.659	0.688	0.734	0.752	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

The FY 2016 increase funds the digital simulation and hardware in the loop infrastructure required for testing of the Multi-Spectral Targeting System (MTS-C) and Airborne Processor software prior to Standard Missile -3 Flight Test Standard Missile-01 (SFTM-01), Controlled Test Vehicle (CTV)-02 flight test, and Aegis Launch-on-Remote live fire (FTM DST-1) test missions in FY 2016 and 1Q FY 2017.

A. Mission Description and Budget Item Justification

The Advanced Concepts & Performance Assessments (ACPA) program delivers an integrated government concept definition, simulation, and analysis capability and centralizes assessment of advanced Ballistic Missile Defense (BMD) technology. Delivering insight into the performance of proposed concepts extends Missile Defense Agency's (MDA) ability to address evolving threats for the warfighter.

Independent assessments of government, university, and industry technology concepts, which are used in concert with systems engineering requirements to support acquisition strategy decisions and define technology focus areas. Innovative structured concept definition and assessment methodology enables analysts to quickly validate focus areas, verify contractor technology solutions, and evaluate promising concepts in future Ballistic Missile Defense System (BMDS) architectures.

This innovation significantly enhances our ability to assess technology concepts while decreasing the cost of the BMDS:

- Independent model based simulations of industry technology concepts to inform systems engineering process
- Digital simulation and hardware in the loop performance assessments of algorithms and hardware concepts prior to expensive live fire test events
- End-to-end testing of technology concepts integrated with weapon systems and Command, Control, Battle Management and Communications (C2BMC)

Better Buying Power philosophy has been incorporated and applied to the earliest stages of technology development to maximize technology investments in a limited budget environment.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603176C *I Advanced Concepts and Performance Assessment*

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	6.919	8.470	10.683	-	10.683
Current President's Budget	6.919	8.470	12.139	-	12.139
Total Adjustments	-	-	1.456	-	1.456
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	-	-	1.456	-	1.456

Change Summary Explanation

The FY 2016 increase funds the digital simulation and hardware in the loop infrastructure required for testing of the Multi-Spectral Targeting System (MTS-C) and Airborne Processor software prior to Standard Missile -3 Flight Test Standard Missile-01 (SFTM-01), Controlled Test Vehicle (CTV)-02 flight test, and Aegis Launch-on-Remote live fire (FTM DST-1) test missions in FY 2016 and 1Q FY 2017.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603176C / *Advanced Concepts and Performance Assessment*	Project (Number/Name) MD71 / *Advanced Concepts and Performance Assessments*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD71: *Advanced Concepts and Performance Assessments*	-	6.919	7.986	11.569	-	11.569	12.568	12.244	12.515	12.467	Continuing	Continuing

Note

The FY 2016 increase funds the digital simulation and hardware in the loop infrastructure required for testing of the Multi-Spectral Targeting System (MTS-C) and Airborne Processor software prior to Standard Missile -3 Flight Test Standard Missile-01 (SFTM-01), Controlled Test Vehicle (CTV)-02 flight test, and Aegis Launch-on-Remote live fire (FTM DST-1) test missions in FY 2016 and 1Q FY 2017. The FY 2016 increase reflects a realignment of Department of Defense priorities.

A. Mission Description and Budget Item Justification

Advanced Concepts & Performance Assessment (ACPA) centralizes all Advanced Technology concept modeling, simulation, software, and analysis. Combining models of promising technical solutions into Ballistic Missile Defense System (BMDS) system-level simulations, ACPA enables leadership to make data driven acquisition and technology investment decisions.

ACPA capitalizes on the innovation of small business, universities, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC) to pursue a broad range of hardware, software, models, algorithms, trade studies and analysis. These innovations bring together government developed models representing existing and future ballistic missile defense architectures, technology concepts, and advanced algorithms to provide detailed assessments of concept performance and support investment decisions.

These innovations combined with a robust high performance computing infrastructure provide a unique in house government capability to demonstrate and assess technology concepts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Advanced Concepts and Performance Assessment	6.919	7.986	11.569
Description: Advanced Concepts and Performance Assessment's diverse staff of subject matter experts develops advanced concepts across the broad spectrum of Ballistic Missile Defense (BMD) Technology initiatives. - Prioritize technology investments and inform requirements - Develop and extend modeling techniques - Demonstrate concept performance against evolving threats			
FY 2014 Accomplishments: - Integrated Discriminating Sensor Technology prototypes with Command, Control, Battle Management, and Communications (C2BMC) and weapon systems for end-to-end capability demonstrations. Demonstrated readiness for FTX-20 and FTM-25			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603176C / *Advanced Concepts and Performance Assessment*	**Project (Number/Name)** MD71 / *Advanced Concepts and Performance Assessments*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
- Independently assessed industry concepts for the Common Kill Vehicle and Re-designed Exo-atmospheric Kill Vehicle (RKV) acquisition strategy. Developed Top Level Requirements (TLR) for RKV - Defined discriminating sensor component technology performance goals to meet Ballistic Missile Defense System (BMDS) mission needs - Delivered technology performance parameters for key MDA studies: the Homeland Defense Analysis of Alternatives and the BMDS Sensor Evaluation of Opportunities - Demonstrated test as you fly open architecture hardware/software-in-the-loop testbed to verify kill vehicle and sensor performance for FTX-20 and FTM-25 - Verified MQ-9 Airborne Processor (ABP) flight code used in FTX-20 and FTM-25 - Advanced sensor algorithm development and distributed C2BMC hardware-in-the-loop testing - Led a team of university, international, and small business partners in developing a framework for integrating and testing kill vehicle and sensor technologies from multiple suppliers			
FY 2015 Plans: - Work with the Ballistic Missile Defense System (BMDS) Architect and Systems Engineer to provide realistic assumptions, design concepts, models and assessments for technology items included within the future BMDS, elements, and component concepts - Provide technology concepts, models and assessments for kill vehicles, discrimination sensors, space alternatives and directed energy systems - Mature tracking, discrimination, and sensor fusion algorithms - Demonstrate precision track through simulation exercises - Accelerate assessment of hardware and algorithms for space alternative sensors - Focus research and engineering activities from university and small business partners to identify suitable technology and concepts that improve BMDS performance through a rapid innovation model based engineering test bed - Reduce time to translate innovative technology into Ballistic Missile Defense System BMDS capability by providing integrated models of emerging concepts that characterize key parameters and expected performance			
FY 2016 Plans: - Increase from FY 2015 to FY 2016, funds upgrades to the digital simulation and hardware in the loop infrastructure required to move from Multi-Spectral Targeting System B (MTS-B) to MTS-C hardware and Airborne Processor software prior to Standard Missile -3 Flight Test Standard Missile-01 (SFTM-01), Controlled Test Vehicle (CTV)-02 flight test, and Aegis Launch-on-Remote live fire test (FTM DST-1) test missions in FY 2016 and 1Q FY 2017 - Build the digital simulation and hardware in the loop infrastructure required for testing of the Multi-Spectral Targeting System (MTS-C) and Airborne Processor software prior to Standard Missile -3 Flight Test Standard Missile-01 (SFTM-01), Controlled Test Vehicle (CTV)-02 flight test, and Aegis Launch-on-Remote live fire test (FTM DST-1) test missions in FY 2016 and 1Q FY 2017			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603176C / *Advanced Concepts and Performance Assessment*	**Project (Number/Name)** MD71 / *Advanced Concepts and Performance Assessments*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
- Work with the Ballistic Missile Defense System (BMDS) Architect and Systems Engineer to design concepts, build models and assess technology concepts for the future BMDS - Analyze discrimination sensor flight tests - Conduct hardware-in-the-loop (HWIL) tests - Develop modular open kill vehicle architecture testbed - Mature tracking, discrimination, and sensor fusion algorithms - Demonstrate precision track through digital and HWIL simulation exercises - Focus research and engineering activities from university and small business partners to identify suitable technology and concepts that improve (BMDS) performance through a rapid innovation model based engineering test bed - Reduce time to translate innovative technology into BMDS capability by providing integrated models of emerging concepts that characterize key parameters and expected performance			
Accomplishments/Planned Programs Subtotals	6.919	7.986	11.569

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	10.372	-	-	-	-	-	-	-	-	-	10.372
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing
• 0603294C: *Common Kill Vehicle Technology*	67.796	25.639	46.753	-	46.753	75.262	71.476	86.814	99.701	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing

Remarks

D. Acquisition Strategy

Advanced Concepts and Performance Assessment utilizes an acquisition strategy that continues its successful partnerships with Small Business, the Aviation & Missile Research Development & Engineering Center (AMRDEC), Federally Funded Research and Development Centers (FFRDCs) and University Affiliated Research Centers

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603176C / *Advanced Concepts and Performance Assessment*	**Project (Number/Name)** MD71 / *Advanced Concepts and Performance Assessments*

(UARCs) to provide concept modeling and assessment capability. This innovative strategy leverages agency and partner subject matter experts and government model based assessments to inform Better Buying Power acquisition decisions.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603176C / *Advanced Concepts and Performance Assessment*	**Project (Number/Name)** MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	-	0.484	0.570	-	0.570	0.659	0.688	0.734	0.752	Continuing	Continuing

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603177C / *Discrimination Sensor Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
MD95: *Discrimination Sensor Technology*	-	29.523	34.535	23.304	-	23.304	-	-	-	-	Continuing	Continuing
MT95: *Discrimination Sensor Tech-Flight Test Execution*	-	-	-	3.749	-	3.749	-	-	-	-	-	3.749
MC95: *Cyber Operations*	-	0.119	0.203	-	-	-	-	-	-	-	Continuing	Continuing
MD40: *Program-Wide Support*	-	-	1.872	1.147	-	1.147	-	-	-	-	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

In FY 2016, the Discrimination Sensor Technology program element (PE) will complete technology demonstration of real time stereo tracking with Multi-Spectral Targeting System Cs (MTS-Cs) to meet Aegis Launch-on-Remote (LoR) quality of service performance. In FY 2016 $31.078 million transferred to the Technology Maturation Initiatives PE, 0604115C, for follow-on MTS-C advanced sensor development and prototype development and test.

A. Mission Description and Budget Item Justification

Discrimination Sensor Technology develops solutions to improve identifying, acquiring, tracking and discriminating incoming Ballistic Missile threats, supporting the US Strategic Command's Prioritized Capabilities List. Areas of concentration include advanced detectors, infrared sensors, focal planes and algorithms for ground, sea, air and space systems. Sensor technology enhances both the Ballistic Missile Defense System (BMDS) capability to develop precision tracks and the ability to discriminate lethal objects among the incoming threat cluster.

The Discrimination Sensor Technology (DST) program funds the demonstration of Aegis LoR real time stereo tracking with MTS-Cs integrated into MQ-9 Reapers. Aegis LoR is the capability that allows Aegis Ballistic Missile Defense (BMD) to launch an interceptor before its own radar acquires the threat, greatly expanding the space where the Aegis BMD can intercept the threat and significantly extending the defended area. In Fall 2014, the Agency conducted a campaign at the Pacific Missile Range Facility with Multi-Spectral Targeting Systems (MTS) equipped MQ-9 Reapers specifically modified to accomplish missile defense tracking missions. The MDA tested MTS-B variants aboard MQ-9 Reaper Unmanned Aerial Vehicles (UAVs) and MTS-C variants on the ground at Makaha Ridge for Flight Test X (FTX-20) and Flight Test Standard Missile 25 (FTM-25). Both tests were executed using the BMDS operational architecture proving that the Aegis weapon system could launch a Standard Missile - 3 against a ballistic missile target and achieve intercept using the tracking data from the airborne MTS sensors.

The MD95 DST project funds the prime contract integration and system test, checkout flights, and performance analysis. DST incrementally builds on the airborne MTS-B launch-on-remote demonstrations using airborne MTS - C sensors integrated into MQ-9 Reaper UAVs. The DST program will demonstrate the increased Electro Optical/Infrared (EO/IR) capability of MTS-C airborne sensors for precision track launch-on-remote and discrimination over MTS-Bs as a precursor to advanced sensor equipped MTS-C prototype development and test under the Technology Maturation Initiatives PE.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603177C *I Discrimination Sensor Technology*

The MT95 DST Flight Test Execution project funds the costs associated with MTS-C/MQ-9 Reaper participation in BMDS testing including prime contract test execution, MQ-9 operations and maintenance, and Enterprise Sensors Laboratory (ESL) and Space & Naval Warfare Systems Center (SPAWAR) interfaces.
The Missile Defense Agency collaborates with the Office of the Assistant Secretary of Defense for Research and Engineering, the United States Navy and the United States Air Force in a systems engineering based strategy to research, develop, test and evaluate DST. The DST test program include Air Force provided F-16 aircraft for use as surrogate targets and sharing of MTS-C test data between the Missile Defense Agency (MDA) and the Air Force to augment sensor characterization activities.

This technology significantly enhances the following Ballistic Missile Defense System (BMDS) priorities:

- Precision track of multiple objects to enable missile defense components to engage-on-remote
- Discriminating lethal objects from countermeasures
- End-to-end correlation of sensor track and discrimination data

The Discrimination Sensor Technology program element development and test results directly feed sensor prototype demonstrations in the Technology Maturation Initiatives program element (0604115C).

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	29.642	45.110	59.278	-	59.278
Current President's Budget	29.642	36.610	28.200	-	28.200
Total Adjustments	-	-8.500	-31.078	-	-31.078
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-8.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	-	-	-31.078	-	-31.078

Change Summary Explanation

FY 2015 change reflects Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603177C *I Discrimination Sensor Technology*

In FY 2016, the Discrimination Sensor Technology program element (PE) will complete technology demonstration of real time stereo tracking with Multi-Spectral Targeting System Cs (MTS-Cs) to meet Aegis Launch-on-Remote (LoR) quality of service performance. In FY 2016 $31.078 million transferred to the Technology Maturation Initiatives PE, 0604115C, for follow-on MTS-C advanced sensor development and prototype development and test.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603177C / *Discrimination Sensor Technology*	Project (Number/Name) MD95 / *Discrimination Sensor Technology*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD95: *Discrimination Sensor Technology*	-	29.523	34.535	23.304	-	23.304	-	-	-	-	Continuing	Continuing

Note

In FY 2016, the Discrimination Sensor Technology program element (PE) will complete technology demonstration of real time stereo tracking with Multi-Spectral Targeting System Cs (MTS-Cs) to meet Aegis Launch-on-Remote (LoR) quality of service performance. In FY 2016 $31.078 million transferred to the Technology Maturation Initiatives PE, 0604115C, for follow-on MTS-C advanced sensor development and prototype development and test.

A. Mission Description and Budget Item Justification

The Discrimination Sensor Technology (DST) program develops next-generation sensors and detectors and integrates them into Unmanned Aerial Vehicles (UAVs) to demonstrate improvements in discrimination for missile defense. This program evaluates and researches emerging technology that enables game changing discrimination improvements for incorporation into next generation interceptors and air or space systems. The DST program pursues a cost-effective incremental upgrade philosophy that demonstrates airborne precision tracking and improved track performance and discrimination. These advanced sensors improve the probability of engagement success for stressing threats, expand the Ballistic Missile Defense (BMD) battle space and increase the ability to negate larger raid sizes.

The MD95 Discrimination Sensor Technology project funds the prime contract integration and system test, checkout flights, and performance analysis.

In Fall 2014, the Agency conducted a campaign at the Pacific Missile Range Facility with Multi-spectral Targeting Systems (MTS) equipped MQ-9 Reapers specifically modified to accomplish missile defense tracking missions. The MDA tested MTS-B variants aboard MQ-9 Reaper UAVs and MTS-C variants on the ground at Makaha Ridge for Flight Test X (FTX-20) and FTM 25. Both tests were executed using the BMDS operational architecture proving that the Aegis weapon system could launch a Standard Missile - 3 against a ballistic missile target and achieve intercept using the tracking data from the airborne MTS sensors.

In FY 2016, DST incrementally builds on the MTS-B launch-on-remote demonstrations using airborne MTS - C sensors integrated into MQ-9 Reaper UAVs. The DST program will demonstrate the increased Electro Optical/Infrared (EO/IR) capability of MTS-C airborne sensors for launch-on-remote and discrimination over MTS-Bs as a precursor to advanced sensor equipped MTS-C prototype development and test under the Technology Maturation Initiatives program element.

MDA's sensor technology construct incrementally buys down risk by testing an evolving sensor technology from the ground and then from UAVs and uses measurement of repeatable Resident Space Objects (RSOs) and targets of opportunity to characterize performance before participating in BMDS tests to collect performance data under realistic conditions. Discrimination Sensor Technology interfaces with the existing BMDS architecture to develop 3-dimensional (3-D) tracks of the ballistic missile, which are sent via Link-16 to Aegis ships for engagement.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Discrimination Sensor Technology	29.523	34.535	23.304

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603177C / *Discrimination Sensor Technology*	**Project (Number/Name)** MD95 / *Discrimination Sensor Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Description: N/A ***FY 2014 Accomplishments:*** - Developed technology that significantly increased the ability of the current Ballistic Missile Defense System (BMDS) to identify lethal and non-lethal threat objects -- Flight qualified a Missile Defense Agency configured MQ-9 equipped with a Multi-Spectral Targeting System-B (MTS-B) and a ruggedized airborne processor and chin mount - Developed emerging technology that enabled game changing discrimination improvements for incorporation into next generation interceptors and space systems -- Characterized airborne sensors validating system performance in operational environments - Assessed and characterized sensor components and sensor systems capable of precision tracking and advanced discrimination through laboratory, ground, and flight tests -- Successfully tested the MTS - B & C sensors achieving several important milestones, including acquiring and tracking targets from the ground during Flight Test Standard Missile 22 (FTM-22) and in conjunction with an Air Force ATLAS-5 launch -- Performed end-to-end hardware-in-the-loop tests with the Enterprise Systems Laboratory to demonstrate Aegis Launch-on-Remote Unmanned Aerial Vehicle-borne sensor -- Performed analysis that verified airborne precision track engage on remote performance - Incorporated FTM-21 and FTM-22 discrimination sensor field test measurements into models and simulations to anchor capability improvements - Demonstrated real time stereo tracking launch on remote capability in conjunction with Flight Test X (FTX)-21 using a MTS-B installed on a MQ-9 and a MTS-C sensor on the ground ***FY 2015 Plans:*** - Flight test 2 UAV-borne Multi-Spectral Targeting System (MTS)-B sensors -- Demonstrated real time airborne stereo tracking launch on remote capability using two MTS-Bs installed on two MQ-9s in conjunction with Flight Test Standard Missile (FTM)-25 -- Demonstrated that Airborne Electro-Optical (EO) / Infrared (IR) precision tracking exceeds Aegis Launch-on/Engage-on Remote track requirements			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603177C / *Discrimination Sensor Technology*	**Project (Number/Name)** MD95 / *Discrimination Sensor Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
- Ground test an advanced EO / IR sensor integrated into MTS-Cs against resident space objects and BMDS targets of opportunity - Modify the Reaper, processor and ground control station with MTS-C and demonstrate 30% improved track performance and discrimination capability - Initiate development of next-generation EO / IR sensor upgrades that increase precision and range by 150% ***FY 2016 Plans:*** In FY 2016 $31.078 million transferred to the Technology Maturation Initiatives PE, 0604115C, for follow-on MTS-C advanced sensor development and prototype development and test - Complete Multi-Spectral Targeting System - C (MTS-C) Sensor tests to demonstrate Aegis Launch-on-Remote quality of track performance: -- Conduct Continental United States (CONUS) checkout flights to collect data for Hardware-in-the-Loop simulations, sensor characterization and confirm system readiness in preparation for the 1Q FY 2016 Control Test Vehicle (CTV) - 02+ BMDS test -- Conduct MTS-C CTV-02+ pre and post-test performance analysis -- Analyze BMDS test data to verify demonstration of quality of service to meet Aegis Launch on Remote requirements -- Analyze airborne sensor BMDS test data to demonstrate MTS-C discrimination performance - Configure an Extended Range MQ-9 Reaper with an MTS-C and conduct CONUS flight certification tests and CONUS to Outside Continental United States (OCONUS) endurance tests to support future BMDS airborne sensor requirements - Partner with the Air Force to characterize MTS performance for Air Dominance			
Accomplishments/Planned Programs Subtotals	29.523	34.535	23.304

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603177C / *Discrimination Sensor Technology*	**Project (Number/Name)** MD95 / *Discrimination Sensor Technology*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603294C: *Common Kill Vehicle Technology*	67.796	25.639	46.753	-	46.753	75.262	71.476	86.814	99.701	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0604115C: *Technology Maturation Initiatives*	-	-	96.300	-	96.300	109.674	117.106	208.531	198.363	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy for Discrimination Sensor Technology consists of consists of a contract(s) to industry via the Advanced Technology Innovation Broad Agency Announcement and competitive procurement(s) and agreements with Federally Funded Research and Development Centers and University Affiliated Research Centers. MDA will leverage Agency and partner subject matter experts and use government model based assessments to inform Better Buying Power philosophy acquisition decisions. The Missile Defense Agency will then award contracts to industry and universities via the Advanced Technology Innovation Broad Agency Announcement and competitive procurements to develop and demonstrate promising components and integrated systems in realistic test environments. Discrimination Sensor Technology shapes future Ballistic Missile Defense System (BMDS) acquisition decisions by advancing and documenting the technology readiness levels of emerging and developing technology, while simultaneously assessing the performance and contributions of the technology to the Ballistic Missile Defense System architecture.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603177C / *Discrimination Sensor Technology*	Project (Number/Name) MT95 / *Discrimination Sensor Tech-Flight Test Execution*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT95: *Discrimination Sensor Tech-Flight Test Execution*	-	-	-	3.749	-	3.749	-	-	-	-	-	3.749

Note

The MT95 budget project is new in FY 2016 and was created to transfer funds from the MD95 budget project to consolidate Ballistic Missile Defense System (BMDS) test costs associated with this program element. The Discrimination Sensor Technology (DST) Flight Test Execution project will complete technology demonstration of real time stereo tracking with Multi-Spectral Targeting System Cs (MTS-Cs).

A. Mission Description and Budget Item Justification

The DST Flight Test program funds the management and execution of DST testing through technology demonstration of Aegis Launch-on-Remote (LoR) real time stereo tracking with Multi-Spectral Targeting System - Cs (MTS-Cs). Aegis LoR is the capability that allows Aegis Ballistic Missile Defense (BMD) to launch an interceptor before its own radar acquires the threat. Aegis BMD LoR involves Command, Control, Battle Management, and Communications (C2BMC) providing information about the paths (called tracks) of ballistic missile threats, to Aegis BMD from forward based radars. It expands the space where system can intercept the threat and the defended area. The DST flight test program leverages other BMDS tests as an associated operation to gather sensor data.

In FY2015, the Missile Defense Agency successfully tested two MTS-B sensors integrated into MQ-9 Reapers. The DST tests were executed using the BMDS operational architecture proving that the Aegis weapon system could launch a Standard Missile - 3 against a ballistic missile target and achieve intercept using the tracking data from the airborne MTS sensors.

In FY 2016, the DST Flight Test program tests two MTS-Cs integrated into MQ-9 Reapers to demonstrate increased track precision and discrimination capability for the BMDS. As a precursor to the BMDS testing, the Missile Defense Agency (MDA) is partnering with the Air Force to characterize MTS performance. The tests demonstrate readiness for BMDS testing and provide data that feeds Air Force Air Dominance development planning.

The DST Flight Test Program funds flight, operations and maintenance costs, as applicable, for Unmanned Aerial Vehicles (UAVs), ground control stations and ground support equipment. It also funds shipping of the test assets to test ranges, labor, travel, range support and Command, Control, Battle Management and Communications (C2BMC) test support specific to DST.

The results from this airborne MTS-C LoR test sequence mature the critical technologies necessary for prototype development under the Technology Maturation Initiatives program element (0604115C). LoR is the precursor to Engage-on-Remote (EoR), which significantly expands BMD reach and the defended area. Under the Technology Maturation Initiatives program, advanced sensor equipped MTS-Cs will demonstrate the performance improvements EoR from Airborne sensors provides the BMDS.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603177C / *Discrimination Sensor Technology*	**Project (Number/Name)** MT95 / *Discrimination Sensor Tech-Flight Test Execution*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Discrimination Sensor Technology Flight Test Execution	-	-	3.749
Description: N/A ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** The MT95 budget project is new in FY 2016 and was created to transfer funds from the MD95 budget project to consolidate Ballistic Missile Defense System (BMDS) test costs associated with this program element. - Conduct system level Hardware-in-the-Loop (HWIL) testing in conjunction with the Enterprise Sensor Laboratory (ESL) and the Experimental Laboratory (X-Lab) for the Controlled Test Vehicle (CTV)-02 test - Ship two MQ-9 Reapers, Multi-Spectral Targeting System - Cs (MTS-Cs) and ground support equipment to the Pacific Missile Range Facility - Conduct CTV-02 checkout flights, dry-runs, and dress rehearsals and operate and maintain the Unmanned Aerial Vehicles (UAVs), test equipment, ground control stations and ground support equipment - Demonstrate real time stereo tracking Aegis launch-on-remote quality of track using MTS-Cs installed on two MQ-9 Reaper UAVs in conjunction with the CTV-02 test			
Accomplishments/Planned Programs Subtotals	-	-	3.749

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603177C / *Discrimination Sensor Technology*	**Project (Number/Name)** MT95 / *Discrimination Sensor Tech-Flight Test Execution*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603294C: *Common Kill Vehicle Technology*	67.796	25.639	46.753	-	46.753	75.262	71.476	86.814	99.701	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	501.170	455.068	513.256	-	513.256	585.727	484.242	442.202	460.945	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Missile Defense Agency (MDA) Integrated Master Test Plan (IMTP) establishes and documents the test requirements for the Ballistic Missile Defense System (BMDS) with the specific focus on collecting the data needed for the Verification, Validation, and Accreditation (VV&A) of the BMDS Models and Simulations (M&S). This paradigm uses critical factor analysis to drive test design, planning, and execution for accrediting M&S, which is used to validate and assess system performance. With this test approach, the MDA will establish confidence that the M&S used to evaluate the BMDS represent real world behavior, thereby enabling simulation-based performance assessment to verify system functionality.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603177C / *Discrimination Sensor Technology*	Project (Number/Name) MC95 / *Cyber Operations*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MC95: *Cyber Operations*	-	0.119	0.203	-	-	-	-	-	-	-	Continuing	Continuing

Note

The increase in FY 2015 reflects the need for Information Assurance Controls Validation Testing (CVT) recertification every three years. Beginning in FY 2016, the Cyber Operations project transfers to the Technology Maturation Initiatives Program Element 0604115C.

A. Mission Description and Budget Item Justification

The funding in this project sustains the Missile Defense Agency (MDA) Department of Defense (DoD) Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for the MDA Discrimination Sensor Technology mission systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the DIACAP documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&M on all MDA information systems.

This project monitors and tracks Cybersecurity mitigations detailed in Information Technology security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA Senior Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation (IV&V) 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 (FISMA).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Network / System Certification and Accreditation (C&A)	0.119	0.203	-
Description: N/A			
FY 2014 Accomplishments: - Conducted cyber security / information assurance engineering and architecture planning for Discrimination Sensor Technology information technology systems - Planned and tested the information assurance controls for Ballistic Missile Defense System (BMDS) Discrimination Sensor Technology systems - Developed Discrimination Sensor Technology Department of Defense Information Assurance Certification and Accreditation Program (DIACAP) certification and accreditation packages			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603177C / *Discrimination Sensor Technology*	**Project (Number/Name)** MC95 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
- Conducted Controls Validation Testing (CVT) for Discrimination Sensor Technology mission systems and provided Plan of Action and Milestones to mitigate information assurance deficiencies - Conducted annual information assurance reviews on the Discrimination Sensor Technology enclaves to assess compliance in implementing and maintaining IA controls ***FY 2015 Plans:*** - Conduct cyber security / information assurance engineering and architecture planning for Discrimination Sensor Technology information technology systems - Plan and test the information assurance controls for Ballistic Missile Defense System (BMDS) Discrimination Sensor Technology systems - Develop Discrimination Sensor Technology DoD Information Assurance Certification and Accreditation Program (DIACAP) certification and accreditation packages - Conduct Controls Validation Testing (CVT) for Discrimination Sensor Technology mission systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies - Conduct annual information assurance reviews on the Discrimination Sensor Technology enclaves to assess compliance in implementing and maintaining IA controls ***FY 2016 Plans:*** - Beginning in FY 2016, transfers to the Technology Maturation Initiatives Program Element 0604115C.			
Accomplishments/Planned Programs Subtotals	0.119	0.203	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603177C / *Discrimination Sensor Technology*	**Project (Number/Name)** MC95 / *Cyber Operations*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0604115C: *Technology Maturation Initiatives*	-	-	96.300	-	96.300	109.674	117.106	208.531	198.363	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy for Cyber operations consists of using the Missile Defense Agency (MDA) civilian employees and the existing competitively awarded Missile Defense Agency Engineering and Support Services (MiDAESS) contract.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603177C / *Discrimination Sensor Technology*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	-	1.872	1.147	-	1.147	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603178C / *Weapons Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
MD69: *Directed Energy Research*	-	26.315	13.348	30.291	-	30.291	46.477	66.382	51.572	62.996	Continuing	Continuing
MD72: *Interceptor Technology*	-	18.953	40.000	12.967	-	12.967	-	-	-	-	Continuing	Continuing
MD40: *Program-Wide Support*	-	-	0.720	2.131	-	2.131	2.435	3.733	3.023	3.801	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

The net decrease for Weapons Technology from FY 2015 to FY 2016 reflects a realignment of Department of Defense priorities.

The FY 2016 MD69 increase from FY 2015 to FY 2016 funds increased laser test bed power, laser packaging demonstrations, system robustness and megawatt-class scaling designs based on a successful Fiber Combining Laser 34 kilowatt demonstration and a Diode Pumped Alkali Laser 10 kilowatt system first light.

A. Mission Description and Budget Item Justification

The Weapons Technology Program Element focuses on reducing the cost of an engagement by developing compact, efficient High Energy Lasers (HEL) and the novel beam propagation technology required for low-power to strategic-class Ballistic Missile Defense System (BMDS) applications. Weapons Technology works closely with Discrimination Sensor Technology to correlate threat identification and engagement hand over requirements to build the foundation for multi-mission directed energy platforms.

The Missile Defense Agency (MDA) collaborates with the Office of the Assistant Secretary of Defense for Research and Engineering, the Defense Advanced Research Projects Agency (DARPA), the High Energy Laser Joint Technology Office, and the Air Force in a systems engineering based strategy to research, develop and test Directed Energy weapons technology.

Within the Directed Energy Research Technology area (MD69), the MDA is conducting research into the transmission and control of directed energy largely above the atmosphere for mid-term (FY 2019) missile defense applications and, ultimately, boost phase intercepts. The MDA is pursuing promising laser technologies in a competitive environment with Industry, supported by breakthrough research at the Nation's premier laboratories. The MDA will accelerate Directed Energy technology development with the goal of scaling to power levels required for robust, speed of light missile defense. The MDA is collaborating with the DARPA and the United States Air Force to develop a set of common core technologies that will enable both Missile Defense and air dominance missions. These core technologies include fiber launchers; high brightness, high efficiency diode pump modules; and high power, high efficiency fiber amplifiers. The DARPA and the MDA will jointly build and test an approximately 50kW class combined fiber laser at the Massachusetts Institute of Technology Lincoln Laboratory (MIT LL), scaling up from the successful 34 kW the laboratory demonstration achieved in FY 2014.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603178C *I Weapons Technology*

Within the Interceptor Technology area (MD72), the MDA develops technology that enhances the capability to hit-to-kill within current and future BMDS architectures. The MDA also focus on developing the enabling technology necessary to make game-changing breakthroughs. In FY 2016, the Agency will make technology investments for the next generation solid Divert Attitude Control System (DACS) in support of the Multi-Object Kill Vehicle. The Agency will competitively develop the next generation solid DACS. This project will also investigate rail gun suitability and integration requirements for ballistic missile defense applications.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	46.708	14.068	36.494	-	36.494
Current President's Budget	45.268	54.068	45.389	-	45.389
Total Adjustments	-1.440	40.000	8.895	-	8.895
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	40.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.889	-			
• Other Adjustment	-0.551	-	8.895	-	8.895

Change Summary Explanation

FY 2015 change reflects Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

The FY 2016 net increase of $8.895 million reflects:

- An increase of $12.967 million for advanced technology efforts in interceptor technology to address an emerging threat.
- A decrease of $4.185 million of funding and content transferred to the Technology Maturation Initiatives program element, 0604115C, for prototype development. Low power laser concepts and hardware developed under this Weapons Technology program element and by Industry are technically mature enough for prototype development under the Technology Maturation Initiative program element
- $0.113 million was added from multiple Missile Defense Agency program elements to MD40 Program Wide Support

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603178C / *Weapons Technology*	Project (Number/Name) MD69 / *Directed Energy Research*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD69: *Directed Energy Research*	-	26.315	13.348	30.291	-	30.291	46.477	66.382	51.572	62.996	Continuing	Continuing

Note

Based on a successful Fiber Combining Laser 34 kilowatt demonstration and a Diode Pumped Alkali Laser 10 kilowatt system first light, the increase from FY 2015 to FY 2016 funds increased laser test bed power, laser packaging demonstrations, system robustness and megawatt-class scaling designs.

In FY 2016, $4.185 million of funding and content transferred to the Technology Maturation Initiatives program element, 0604115C, for prototype development. Low power laser concepts and hardware developed under this Weapons Technology program element and by Industry are technically mature enough for prototype development under the Technology Maturation Initiative program element.

A. Mission Description and Budget Item Justification

The Missile Defense Agency (MDA) mission is to develop a robust system to defend the United States against ballistic missile attacks at all ranges, in all phases of flight. Negating a ballistic missile in boost phase, before a threat missile can spawn countermeasures, will revolutionize missile defense by dramatically reducing the role of interceptors. In FY 2010, the Airborne Laser (ABL) proved we could acquire, track and destroy a boosting missile, addressing many aspects of the boost phase kill, but also underscored the complexity and challenges of fielding such a weapon system.

The experience we gained from that successful first foray into directed energy weapons is pointing us along a new path that integrates a highly efficient, compact electric laser into a high altitude, long endurance Unmanned Aerial Vehicle (UAV) capable of flying in the stratosphere above the clouds which diffuse the laser energy. Flying at low speed in the relatively calm air at 60,000 feet significantly reduces the complex beam pointing and atmospheric jitter compensation systems, that were so troublesome on the ABL.

With these lessons learned and breakthrough research at our nation's premier scientific laboratories, the Agency is implementing an incremental roadmap that will prove the technology is ready to execute Missile Defense missions before 2020. This roadmap jointly develops with the Defense Advanced Research Projects Agency (DARPA) and the Air Force a set of core technologies common to both Air Force and missile defense missions; including fiber launchers; high brightness, high efficiency diode pump modules; and high power, high efficiency fiber amplifiers.

Funds are also developing two high energy laser technologies, the Diode Pumped Alkali Laser System (DPALS) with Lawrence Livermore National Laboratory (LLNL) and Fiber Combining Lasers (FCLs) with the Massachusetts Institute of Technology Lincoln Laboratory (MIT LL). Both laser technologies have considerable promise for scaling to very high average power while simultaneously achieving high system electrical-to-optical efficiencies, exceeding 40 percent, and very low system weight and volume. These key investments are targeted at driving the weight per kW of power in the fiber amplifier from a 5kg per kW to 1 kg per kW. The resources funded in this Program Element fund the joint MDA, DARPA and Air Force development of a 50kW compact, packaged, combined fiber laser system, scaling up from the successful 34 kW laboratory laser demonstrated in the laboratory in FY 2015. In FY 2016, MIT LL will complete the Critical Design Review (CDR) and begin fabrication and integration of the 5 kilograms (kg) per kW low size weight and power Fiber Combining Laser (FCL) system. In FY 2016, LLNL will demonstrate a DPALS at 30 kilowatts average

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603178C / *Weapons Technology*	**Project (Number/Name)** MD69 / *Directed Energy Research*

power. In FY 2017 and FY 2018, each laser will demonstrate the technology necessary to scale the laser power to hundreds of kilowatts. Multiple Industry partners continue to make steady progress in high power lasers. The MDA will select the best available high energy laser technology from the National Laboratories and/or Industry for a follow-on prototype high power laser demonstration in FY 2019 with a CDR in FY 2020.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Directed Energy Research	26.315	13.348	30.291
Description: N/A			
FY 2014 Accomplishments: - Demonstrated the efficiency, producibility, and scaling potential of candidate laser technology - Developed the Diode Pumped Alkali Laser System (DPALS) to produce high efficiency and excellent beam quality. Completed window, diode and wave guide development in support of the Alpha unit build - Improved operability and performance of the DPALS to increase average laser power, increase laser system efficiency, measure beam quality and reduce risks to system performance from chemical interactions -- Achieved more than 4 kilowatt (kW) output power from the DPALS in FY 2014 and re-designed, fabricated, and assembled the hardware for the next step in power-scaling - In conjunction with the Defense Advanced Research Projects Agency, demonstrated a > 34 (kW) Fiber Combining Laser (FCL) scalable to high power with high efficiency and near-ideal beam quality to efficiently deliver energy to targets at long range -- Successfully demonstrated the first phase of engineering packaging of the compact fiber amplifier, a critical step toward achieving compact, lightweight, power scalable fiber lasers for missile defense applications - Conducted experiments using a high altitude, low mach platform to validate directed energy lethality models and to characterize the flight environment and prototype platform performance -- Conducted four flight tests and collected over 21 hours of data from take-off to altitudes of over 54,000 feet -- Data collected confirmed a benign payload environment essential to directed energy platforms -- Collected lessons learned for improving potential future platform design and employment - Received Industry concepts that could be used to develop and integrate a multi-kilowatt class laser into an Unmanned Aerial Vehicle for multi-mission demonstrations			
FY 2015 Plans: - Demonstrate a 10 kW subscale DPALS design with high efficiency and excellent beam quality - In conjunction with the Defense Advanced Research Projects Agency:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603178C / *Weapons Technology*	**Project (Number/Name)** MD69 / *Directed Energy Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
-- Complete the engineering development unit for the next-generation FCL compact amplifier and complete the system concept for a mid-power flight system -- Upgrade the efficiency of the 42 element (34kW) FCL laboratory system and demonstrate a 40kW average power output with near-ideal beam quality - Analyze and evaluate DPALS and FCL laboratory test data, as well as power and efficiency analysis for scaling to Ballistic Missile Defense System relevant power levels - Compete contracts with Industry to define concepts that could be used to develop and integrate a multi-kilowatt class laser into an Unmanned Aerial Vehicle for multi-mission demonstrations ***FY 2016 Plans:*** Based on a successful Fiber Combining Laser 34 kilowatt (kW) demonstration and a Diode Pumped Alkali Laser 10 kW system first light, the increase from FY 2015 to FY 2016 funds increased laser test bed power, laser packaging demonstrations, system robustness and megawatt-class scaling designs. In FY 2016, $4.185 million of funding and content transferred to the Technology Maturation Initiatives program element, 0604115C, for prototype development. Low power laser concepts and hardware developed under this Weapons Technology program element and by Industry are technically mature enough for prototype development under the Technology Maturation Initiative program element - Upgrade the 10 kW DPALS laboratory demonstration system to a 30 kW-class test bed -- Demonstrate a 30 kW operation with 30% electrical-to-optical (E-O) efficiency -- Conduct beam quality characterization testing to validate gain cell flow uniformity -- Demonstrate at low power a laser beam with the ability to tightly focus on the target (beam quality at 1.5X diffraction limited) -- Validate gain cell waveguide scaling path to higher power operation -- Demonstrate improved robustness and reliability of pump diode modules -- Initiate design for a 120 kW DPALS gain cell and pump delivery system - In collaboration with the Defense Advanced Research Projects Agency and the Air Force, complete the critical design review and begin fabrication and integration of the 5 kilograms (kg) per kW low size weight and power Fiber Combining Laser (FCL) system -- Conduct FCL advanced beam combiner high power demonstration to verify the combiner can scale to required performance levels			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603178C / *Weapons Technology*	**Project (Number/Name)** MD69 / *Directed Energy Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
-- Analyze and evaluate laboratory and Industry high energy laser test data for scaling to ballistic missile defense system relevant power levels -- Deliver a flight qualified 1kg per kW compact fiber amplifier traceable to Ballistic Missile Defense System high energy laser system requirements -- Complete the concept definition for a 100's of kW FCL system - Engage with the other Services and Industry to identify laser scaling technologies with application to the BMDS -- Issue a Request for Information to Industry for alternative high energy laser technologies with scaling potential to compact, efficient, megawatt-class laser systems - Implement directed energy models and simulations to assess technology capability against expected threats, define technology gaps and identify and mitigate technical risks -- In conjunction with the High Energy Laser Joint Technology Office (HEL JTO) address real-time laser deconfliction procedures and implementation mechanisms			
Accomplishments/Planned Programs Subtotals	26.315	13.348	30.291

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing
• 0604115C: *Technology Maturation Initiatives*	-	-	96.300	-	96.300	109.674	117.106	208.531	198.363	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy for Directed Energy Research consists of partnering with Industry, the Defense Advanced Research Projects Agency, the Air Force, Federally Funded Research and Development Centers and University Affiliated Research Centers. The Missile Defense Agency (MDA) will leverage Agency and partner subject

matter experts and use government model based assessments to inform Better Buying Power philosophy acquisition decisions. The MDA will then award contracts to industry and universities via the Advanced Technology Innovation Broad Agency Announcement and competitive procurements to develop and demonstrate promising components and integrated systems in realistic test environments. Directed Energy Research shapes future Ballistic Missile Defense System (BMDS) acquisition decisions by advancing and documenting the technology readiness levels of emerging and developing technology, while simultaneously assessing the performance and contributions of the technology to the BMDS architecture.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603178C / *Weapons Technology*	Project (Number/Name) MD72 / *Interceptor Technology*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD72: *Interceptor Technology*	-	18.953	40.000	12.967	-	12.967	-	-	-	-	Continuing	Continuing

Note

FY 2015 funding was increased by $40 million for Interceptor Technology as a result of Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act. The Electromagnetic Rail Gun effort is a continuation of systems engineering and analysis that began under the Ballistic Missile Defense Enabling Programs Program Element, 0603890C in FY 2014.

In FY 2016, $12.967 million is for advance technology efforts in interceptor technology to address an emerging threat.

A. Mission Description and Budget Item Justification

The Interceptor Technology project focuses on development of divert and attitude control systems (DACS) technology to enhance operational performance of future Multi-Object Kill Vehicle (MOKV). Technology investment will focus on DACS subsystem and system elements (propellant tanks, Attitude Control System and divert thrusters, and pressurant subsystems) that support longer operation, multiple discrete events, precision attitude control, safe operation and minimum kill vehicle mass. In FY 2016, the Agency will invest in a competitive next generation solid DACS development with industry. The Agency will define the baseline DACS requirements using analytical tools to identify mature technology capable of supporting the MOKV development. In FY 2016, the Agency will evaluate the potential contributions of DACS technology alternatives to the Ballistic Missile Defense System. The DACS concept(s) being developed for multiple object kill vehicle application will transition to implementation with the industry MOKV developers.

We will also model and assess rail gun technology readiness, suitability, and integration requirements for ballistic missile defense applications.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Interceptor Technology	18.953	40.000	12.967
Description: The Interceptor Technology project focuses on development and test of component and sub-systems for solid propulsion divert and attitude control systems. This project will also investigate rail gun suitability and integration requirements for ballistic missile defense applications, this is a continuation of systems engineering and analysis that began under the Ballistic Missile Defense Enabling Programs Program Element, 0603890C in FY 2014.			
FY 2014 Accomplishments: - Completed the Cooled Gas Attitude Control System development and material characterization for a larger diameter Third Stage Rocket Motor for future Standard Missile - 3 (SM-3) interceptors. Achieved integrated subsystem level demonstration - Conducted material characterization and component level tests to mature a multiple gas generator solid Divert and Attitude Control System (DACS) design for use in future SM-3 interceptor			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603178C / *Weapons Technology*	**Project (Number/Name)** MD72 / *Interceptor Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
- Conducted material screening and characterization testing of ultra-high temperature composite materials to enable operation of a longer duration solid DACS, while also reducing mass and weight - Completed detailed design of an extinguishable solid DACS divert thruster that utilized enabling components in its design to meet stressing high temperature and pressure environments of future longer duration operations ***FY 2015 Plans:*** - Develop performance measures based on multi-object kill vehicle (MOKV) government concepts - Assess solid DACS concepts - Identify solid DACS technology gaps for MOKV application and potential technology solutions - Invest with industry to develop gap filling technology solutions leading to a next generation initial DACS design for MOKV - Conduct additional material and sub-component level tests (Valve, Thruster, Accumulator) to mature a multiple gas generator solid (SDACS) design for use in future Ballistic Missile Defense System (BMDS) interceptors ***FY 2016 Plans:*** - In FY 2016, $12.967 million is for advanced technology efforts in interceptor technology to address an emerging threat. - Deliver initial design of a next generation solid DACS technology concept(s) that support multiple object kill vehicle development - Conduct initial government review and assessment of contractor(s) concepts to determine utility of alternative technology - Initiate component development testing to support government assessment and finalize concept design - Conduct government review and update assessment of contractor's final concept(s) to identify remaining gaps - Investigate preliminary rail gun technology suitability for ballistic missile defense applications			
Accomplishments/Planned Programs Subtotals	18.953	40.000	12.967

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603178C / *Weapons Technology*	**Project (Number/Name)** MD72 / *Interceptor Technology*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing

Remarks

D. Acquisition Strategy

This effort leverages Agency and partner subject matter experts and government model based assessments to inform Better Buying Power philosophy acquisition decisions. The Agency through a competition with industry contractors will develop a next generation divert and attitude controls system based on future multiple object kill vehicle architecture and interfaces. This Program Element shapes future Ballistic Missile Defense System acquisition decisions by advancing and documenting the technology readiness levels of emerging and developing technology, while simultaneously assessing the performance and contributions of the technology to the BMDS architecture.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603178C / *Weapons Technology*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	-	0.720	2.131	-	2.131	2.435	3.733	3.023	3.801	Continuing	Continuing

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603179C / *Advanced C4ISR*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
MD01: *Command & Control, Battle Management, Communications (C2BMC)*	-	22.612	-	-	-	-	-	-	-	-	-	22.612
MD73: *Advanced C4ISR*	-	12.809	12.605	9.412	-	9.412	3.538	-	-	-	-	38.364
MD40: *Program-Wide Support*	-	-	0.679	0.464	-	0.464	0.185	-	-	-	-	1.328
MDAP/MAIS Code: 362												

Note

Beginning in FY 2014, the Advanced Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) effort transferred from the Ballistic Missile Defense Technology Program Element 0603175C to the Advanced C4ISR Program Element 0603179C, per the FY 2014 Consolidated Appropriations Act (P.L. 113-76).

A. Mission Description and Budget Item Justification

The Advanced C4ISR Program Element develops future Ballistic Missile Defense System (BMDS) capabilities to out-pace emerging and evolving threats. Advanced C4ISR identifies, develops, and readies for transition in association with Missile Defense Agency (MDA) Engineering the technical solutions that meet BMDS shortfalls identified by the Combatant Commanders. MDA uses the Prioritized Capabilities List (PCL) and the Agency's Achievable Capabilities List (ACL) to prioritize technology investments including Advanced C4ISR. MDA's investments balance the pursuit of promising next generation technology with near-term solutions to enhance existing BMDS capability.

MD01 consisted of support for development and maturation of technologies which enable rapid and exponential capability increases in our C2BMC and existing sensor networks. In FY14, C2BMC developed and matured advanced C2BMC C4ISR technology, software and algorithms which have the potential to increase battlespace for all BMDS interceptors including the Terminal High Altitude Area Defense and Ground-based Interceptors. This Program Element also included support for C2BMC centric DIHD Near-Term and Mid-Term capability fieldings. For FY15 and beyond, the developed technologies developed under this PE have been transitioned to the C2BMC (0603896C) Program Element for further refinement and implementation.
MD73 consists of support to develop and field an integrated set of Element (Advanced X-Band Radar) capabilities to improve BMDS reliability, lethality, and discrimination. The end result will be deployed within a future BMDS architecture which improves Warfighter shot doctrine and, consequently, optimizes inventory management. This effort supports DIHD Mid-Term capability fielding.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603179C *I Advanced C4ISR*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	36.500	15.329	10.389	-	10.389
Current President's Budget	35.421	13.284	9.876	-	9.876
Total Adjustments	-1.079	-2.045	-0.513	-	-0.513
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.045			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.579	-			
• Other Adjustment	-0.500	-	-0.513	-	-0.513

Change Summary Explanation

FY 2015 change reflects Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

For FY15 and beyond, the developed technologies developed under this PE have been transitioned to the C2BMC (0603896C) Program Element for further refinement and implementation. The FY 2016 MD73 funding was adjusted to align with current Department of Defense priorities and account for transition to the C2BMC (0603896C) Program Element for further refinement and implementation .

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603179C / *Advanced C4ISR*	Project (Number/Name) MD01 / *Command & Control, Battle Management, Communications (C2BMC)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD01: *Command & Control, Battle Management, Communications (C2BMC)*	-	22.612	-	-	-	-	-	-	-	-	-	22.612

Note

Beginning in FY 2014, the Advanced Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) effort transferred from the Ballistic Missile Defense Technology Program Element 0603175C to the Advanced C4ISR Program Element 0603179C, per the FY 2014 Consolidated Appropriations Act (P.L. 113-76).

A. Mission Description and Budget Item Justification

In FY14, Advanced Command, Control, Communication, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) developed and matured technology which will enable rapid and exponential capability increases in our command, control, battle management and communications (C2BMC) and existing sensor networks yielding an increase in battlespace for all BMDS interceptors including the Terminal High Altitude Area Defense and Ground-based Interceptors. Specifically, research and development focused on methodologies, software and algorithms which facilitated integration of the Service's command and control networks into the BMDS and initiated DIHD Near-Term and Mid-Term capability development activities. For FY15 and beyond, the C2BMC developed technologies have been transitioned to the C2BMC (0603896C) Program Element for further refinement and implementation.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Advanced Command and Control System Integration	22.612	-	-
Description: N/A			
FY 2014 Accomplishments: -Developed and matured Ballistic Missile Defense System Capability Planning Specification, System and Element Specifications and multiple interface control documents -Developed and installed C2BMC Spiral 8.2 Test Lab for Integration testing with Service C2 systems -Analyzed BMDS and Service C2 Planning Systems for data exchange compliance -Conducted Terminal High Altitude Air Defense Fire Control integration study with future Army C2 Systems -Developed the capability in the sensor resource management system to fully utilize the AN/TPY-2 sensors in support of Discrimination Improvements for Homeland Defense (DIHD) Near-term improvements -Participated in ground test campaign requirement development for DIHD Near-term improvements -Matured a planned DIHD Mid-term discrimination technology, Simultaneous Correlation of Unambiguous Tracks (SCOUT), including prototyping and simulated and flight test data analysis			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603179C / *Advanced C4ISR*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
-Transitioned developed C2BMC technologies to the C2BMC (0603896C) Program Element for further refinement and implementation ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	22.612	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603884C: *SENSORS MILCON*	33.504	-	-	-	-	116.821	109.112	59.194	-	-	318.631
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	41.051	46.387	49.570	-	49.570	50.533	51.363	52.217	54.247	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Command and Control, Battle Management and Communications (C2BMC) acquisition strategy is consistent with the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, incremental development, evolutionary acquisition, and knowledge-based funding. Lockheed Martin Mission Systems is the C2BMC prime contractor via an Other Transaction Agreement contract vehicle, which ended 1st quarter FY 2012. A sole source C2BMC follow-on contract to Lockheed Martin for Spiral Development, Operation and Sustainment, and Testing was awarded 1st quarter FY 2012 for an ordering period of 2nd quarter 2012 through 1st quarter 2017. Major team members to Lockheed are Northrop-Grumman, Boeing, Raytheon, and General Dynamics. They are charged with the development, testing, fielding, training, and operations and sustainment support of the C2BMC system. They perform development and testing of C2BMC products in Arlington, VA; Huntsville, AL; and

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603179C / *Advanced C4ISR*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

Colorado Springs, CO; and provide worldwide on-site operations and maintenance support. Additionally, the Defense Information Systems Agency supports C2BMC worldwide long-haul communications. C2BMC Program Office government, Federally Funded Research and Development Center/University Affiliated Research Center, and Contract Support Services personnel are also fully integrated as part of the Prime contractor`s team to function in an Integrated Product Team environment.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603179C / *Advanced C4ISR*	Project (Number/Name) MD73 / *Advanced C4ISR*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD73: *Advanced C4ISR*	-	12.809	12.605	9.412	-	9.412	3.538	-	-	-	-	38.364

Note

Beginning in FY 2014, the Advanced Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) effort transferred from the Ballistic Missile Defense Technology Program Element 0603175C to the Advanced C4ISR Program Element 0603179C, per the FY 2014 Consolidated Appropriations Act (P.L. 113-76).

A. Mission Description and Budget Item Justification

Advanced Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) enables rapid and exponential capability increases in our command, control, battle management and communications (C2BMC) and existing sensor networks. We will develop and mature technology, software and algorithms which facilitate integration of the Services command and sensor network approaches into the Ballistic Missile Defense System.

The Discrimination Improvements for Homeland Defense (DIHD) effort will develop and field integrated Element capabilities to improve BMD System ability to identify lethal and non-lethal objects. The Advanced C4ISR project will contribute to this effort through the development of advanced discrimination technologies to support the mid-term phase. This technology is planned to transition to the Ballistic Missile Defense Sensors (0603884C) Program Element in FY 2017.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Advanced X-Band Radar Capabilities	12.809	12.605	9.412
Description: N/A			
FY 2014 Accomplishments: -Developed and matured technology for integrated track processing and battlefield decision aids to facilitate integration of the Services command and sensor networks into the Ballistic Missile Defense System (BMDS) -Structured a cyclical development strategy for initiating, prototyping, experimenting, and transitioning advanced X-band radar capabilities leading to fielded improvements within existing radars -Developed advanced X-band radar target acquisition and discrimination capabilities against threats launched over extended geographical regions on wide range of flight trajectories, incorporated into Experimental XBR Builds 3.2.1 and 3.3.0 for future fielding, yielding improved performance against threats launched over extended geographical regions with a wide range of flight trajectories -Successfully supported experimentation through HWIL testing of C2BMC capabilities to task an X-band radar utilizing a cue from overhead sensors from the C2BMC experimental laboratory (X-Lab) and passing the resulting tracks back to all BMDS weapon systems. Performed during preparations for live test during FTX-20.			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603179C / *Advanced C4ISR*	**Project (Number/Name)** MD73 / *Advanced C4ISR*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
-Develop advanced X-band radar target acquisition and discrimination capabilities against threats launched over extended geographical regions on wide range of flight trajectories ***FY 2016 Plans:*** -Begin incorporation of advanced discrimination algorithms into XBR and AN/TPY-2 radars, planned for completion in FY 2017 -The decrease in FY 2016 is due to the transition and implementation of technology in to the BMD Sensors (0603884C) program element			
Accomplishments/Planned Programs Subtotals	12.809	12.605	9.412

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	41.051	46.387	49.570	-	49.570	50.533	51.363	52.217	54.247	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing

Remarks

D. Acquisition Strategy

Advanced X-Band Radar Capabilities follows the Missile Defense Agency`s capability-based acquisition strategy that emphasizes testing, development and evolutionary acquisition. The advanced technology development will include development of target acquisition and discrimination algorithms and assessment of performance. Performance assessment and transition risk reduction will use modeling, simulation, and online or offline assessment of live tracking opportunities. When ready, technology will transition to appropriate program elements for advanced component development and integration into Ballistic Missile Defense System X-Band Radars.

Acquisition will follow the acquisition strategy for radar sustainment and development. The Radar Sustainment Contract (RSC) will be used for both advanced technology development and for transition of technology to systems. The RSC was awarded in 2012 to sustain all the BMDS X-Band Radars. The contract provides

sustainment of previously developed X-Band radar products, such as: 1) Software -maintenance of existing software developed to support the X-Band Radars; 2) Models & Simulation; (a) development, maintenance, and verification of high fidelity models, (b) support for war games and exercises, (c) support for performance assessment events; 3) Engineering Services -engineering support for deployed radars to facilitate maintenance efforts which may include but are not limited to hardware obsolescence studies, hardware redesign, technology insertion, and refurbishment efforts; 4) BMDS Test Planning, Execution, and Analysis -planning, execution and analysis of BMDS test requirements for previously developed hardware and software in accordance with the MDA Integrated Master Test Plan (IMTP). The contract is an Indefinite Delivery/Indefinite Quantity (IDIQ) task order contract.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603179C / *Advanced C4ISR*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	-	0.679	0.464	-	0.464	0.185	-	-	-	-	1.328

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603180C *I Advanced Research*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing
MD25: *Advanced Technology Development*	-	23.025	15.787	16.549	-	16.549	17.977	19.295	19.903	20.237	Continuing	Continuing
MD40: *Program-Wide Support*	-	-	0.797	0.815	-	0.815	0.942	1.085	1.166	1.220	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

N/A

A. Mission Description and Budget Item Justification

Advanced Research conducts leading edge research and development to create and enable future missile defense capability. The Missile Defense Agency (MDA) executes this mission by capitalizing on the creativity and innovation of the brightest minds in our Nation's universities and small businesses, collaborative research partnerships between allied country academic institutions, and innovative ideas from industry. This includes a focus on facilitating the transition of technology to the Ballistic Missile Defense System through a Commercialization and Transition Office and the execution of the Rapid Innovation Fund Program. Advanced Research identifies priorities and balances the research portfolio in collaboration with the Agency's Chief Engineer and an Agency-wide executive level Research Council.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	19.188	16.584	16.715	-	16.715
Current President's Budget	23.025	16.584	17.364	-	17.364
Total Adjustments	3.837	-	0.649	-	0.649
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	4.720	-			
• SBIR/STTR Transfer	-0.883	-			
• Other Adjustment	-	-	0.649	-	0.649

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603180C *I Advanced Research*

Change Summary Explanation

FY 2016 increase reflects realignment of Department of Defense priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603180C / *Advanced Research*	Project (Number/Name) MD25 / *Advanced Technology Development*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD25: *Advanced Technology Development*	-	23.025	15.787	16.549	-	16.549	17.977	19.295	19.903	20.237	Continuing	Continuing

Note

N/A

A. Mission Description and Budget Item Justification

Advanced Technology Development explores new Ballistic Missile Defense System (BMDS) capability by leveraging the creativity and innovation of the Nation's small businesses and universities, and through cooperative international research agreements between U.S. and foreign universities of allied nations. The program manages the selection process and administers the Missile Defense Small Business Innovation Research (SBIR) Program Element, 0605502C. SBIR topics and projects are selected annually based on identified needs across the BMDS and executed in partnership with the sponsoring elements. In FY 2016, the program will conduct Advanced Technology Innovation Broad Agency Announcement (ATI BAA) solicitation for identifying potential breakthrough research on missile defense related technology with private industry, qualified accredited educational institutions, and non-profit organizations. Projects may include directed energy, sensors, command and control, or interceptor technology. The program will execute and administer the Missile Defense Agency Science, Technology and Research Broad Agency Announcement (MSTAR BAA) which invests in university research ranging from sensor data fusion to solid rocket propulsion to advanced materials for missile defense application.

Advanced Technology Development pursues a broad range of revolutionary technology targeted for application and insertion into the BMDS. This work facilitates the commercialization and transition of promising technology into the BMDS by promoting a cooperative environment to reduce cost and increase return on investment between small business, prime contractors and MDA elements.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Advanced Research	23.025	15.787	16.549
Description: N/A			
FY 2014 Accomplishments: Awarded Advanced Research contracts to domestic universities for innovative investigations to enlarge the battle space and enhance discrimination and raid handling -Pursued on-going scientific and engineering university research initiatives and projects: -- Alabama A&M University : Reconfigurable computing for multi-sensor tracking applications -- Johns Hopkins University: Parameterized fragmentation models for intercept optical signatures -- Texas A&M University: Ignition of composite propellants with advanced additives -- Texas A&M University: Hybrid waveguide/micro electro mechanical system optical signal processor			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603180C / *Advanced Research*	**Project (Number/Name)** MD25 / *Advanced Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
-- University of Texas: Nanomaterial-based printing of conformable X-Band Phased Array Antenna -- University of Alabama Huntsville: Green oxidizer development -- University of Connecticut: Radar signal processing for system tracks and correlation ambiguity -- University of Illinois: Decision theory for optimal engagement planning -- University of New Hampshire: Gas circulator for diode pumped alkali laser -- University of Southern California: Algorithms for detection, track and classification objects in high debris environment -Sponsored breakthrough technology and innovative solutions from private industry, qualified accredited domestic educational institutions, and nonprofit organizations, using the Advanced Technology Innovation Broad Agency Announcement (ATI BAA) -Conducted research and material solution analysis to identify initiatives and technology to include missiles, sensors, and command and control components in the defense against current and future threats: --Howard University: Infrared analysis in counterfeit parts detection and supply chain validation -- Purdue University: Propulsion improvements for Divert Attitude Control Systems (DACS) thrusters -- University of Dayton: Common aperture use of lighter high-energy lasers -- University of New Hampshire: Numerical simulations of diode pumped alkali lasers with spatial geometries -- University of Tennessee: Target handoff and resource management for multi-sensor, multi-target tracking systems -- University of Maryland: Development of 20N class ADN (Ammonium DiNitramide) thrusters for fast response time DACS propulsion systems -Partnered with industry, the High Energy Laser Joint Technology Office, Universities and National Laboratories through advanced technology initiatives to improve sensor technology, high energy laser acquisition, tracking, and pointing technology, and lightweight fiber laser amplifiers -- Successfully completed a joint Air Force/Missile Defense Agency test series, combining an MQ-9 with an F-16, to collect airborne sensor data for future Integrated Air and Missile Defense initiatives -Leveraged University-to-University (UUR) International Research opportunities with allied nations to enhance Ballistic Missile Defense System (BMDS) Advanced Technology initiatives and build stronger relationships with Missile Defense Agency (MDA) North Atlantic Treaty Organization (NATO) Allied nations and our partner countries: --North Carolina State University/Czech Republic Institute of Physics: Multi-sensor algorithm development to track space objects and debris --Auburn University/Middle East Technical University of Turkey: Integrated framework for engineering reliability			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603180C / *Advanced Research*	**Project (Number/Name)** MD25 / *Advanced Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
into high assurance BMDS simulations --University of Nebraska, Lincoln/University of Bordeaux, France: Fast deposition of diamond films for thermal management, wear resistance, and corrosion resistance --University of Nebraska, Lincoln/University of Rouen, France: Polymer parts with tailored microstructure distribution optimized to reduce the weight of parts -Instituted an International Cooperative Agreement between the Department of Defense of the United States of America and the Ministry of Defense of the Kingdom of Denmark concerning ballistic missile defense technology. Frequency Modulated Continuous Wave radar project to determine the utility of high-resolution range/range-rate radar technology for ballistic missile defense applications -Managed the Commercialization and Transition process of the Small Business Innovation Research (SBIR) and Technology Applications programs to assist MDA-funded technology developers in finding and entering technology transfer opportunities to missile defense applications: --Corvid Technologies Inc. transitioned hypervelocity impact modeling --Frontier Technology Inc. transitioned improvements in spacecraft assembly, integration and test for Navy fleet energy reduction analysis and data management --Innovative Defense Technology transitioned an automatic test and analysis tool for improving test data processing time and reducing cost --Sentar Inc. transitioned software to provide an integrated risk assessment of vulnerabilities, weaknesses, and malicious threats for software code analysis --Mentis Sciences transitioned air defense radome technology in support of David's Sling Weapons System --San Diego Composites transitioned lightweight composite hardware into the Common Kill Vehicle for Ground Based Missile Defense and Standard Missile 3 upgrades -Accelerated the transition and fielding of innovative technology into military and Ballistic Missile Defense systems from small businesses through the Rapid Innovation Fund Broad Agency Announcement for the following research areas: --Counterfeit Parts Detection --High Performance Divert and Attitude Control Components -Conducted system engineering and integration to identify and mature initiatives and technology to defend against current and future threats			
FY 2015 Plans: -Pursue on-going scientific and engineering university research initiatives and projects:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603180C / *Advanced Research*	**Project (Number/Name)** MD25 / *Advanced Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
--Texas A&M University: Solid Propellant Additives for Divert Attitude Control System (DACS) Applications --Texas A&M University: Hybrid Waveguide/Micro Electro Mechanical System Optical Signal Processor --University of Illinois: Decision Theory for Optimal Engagement Planning --University of Tennessee: Target Handoff and Resource Management for Multi-Sensor Multi-Target Tracking System --University of Alabama Huntsville: Computational studies of aero-optic effects of higher Reynolds numbers gas flows over sensor structures --University of Southern California: Algorithms for detection, track, and classification of objects in a high debris environment --University of Maryland: Development of Thrusters for Fast Response Time DAC Propulsion Systems --University of New Hampshire: Gas Circulator for Diode Pumped Alkali Laser --University of Connecticut: Innovative Radar Signal Processing & Algorithms --Purdue University: Propulsion Improvements for MDA Applications --Howard University: Infrared Analysis in Counterfeit Parts Detection and Supply Chain Validation --Auburn University / Middle East Technical University, Turkey: Integrated Framework for Engineering Replicability into High Assurance BMDS Simulations -Sponsor breakthrough technology and innovative solutions from private industry, qualified accredited domestic educational institutions, and nonprofit organizations, using the Advanced Technology Innovation Broad Agency Announcement (ATI BAA), to include research in: -- Radar Systems -- Directed Energy Systems -- Electro-Optical / (Infrared)IR Sensor Systems -- Computer Science, Signal and Data Processing -- Mechanical and Aerospace engineering -- Decision Theory -- Modeling & Simulation -- Interceptor Technology -- Sensor Technology -Partner with industry, the High Energy Laser Joint Technology Office, Universities and National Laboratories through advanced technology initiatives to improve sensor technology, high energy laser acquisition, tracking, and pointing technology, and lightweight fiber laser amplifiers			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603180C / *Advanced Research*	**Project (Number/Name)** MD25 / *Advanced Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
-Conduct research and material solution analysis to identify initiatives and technology to include missiles, sensors, and command and control components in the defense against current and future threats -Leverage University-to-University (UUR) International Research opportunities with allied nations to enhance Ballistic Missile Defense System (BMDS) Advanced Technology initiatives and build stronger relationships with Missile Defense Agency (MDA) North Atlantic Treaty Organization (NATO) Allied nations and our partner countries. -Manage the selection process of the Small Business Innovation Research (SBIR) and Technology Applications programs to assist MDA-funded technology developers in finding and entering technology transfer opportunities to missile defense applications -Conduct system engineering and integration to identify and mature initiatives and technology to defend against current and future threats -MDA Science Technology Engineering and Mathematics (STEM) Outreach will expand volunteer activities for other MDA facilities to increase overall MDA K-12 STEM awareness and engagement nationwide ***FY 2016 Plans:*** - Pursue on-going scientific and engineering university research initiatives and projects: --Texas A&M University: Solid Propellant Additives for Divert Attitude Control System (DACS) Applications --Texas A&M University: Hybrid Waveguide Micro Electro Mechanical System Optical Signal Processor --Alabama A&M University: Reconfigurable Computing for Multi-Sensor Tracking Applications --University of Texas at Austin: Nanomaterial-based Ink-Jet Printing Science and Technology for Conformable X-Band Phased Array Antenna --University of New Hampshire: Gas Circulator for Diode Pumped Alkali Laser (DPAL) --University of Connecticut: Development of innovative solutions for hardware security, and detection and prevention -- University of New Hampshire: Numerical Simulations of DPAL with Co-Flowing Planar Jet Geometries -- Auburn University / Middle East Technical University, Turkey: Integrated Framework for Engineering Replicability into High Assurance Ballistic Missile Defense System (BMDS) Simulations -Sponsor breakthrough technology and innovative solutions from private industry, qualified accredited domestic educational institutions, and nonprofit organizations, using the Advanced Technology Innovation Broad Agency Announcement (ATI BAA), to include research in: -- Radar Systems -- Directed Energy Systems			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603180C / *Advanced Research*	**Project (Number/Name)** MD25 / *Advanced Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
-- Electro-Optical Infrared Sensor Systems -- Computer Science, Signal and Data Processing -- Mechanical and Aerospace engineering -- Decision Theory -- Modeling & Simulation -- Interceptor Technology -- Sensor Technology -Partner with industry, the High Energy Laser Joint Technology Office, universities and national laboratories through advanced technology initiatives to improve sensor technology, high energy laser acquisition, tracking, and pointing technology, and lightweight fiber laser amplifiers -Conduct systems engineering, integration, research and material solution analysis to identify initiatives and technology to include missiles, sensors, and command and control components in the defense against current and future threats -Leverage University-to-University (UUR) International Research opportunities with allied nations to enhance BMDS Advanced Technology initiatives and build stronger relationships with Missile Defense Agency (MDA) North Atlantic Treaty Organization (NATO) allied nations and our partner countries -Manage the selection process of the Small Business Innovation Research (SBIR) and Technology Applications programs to assist MDA-funded technology developers in finding and entering technology transfer opportunities to missile defense applications			
Accomplishments/Planned Programs Subtotals	23.025	15.787	16.549

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	10.372	-	-	-	-	-	-	-	-	-	10.372
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603180C / *Advanced Research*	**Project (Number/Name)** MD25 / *Advanced Technology Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603294C: *Common Kill Vehicle Technology*	67.796	25.639	46.753	-	46.753	75.262	71.476	86.814	99.701	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy to conduct these technology development agreements consists of partnering with accredited domestic universities, small businesses, and nonprofit organizations. Missile Defense Agency (MDA) awards competitive procurements via the MDA Science and Technology Advanced Research Broad Agency Announcement; the Advanced Technology Innovation Broad Agency Announcement; the Small Business Innovative Research program; and the Small Business Technology Transfer program.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603180C / *Advanced Research*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	-	0.797	0.815	-	0.815	0.942	1.085	1.166	1.220	Continuing	Continuing

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603274C *I Special Program - MDA Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	94.297	35.822	40.433	64.708	-	64.708	85.594	-	-	-	-	320.854
MD81: *Special Programs - MDA Technology*	94.297	35.822	40.433	64.708	-	64.708	85.594	-	-	-	-	320.854
MDAP/MAIS Code: 362												

Note

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	36.426	51.033	9.900	-	9.900
Current President's Budget	35.822	40.433	64.708	-	64.708
Total Adjustments	-0.604	-10.600	54.808	-	54.808
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-10.600			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.604	-			
• Other Adjustment	-	-	54.808	-	54.808

Change Summary Explanation

FY 2015 change reflects Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

FY 2016 adjustments reflect realignment of Department of Defense priorities.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603294C / *Common Kill Vehicle Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	67.796	25.639	46.753	-	46.753	75.262	71.476	86.814	99.701	Continuing	Continuing
MD85: *Common Kill Vehicle Technology*	-	67.796	24.327	44.558	-	44.558	71.515	67.671	82.007	94.027	Continuing	Continuing
MD40: *Program Wide Support*	-	-	1.312	2.195	-	2.195	3.747	3.805	4.807	5.674	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

The FY 2016 increase to Common Kill Vehicle Technology, MD85, begins the concept definition for a Multi-Object Kill Vehicle (MOKV) to address an emerging threat.

A. Mission Description and Budget Item Justification

On 15 March 2013, the Secretary of Defense announced steps to bolster protection of the homeland and stay ahead of the evolving quantity and complexity of long range ballistic missile threats. These steps included adding Ground-Based Interceptors (GBI) and shifting resources to develop advanced kill vehicle technology to improve all ballistic missile defense interceptors that operate outside the earth's atmosphere. The successful first phase of the Common Kill Vehicle Technology effort defined concepts for the redesign of the GBI Exo-atmospheric Kill Vehicle (EKV). This effort completed advanced technology development and transitioned to the redesigned kill vehicle effort in FY 2014.

The next phase of the Common Kill Vehicle Technology effort will enhance our interceptor performance by improving discrimination and adding the capability to destroy several objects within a threat complex using multiple kill vehicles carried on a single interceptor. The Agency is developing the concepts for a MOKV based on a modular, open architecture designed to common interfaces and standards, making upgrades easier and broadening our vendor and supplier base. The Agency will focus on the competitive development of a MOKV concept(s) with industry in FY 2016.

This capability relies on a Ballistic Missile Defense System (BMDS) architecture that balances performance across the sensor, Command, Control, Battle Management and Communications, and kill vehicle elements. The Agency anticipates deploying this capability across the interceptor fleet in the next decade to address the evolving threat.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency					Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*			**R-1 Program Element (Number/Name)** PE 0603294C *I Common Kill Vehicle Technology*		
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	70.000	25.639	33.171	-	33.171
Current President's Budget	67.796	25.639	46.753	-	46.753
Total Adjustments	-2.204	-	13.582	-	13.582
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.095	-			
• SBIR/STTR Transfer	-1.109	-			
• Other Adjustment	-	-	13.582	-	13.582

Change Summary Explanation

The FY 2016 $13.582 million increase to Common Kill Vehicle Technology, MD85, begins the concept definition for a Multi-Object Kill Vehicle (MOKV) to address an emerging threat. The FY 2016 increase reflects a realignment of Department of Defense priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603294C / *Common Kill Vehicle Technology*	Project (Number/Name) MD85 / *Common Kill Vehicle Technology*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD85: *Common Kill Vehicle Technology*	-	67.796	24.327	44.558	-	44.558	71.515	67.671	82.007	94.027	Continuing	Continuing

Note

The FY 2016 increase to Common Kill Vehicle Technology, MD85, begins the concept definition for a Multi-Object Kill Vehicle (MOKV) to address an emerging threat.

A. Mission Description and Budget Item Justification

In calendar year 2014, Phase I of the Common Kill Vehicle (CKV) resulted in the transition of industry concepts for a Re-designed Kill Vehicle (RKV). The concepts informed the Agency's development of system requirements. These requirements are the foundation for product development of the RKV.

The Agency's focus in FY 2016 is to develop government and industry concepts for a MOKV as a second phase of common kill vehicle technology. A key element is the requirement for industry to comply with a modular, open architecture with common standards and interfaces defined by the government. These requirements make future upgrades easier and broaden our vendor and supplier base. In FY 2016, the Agency will award several contracts with industry to define concepts for a Multi-Object Kill Vehicle (MOKV) based on this open architecture. The Government will develop MOKV system engineering guidelines from the industry concept(s), government analysis, modeling, and simulation along with hardware-in-the-loop (HWIL) prototype concept demonstration(s). The kill vehicle HWIL prototype concept(s) and identified technologies will formulate the trade space across cost, risk, and kill vehicle performance to establish requirements that are feasible and affordable for the engineering, manufacturing and development of a future MOKV.

The effectiveness of the Ballistic Missile Defense System (BMDS) relies on balancing in the performance requirements across the elements in the architecture. For example, the goal of the sensor portion of the architecture is to detect, acquire, track and discriminate the lethal object(s) from the spent stage, deployment debris, and countermeasures the enemy may deploy to spoof the system. If the warfighter launches several interceptors at each object designated lethal by the system it is critical that the system do this with nearly perfect accuracy.

The sensor architecture performance is not perfect, and analysis shows that having multiple kill vehicles on each interceptor dramatically improves the performance of the system, while it significantly reduces the burden of our interceptor inventory, reducing our cost to defend the Homeland.

The Agency's past efforts on multiple kill vehicle research showed that the most difficult technical challenge for Multi Kill Vehicles (MKV) was managing the many-on-many engagements that occur. In FY 2016, the Agency will resume tackling this challenge by investigating the engagement management concepts authored by industry as well as our government concepts. The Agency will test these algorithms and strategy using our HWIL, and invest in key technologies that will enable an MOKV concept including Kill Vehicle-to-Kill Vehicle communications, and more accurate and lighter weight inertial measurement unit (IMU).

The MOKV industry prototype concept(s) will identify and reduce development risk; identify technology readiness; and demonstrate critical technical features and capabilities. The Agency will use industry concept models to assess MOKV performance and the utility of a MOKV architecture. The prototype demonstration will

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603294C / *Common Kill Vehicle Technology*	**Project (Number/Name)** MD85 / *Common Kill Vehicle Technology*

validate the industry concept models for higher confidence and prove the viability of the MOKV. These results will inform Agency requirements development efforts that may support a future milestone decision.

Accurate and reliable IMUs are essential for accurate navigation during the long Kill Vehicle flight times required to engage Intercontinental Ballistic Missile threats. The Multi-Object Kill Vehicle (MOKV) investments will develop precise, small, lightweight, highly reliable, and low cost Inertial Measurement Units (IMUs) to increase Kill Vehicle performance for long Kill Vehicle flight times. Continued investment will satisfy the IMU performance needed for the small, high performance Kill Vehicle concepts that can defeat future interceptor threats. This IMU will demonstrate improved performance over current state of the art by reducing navigation error. The initial hardware IMU prototype will demonstrate reduced size, weight and power requirements.

High band width Kill Vehicle-to-Kill Vehicle and Kill Vehicle-to-ground communications will enable engagement management for MOKV architecture. The MOKV investments will focus on minimizing size, weight and power of a software defined radio that provides flexible communication capabilities that are robust and reliable. Design and development efforts of this communications technology in 2016 will lead to a future prototype demonstration of high band-width communications using software defined radio technology.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Common Kill Vehicle	67.796	24.327	44.558
Description: The Missile Defense Agency is developing common kill vehicle technology to address emerging threats and enable the missile defense of our homeland.			
FY 2014 Accomplishments: Focused on developing kill vehicle common technology for both the Ground-Based Interceptor (GBI) and Standard Missile-3 (SM-3) missiles that enhance interceptor capability against the evolving and future threat. These investments in a kill vehicle common technology approach will help ensure the viability of our homeland ballistic missile defenses. Specifically, the Agency: - Completed joint government and industry concept definition for the redesign of the GBI Exoatmospheric Kill Vehicle. The kill vehicle concepts aided the Agency in establishing the requirements foundation for the redesigned GBI Kill Vehicle - Completed inertial and alternative navigation technology trade study that identified the concept design parameters for an inertial measurement unit that will increase the probability of kill and reliability while decreasing seeker mass of future interceptors - Completed digital focal plane array design that improves reliability and discrimination for future interceptors - Developed systems engineering guidelines for joint government and industry concept definition of a MOKV that reduces the cost of production and weapon system operations through new kill vehicle architectures and scalable technology - Developed kill vehicle modular architecture, to take advantage of common component interfaces for the development of future kill vehicles while broadening the vendor base			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603294C / *Common Kill Vehicle Technology*	**Project (Number/Name)** MD85 / *Common Kill Vehicle Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
- Develop Kill Vehicle payload criteria to support Broad Agency Announcement (BAA) for the MOKV concept definition - Receive and assess proposals for MOKV concept definition award(s) in FY2016 - Develop government MOKV concept for independent performance predictions via government simulations to establish baseline for contractor concept assessment(s) - Improve focal plane array yield by optimizing the manufacturing processes - Develop a second source design of a 512x512 digital Read Out Integrated Circuit (ROIC) focal plane array to support enhanced discrimination for future BMDS interceptors - Develop initial inertial measurement unit (IMU) design using a ring laser gyro and a micro-electro-mechanical system (MEMS) accelerometer to upgrade BMDS interceptors - Conduct radiation environment screening of IMU parts			
FY 2016 Plans: - The FY 2016 $13.221 million increase to Common Kill Vehicle Technology, MD85, begins the concept definition for a Multi-Object Kill Vehicle (MOKV) to address an emerging threat - Award industry contracts for the development of MOKV concept(s) - MOKV industry contractor(s) will deliver initial concepts and modeling parameters for preliminary government assessment - Initiate development of the MOKV engagement management algorithms to address managing the many-on-many engagement challenges due to complex threats - Update and refine government Multi-Object Kill Vehicle (MOKV) concept for independent performance predictions via government simulations to initiate contractor concept assessment(s) - Build, assemble and test initial inertial measurement unit prototype to support model validation - Initiate design and analysis of a high band width software defined radio to support kill vehicle-to-kill vehicle and kill vehicle-to-ground communications			
Accomplishments/Planned Programs Subtotals	67.796	24.327	44.558

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603294C / *Common Kill Vehicle Technology*	**Project (Number/Name)** MD85 / *Common Kill Vehicle Technology*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy consists of three focus areas. First, through competition with missile integration contractors, develop kill vehicle architecture and interfaces with follow on competitive design of multi-object kill concepts incorporating engagement management concept of operations, lightweight kill vehicles and enhanced discrimination capability. Second, conduct risk reduction activities to identify and mature the technology necessary to increase the reliability and performance of our kill vehicles using the Advanced Technology Innovation Broad Agency Announcement and competitive procurements. Make the necessary investments to maturing component technology; enhanced inertial navigation and kill vehicle-to-kill vehicle communications. Third, leverage the technical expertise of Federally Funded Research and Development Centers, University Applied Research Centers, and Universities and government laboratories to independently develop reference concept using proven modeling/analysis techniques.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603294C / *Common Kill Vehicle Technology*	Project (Number/Name) MD40 / *Program Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program Wide Support*	-	-	1.312	2.195	-	2.195	3.747	3.805	4.807	5.674	Continuing	Continuing

Note

Beginning in FY 2015 transferred from Technology Program Element in accordance with the FY 2014 Consolidated Appropriations Act (P.L. 113-76) with a proportional allocation to RDT&E program elements.
Program Wide Support estimate reflects proportional changes FY 16-20 as a result of increases/decreases in Common Kill Vehicle Technology program element.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	-	1.312	2.195
Description: N/A ***FY 2014 Accomplishments:*** - FY 2014 Accomplishments were captured in multiple Program Elements under MD40 Budget Project ***FY 2015 Plans:*** - Beginning in FY 2015, Program Wide Support was proportionately allocated to Common Kill Vehicle Technology - See paragraph A: Mission Description and Budget Item Justification ***FY 2016 Plans:*** - See paragraph A: Mission Description and Budget Item Justification.			
Accomplishments/Planned Programs Subtotals	-	1.312	2.195

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603294C / *Common Kill Vehicle Technology*	**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-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	951.106	251.899	163.892	228.021	-	228.021	230.306	257.014	218.533	247.707	Continuing	Continuing
MD07: *THAAD*	838.481	210.540	144.822	216.186	-	216.186	217.575	241.979	204.990	232.328	Continuing	Continuing
MC07: *Cyber Operations*	-	0.799	0.647	0.652	-	0.652	0.664	0.676	0.688	0.699	Continuing	Continuing
MT07: *THAAD Test*	55.461	14.086	-	-	-	-	-	-	-	-	Continuing	Continuing
MD06: *Patriot Advanced Capability-3 (PAC-3)*	36.837	1.049	1.082	1.154	-	1.154	1.179	1.197	1.213	1.261	Continuing	Continuing
MD40: *Program-Wide Support*	20.327	25.425	17.341	10.029	-	10.029	10.888	13.162	11.642	13.419	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

Beginning in FY 2015 THAAD Test funding was transferred to a new Program Element 0604876C - Ballistic Missile Defense Terminal Defense Segment Test, Project MT07.

A. Mission Description and Budget Item Justification

The Terminal Defense Program Element includes the Terminal High Altitude Area Defense (THAAD) development program, Cyber Operations, THAAD System Test, support of PATRIOT (Phased Array Tracking Radar Intercept Of Target) Advanced Capability-3 (PAC-3) participation in Missile Defense Agency (MDA) activities, and Program Wide Support (PWS).

THAAD provides the only air transportable, fast reaction capability for the warfighter to provide area coverage against Short and Medium Range Ballistic Missiles within four hours of arrival. The THAAD element includes five major components: Interceptors, Launchers, Army Navy/Transportable Radar Surveillance - Type 2 (AN/TPY-2) Radars, THAAD Fire Control and Communication (TFCC), and THAAD Peculiar Support Equipment. THAAD delivered Battery #1 in FY 2009 and Battery #2 in FY 2010 to the U.S. Army at Fort Bliss, Texas for initial fielding and training. THAAD has completed the development of the THAAD 1.0 configuration and is developing the THAAD Build 2.0 capability. Continued development and integration will provide for enhanced debris mitigation, improved interoperability with other Ballistic Missile Defense System (BMDS) elements, and development of training devices to support the THAAD Institutional Training Base. In FY 2016, THAAD Follow-On (extended range, integrated battle command system, and threat upgrades) will begin with a risk reduction effort with the potential to transition to a new start follow-on THAAD program in the future. The technical merits of expanded system interoperability with air and missile defense systems, and expanding the battlespace and defended area of the THAAD baseline weapon system will be evaluated during risk reduction activities to explore and mature the design concept and to validate the threat assessment. The decision to transition to a new follow-on THAAD program will be determined by evaluating the results of the technical merits and the program's affordability upon development of the program life cycle cost estimate.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0603881C *I Ballistic Missile Defense Terminal Defense Segment*

Cyber Operations sustain Missile Defense Agency (MDA) Department of Defense (DoD) Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for MDA Command and Control, Battle Management and Communications (C2BMC) mission systems and supports THAAD certification to operate in the BMD System. Cyber Operations include non-recurring requirements in FY 2015 to FY 2017 to transition all THAAD information systems from DIACAP to DoD directed Risk Management Framework.

THAAD System Test conducts BMDS Flight Tests and Ground Tests with other BMDS elements (including BMDS C2BMC, PATRIOT and Aegis) in accordance with BMDS Integrated Master Test Plan. THAAD System Test coordinates with Operational Test Agencies, conducts flight test operations, performs post-flight test reporting, and performs data distribution and data storage at Pacific Missile Range Facility and the Reagan Test Site.

PATRIOT Advanced Capability (PAC-3) is a U.S. Army short range BMDS that interfaces with the BMDS. MDA funds PATRIOT participation in BMDS interoperability integration efforts.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	255.918	299.598	221.008	-	221.008
Current President's Budget	251.899	163.892	228.021	-	228.021
Total Adjustments	-4.019	-135.706	7.013	-	7.013
• Congressional General Reductions	-	-0.140			
• Congressional Directed Reductions	-	-24.200			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-111.366			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-4.018	-			
• Other Adjustment	-0.001	-	7.013	-	7.013

Change Summary Explanation

FY 2015 changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

The FY 2016 funding was adjusted to align with current Department of Defense priorities to include initiation of risk reduction and concept development efforts of a THAAD Follow-On capability to respond to emerging threats and the acquisition of testbeds to support multiple THAAD battery configurations.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	Project (Number/Name) MD07 / *THAAD*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD07: *THAAD*	838.481	210.540	144.822	216.186	-	216.186	217.575	241.979	204.990	232.328	Continuing	Continuing
Quantity of RDT&E Articles	50	-	-	-	-	-	-	-	-	-		

Note

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.

A. Mission Description and Budget Item Justification

Terminal High Altitude Area Defense (THAAD) Development activities (1.0) focused on the design, development, testing and verification of a significant, fundamental capability to engage threats both inside and outside of the atmosphere in their terminal phase of flight. This capability includes engagements against short to medium-range ballistic missiles and asymmetric threats. Development of THAAD's next incremental capability (2.0) will enhance and extend the current 1.0 capability and be delivered as part of THAAD's acquisition/development strategy.

THAAD 1.0 (Baseline Capability Development) provided the fundamental capability against short and medium-range Ballistic Missiles and asymmetric threats inside and outside the atmosphere by FY 2012. This development completed with: 1) Ground and Flight Test of the weapon system against complex Re-entry Vehicles, background clutter, and Medium-Range Ballistic Missile (MRBM) threats; 2) Ground and Flight Test of the initial Discrimination Capability; 3) Enhanced communication capability to support Link 16 compatibility with the Ballistic Missile Defense System (BMDS) and engagement coordination with other BMDS elements; and 4) Conditional Materiel Release.

THAAD 2.0 (Advanced Capability Development) began in January of 2012 as a 7 year development effort consisting of multiple, independent software builds (e.g. Build 2.0, Build 3.0, etc.) to expand the capability of THAAD the 1.0 system with a projected capability delivery in FY 2019. New THAAD capabilities include: 1) Launch on Link 16 BMD System Based Track providing the ability to initiate an engagement and launch of THAAD interceptors using sensor data provided by BMDS sources outside the THAAD Battery; 2) Improving THAAD Weapons System performance in the presence of a high debris environment; 3) Expanding the defended area footprints by remote operation of THAAD Launchers; 4) Peer-to-peer engagement coordination with Aegis and PATRIOT weapon systems; 5) Software upgrades to maintain capability against evolving threats; 6) Message based regional engagement command functionality to process message content from Command and Control, Battle Management and Communications (C2BMC) to obtain direction for target engagement; 7) Weapon System Information Assurance mandatory updates; 8) Warfighter requested enhancements; and 9) Upgrades to maintain interface with other BMDS software builds.

In FY 2016, THAAD Follow-On (extended range, integrated battle command system, and threat upgrades) will begin with a risk reduction effort with the potential to transition to a new start follow-on THAAD program in the future. The technical merits of expanded system interoperability with air and missile defense systems, and expanding the battlespace and defended area of the THAAD baseline weapon system will be evaluated during risk reduction activities to explore and mature the design concept and to validate the threat assessment. The decision to transition to a new follow-on THAAD program will be determined by evaluating the results of the technical merits and the program's affordability upon development of the program life cycle cost estimate.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*

In addition to THAAD Development and THAAD Follow-On, there are three planned tasks: THAAD Program Support, Program Operations, and Project Redwood.

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

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

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

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Terminal High Altitude Area Defense (THAAD) Development	124.768	85.442	152.733
Articles:	-	-	-

Description: This task includes the continued development of THAAD 2.0. as a series of independent, parallel software builds to deliver enhanced system capabilities and expand defense of allies and deployed forces from short-to-medium-range threats. This task also includes software maintenance; incorporation of test finding revisions; information assurance; requirements development; modeling and simulation; and capability integration and performance verification within the integrated Ballistic Missile Defense System. Flight and ground testing of this development is included in separate task (project); however, pre-mission engineering analysis supporting testing is included in this task.

FY 2014 Accomplishments:
-Continued development of Phase II debris mitigation functionality and integrate into the weapon system to improve interoperability with other BMDS elements
-Conducted Terminal High Altitude Area Defense (THAAD) 2.0 Engineering Requirements Review to ensure Phase II debris mitigation design accounts for the results of FTO-01 (BMDS Operational Flight Test)
-Conducted Models and Simulations (M&S) development to support element and Ballistic Missile Defense System (BMDS) events including all Integrated Master Test Plan (IMTP) M&S related activities to include System Pre Mission Tests (SPMTs) and System Post Flight Reconstruction (SPFRs) and conduct analysis of the Critical Engagement Conditions (CEC) and Empirical Measurement Events (EME) data collected during test events to validate and accredit the M&S by the Operational Test Agency (OTA)
-Continued requirements development, engineering analysis, capability integration, and performance verification for BMDS and THAAD element-level development and integration

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continued to design, develop, qualification test, and field annual release of Terminal High Altitude Area Defense (THAAD) system software to ensure continued performance and operation of fielded batteries -Continued to develop and maintain models, simulations, testbeds, and associated software required to perform engineering verification and analysis utilizing system simulations and Hardware-in-the-Loop (HWIL) facilities to ensure accurate element configuration and representation -Continued to provide software updates in support of performance upgrades and fielded batteries through the release of software builds to provide fixes as identified in both MDA Ground Test Campaigns and Combatant Command (COCOM) war games and exercises -Continued development of Packaged Threat Products to give deployed and fielded batteries the ability to upload new data on threat missiles as they evolve to ensure that the batteries defense takes into account both new threats and changes to existing threats -Continued development of NETTED / Embedded Training to enable fielded batteries to participate in netted training with other theater elements -Performed Information Assurance Vulnerability Assessments (IAVA) to mitigate potential system vulnerabilities and to ensure continued performance and operation of fielded batteries -Updated THAAD software and hardware to ensure compliance with DoD Weapon System Information Assurance Programs and guidance -Continued system performance and requirement studies to assess capability development plans -Completed Missile Round Pallet (MRP) Transport development and qualification to both speed the deployment process and to reduce logistical life cycle costs of fielding the system -Provided prime contractor technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, and integration activities to ensure effective use of appropriated resources -Provided prime contractor and subcontract management to ensure effective use of appropriated resources			
FY 2015 Plans: -Reduction in cost from FY 2014 to FY 2015 primarily due to completion of Missile Round Pallet (MRP) Transport development, reductions in software development efforts, and reduced effort in System Software Support and Modeling and Simulation -Conduct Terminal High Altitude Area Defense (THAAD) 2.0 Engineering Design Review to ensure Phase II debris mitigation design accounts for the results of FTO-01 (BMDS Operational Flight Test) -Continue development of Phase II debris mitigation functionality and integrate into the weapon system to improve interoperability with other BMDS elements -Continue Models and Simulations (M&S) development to support element and Ballistic Missile Defense System (BMDS) events including all Integrated Master Test Plan (IMTP) M&S related activities to include System Pre Mission Tests (SPMTs) and System Post Flight Reconstruction (SPFRs) and conduct analysis of the Critical Engagement Conditions (CEC) and Empirical			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Measurement Events (EME) data collected during test events to validate and accredit the M&S by the Operational Test Agency (OTA) -Continue to design, develop, qualification test, and field annual release of Terminal High Altitude Area Defense (THAAD) system software to ensure continued performance and operation of fielded batteries -Continue to develop and maintain models, simulations, testbeds, and associated software required to perform engineering verification and analysis utilizing system simulations and Hardware-in-the-Loop (HWIL) facilities to ensure accurate element configuration and representation -Continue to provide software updates in support of performance upgrades and fielded batteries through the release of software builds to provide fixes as identified in both MDA Ground Test Campaigns and Combatant Command (COCOM)war games and exercises -Continue development of Packaged Threat Products to give deployed and fielded batteries the ability to upload new data on threat missiles as they evolve to ensure that the batteries defense takes into account both new threats and changes to existing threats -Continue requirements development, engineering analysis, capability integration, and performance verification for BMDS and THAAD element-level development and integration -Continue system performance and requirement studies to assess capability development plans -Perform Information Assurance Vulnerability Assessments (IAVA) to mitigate potential system vulnerabilities and to ensure continued performance and operation of fielded batteries -Update THAAD software and hardware to ensure compliance with DoD Weapon System Information Assurance Programs and guidance -Initiate development to mitigate the effects of Track ID Proliferation through the implementation of BMDS changes approved in MIL-STD-6016 Interface Change Proposals (ICPs) in coordination with Aegis BMD, Command and Control, Battle Management, and Communications (C2BMC) and MDA Engineering. These changes require implementation by all members of the Network Participation Group to be effective			
FY 2016 Plans: -The increase in cost between FY 2015 and FY 2016 is primarily due to the initiation of software development efforts such as Link 16 and Peer to Peer Engagement, acquisition of the testbeds to support multiple THAAD battery configurations, and increased software support to participate with multiple representations of THAAD batteries and deliver tactical software functionality to support BMDS Incremental capabilities -Complete development of Phase II debris mitigation functionality and integrate into the weapon system to improve interoperability with other BMDS elements -Initiate development to provide real-time enhancements to Regional Peer-to-Peer Engagement Coordination, through implementation of Interface Change Proposals (ICPs) to MILSTD 6016, via automated exchange coordination messages between			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Ballistic Missile Defense (BMD) tactical level weapon systems that share defended assets and are capable of engaging a common threat. Assess enhancing Shoot-Assess-Shoot opportunities when THAAD is the second shooter. The implementation of these changes will provided enhanced communications and interoperability within the BMDS between both elements and the C2BMC -Initiate development and implementation of the Link 16 J7.7 Message within the THAAD Weapon System. This message provides association information to other BMDS elements in the network participation group allowing these elements to associate multiple THAAD tracks as reported on Link 16 in J3.6 messages to a single launch event and allows the THAAD Battery to use J3.6 track reports from external sensors and associate them with a launch event. This capability facilitates launch on engagements for both the THAAD battery and other BMD Weapon Systems -Initiate acquisition of testbeds required to support multiple, fielded battery configuration, development and integration of component software into system level software builds, and flight test pre-post- test analysis. Without this acquisition the limited testbeds will continue to be shared thus impacting support to deployed batteries, development deliveries, and flight tests -Initiate development to mitigate the effects of Track ID Proliferation through the implementation of BMDS changes approved in MIL-STD-6016 Interface Change Proposals (ICPs) in coordination with Aegis BMD, Command and Control, Battle Management, and Communications (C2BMC) and MDA Engineering. These changes require implementation by all members of the Network Participation Group to be effective -Continue Models and Simulations (M&S) development to support element and Ballistic Missile Defense System (BMDS) events including all Integrated Master Test Plan (IMTP) M&S related activities to include System Pre Mission Tests (SPMTs) and System Post Flight Reconstruction (SPFRs) and conduct analysis of the Critical Engagement Conditions (CEC) and Empirical Measurement Events (EME) data collected during test events to validate and accredit the M&S by the Operational Test Agency (OTA) -Continue to design, develop, qualification test, and field annual release of Terminal High Altitude Area Defense (THAAD) system software to ensure continued performance and operation of fielded batteries -Continue to develop and maintain models, simulations, testbeds, and associated software required to perform engineering verification and analysis utilizing system simulations and Hardware-in-the-Loop (HWIL) facilities to ensure accurate element configuration and representation -Continue requirements development, engineering analysis, capability integration, and performance verification for BMDS and THAAD element-level development and integration -Continue to provide software updates in support of performance upgrades and fielded batteries through the release of software builds to provide fixes as identified in both MDA Ground Test Campaigns and Combatant Command (COCOM) war games and exercises -Continue development of Packaged Threat Products to give deployed and fielded batteries the ability to upload new data on threat missiles as they evolve to ensure that the batteries defense takes into account both new threats and changes to existing threats -Continue system performance and requirement studies to assess capability development plans			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Perform Information Assurance Vulnerability Assessments (IAVA) to mitigate potential system vulnerabilities and to ensure continued performance and operation of fielded batteries -Update THAAD software and hardware to ensure compliance with Department of Defense (DoD) Weapon System Information Assurance Programs and guidance -Continue the assessment of current intelligence data of those threats assigned to the THAAD element of the BMDS. The assessment includes analyses of the threats to determine the changes in performance of the threats and the impact that the changes would have on the THAAD weapon system performance. The artifacts of the assessments and analyses provides the basis for future changes to the weapon system through additional software changes, system adjustable parameter changes and/or Packaged Threat Products, to allow the weapon system to optimize its performance against the improved threats			
Title: THAAD Program Support	37.224	8.698	2.059
Articles:	-	-	-
Description: This activity provides support for efforts such as communications and interoperability, and safety and mission assurance. Additionally, in FY 2014 it provided support for completing development of training aids to support the Institutional Training Base and in FY 2015 provided support for growth reliability verification testing.			
FY 2014 Accomplishments: -Continued THAAD Fire Control and Communication (TFCC)-Interoperability development and maintenance to support weapon system interoperability capabilities, joint and service certifications, and net-worthiness certification. Without these certifications, the weapon system would not be authorized to operate on joint, service, or allied communications networks -Completed development of Radar March Order & Emplacement Trainer (RMOET) and complete design for Radar Training Device (RTD) in order for the Institutional Training Base to maintain an enduring radar training capability for THAAD Soldiers -Continued development of the Terminal High Altitude Area Defense (THAAD) Portable Planner and Interface to Command and Control Battle Management and Communications (C2BMC)to provide interactive defense design capability to plan defensive course(s) of action and develop detailed defense plans - Continued support of independent offices such as the Army Aviation and Missile Command (AMCOM), Aviation and Missile Research Development and Engineering Center (AMRDEC), and the Developmental Test Command (DTC) as part of the Materiel Release process. These efforts include safety confirmation and verification testing, preparation and approvals of System Safety Risk Assessments, issuance of hazard classifications and safety releases, insensitive munitions approvals and waivers, and providing independent oversight and support in the areas of reliability, availability, and maintainability (RAM) and quality assurance			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Reduction from FY 2014 to FY 2015 due to the completion of the development efforts associated with training devices Institutional Conduct of Fire Trainer (ICOFT), Radar March Order & Emplacement Trainer (RMOET), and Radar Training Device (RTD) -Continue THAAD Fire Control and Communication (TFCC)-Interoperability development and maintenance to support weapon system interoperability capabilities, joint and service certifications, and net-worthiness certification. Without these certifications, the weapon system would not be authorized to operate on joint, service, or allied communications networks -Continued development of the Terminal High Altitude Area Defense (THAAD) Portable Planner and Interface to Command and Control Battle Management and Communications (C2BMC)to provide interactive defense design capability to plan defensive course(s) of action and develop detailed defense plans - Continued support of independent offices such as the Army Aviation and Missile Command (AMCOM), Aviation and Missile Research Development and Engineering Center (AMRDEC), and the Developmental Test Command (DTC) as part of the Materiel Release process. These efforts include safety confirmation and verification testing, preparation and approvals of System Safety Risk Assessments, issuance of hazard classifications and safety releases, insensitive munitions approvals and waivers, and providing independent oversight and support in the areas of reliability, availability, and maintainability (RAM) and quality assurance -Conduct a Reliability Demonstration Test on a fully operational THAAD Battery for the purpose of demonstrating reliability growth in support of Materiel Release ***FY 2016 Plans:*** -Reduction from FY 2015 to FY 2016 due to the completion of the Reliability Demonstration Test in FY 2015 on a fully operational THAAD Battery for the purpose of demonstrating reliability growth in support of Materiel Release -Continue THAAD Fire Control and Communication (TFCC)-Interoperability development and maintenance to support weapon system interoperability capabilities, joint and service certifications, and net-worthiness certification. Without these certifications, the weapon system would not be authorized to operate on joint, service, or allied communications networks - Continued support of independent offices such as the Army Aviation and Missile Command (AMCOM), Aviation and Missile Research Development and Engineering Center (AMRDEC), and the Developmental Test Command (DTC) as part of the Materiel Release process. These efforts include safety confirmation and verification testing, preparation and approvals of System Safety Risk Assessments, issuance of hazard classifications and safety releases, insensitive munitions approvals and waivers, and providing independent oversight and support in the areas of reliability, availability, and maintainability (RAM) and quality assurance.			
Title: Program Operations	44.826	45.761	43.543
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Description: Program Operations provides for management of the Terminal High Altitude Area Defense (THAAD) program. Included in this effort is program and business management, program administration, technical and testing oversight, verification of hardware and software development, quality / safety / mission assurance, and government manpower and infrastructure to develop and test the THAAD system and components. ***FY 2014 Accomplishments:*** -Provided technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities, to provide the Program Director with critical program status and decision quality data -Ensured Terminal High Altitude Area Defense (THAAD) program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process -Conducted internal Baseline Execution Reviews to measure program progress against the six Missile Defense Agency approved baselines -Continued a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs -Provided Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability to ensure high quality products are delivered to the Warfighter ***FY 2015 Plans:*** -Provide technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities, to provide the Program Director with critical program status and decision quality data -Ensure Terminal High Altitude Area Defense (THAAD) program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process -Conduct internal Baseline Execution Reviews to measure program progress against the six Missile Defense Agency approved baselines -Continue a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs -Provide Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability to ensure high quality products are delivered to the Warfighter ***FY 2016 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Provide technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities, to provide the Program Director with critical program status and decision quality data -Ensure Terminal High Altitude Area Defense (THAAD) program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process -Conduct internal Baseline Execution Reviews to measure program progress against the six Missile Defense Agency approved baselines -Continue a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs -Provide Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability to ensure high quality products are delivered to the Warfighter			
Title: Project Redwood- Details at a Higher Classification	3.722	4.921	4.400
Articles:	-	-	-
Description: See Description Below ***FY 2014 Accomplishments:*** This project is reported in accordance with Title 10, United States Code, Section 119 (a)(1) in the Special Access Program Annual Report to Congress. ***FY 2015 Plans:*** This project is reported in accordance with Title 10, United States Code, Section 119 (a)(1) in the Special Access Program Annual Report to Congress. ***FY 2016 Plans:*** This project is reported in accordance with Title 10, United States Code, Section 119 (a)(1) in the Special Access Program Annual Report to Congress.			
Title: THAAD Follow-On	-	-	13.451
Articles:	-	-	-
Description: THAAD Follow-On (extended range, integrated battle command system, and threat upgrades) will begin with a risk reduction effort with the potential to transition to a new start follow-on THAAD program in the future. The technical merits of expanded system interoperability with air and missile defense systems, and expanding the battlespace and defended area of the THAAD baseline weapon system will be evaluated during risk reduction activities to explore and mature the design concept and			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
to validate the threat assessment. The decision to transition to a new follow-on THAAD program will be determined by evaluating the results of the technical merits and the program's affordability upon development of the program life cycle cost estimate. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** - Fund and conduct Weapon System trade studies to draft key system requirements, functional allocations, and interface definitions to address the BMDS emergent threat - Conduct performance analyses of system and ground component design concepts to characterize capabilities, limitations, risk and areas for improvement / correction. - Begin trade studies to assess configuration and performance requirements of interceptor components such boost motor, kick motor, canister, and kill vehicle. - Begin master test plan analysis to include identifying range requirements, flight test instrumentation requirements, and document potential flight and ground test program requirements such as objectives, assessment of courses of actions and coordination with stakeholders			
Accomplishments/Planned Programs Subtotals	210.540	144.822	216.186

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0208866C: *O&M*	377.672	403.512	432.068	-	432.068	446.563	446.873	461.472	460.216	-	3,028.376
• 0208866C: MD07: *THAAD Procurement*	571.851	449.824	464.067	-	464.067	362.605	330.002	317.414	313.631	3,289.952	6,099.346
• 0604876C: *Ballistic Missile Defense Terminal Defense Segment Test*	-	111.366	26.225	-	26.225	74.400	69.852	86.191	65.578	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*

D. Acquisition Strategy

The program is closing out contract line items in the basic THAAD Engineering, Manufacturing, and Development (EMD) contract that are associated with THAAD 1.0 while continuing THAAD 2.0 contract line items. THAAD awards Indefinite Delivery Indefinite Quantity (IDIQ) Task Orders on the Advanced Capability Development (ACD) contract for the continuation of THAAD 2.0 development. The discrete task orders allow management and tracking of Development work.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Terminal High Altitude Area Defense (THAAD) Development - Advanced Capability Development	SS/IDIQ	LMSSC : Sunnyvale, CA/Huntsville, AL	49.578	46.907		30.851		74.063		-		74.063	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - IT Program Support	C/CPAF	Northrup Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	-		1.594		2.353		-		2.353	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Lockheed Martin	SS/CPFF	LMSSC : Sunnyvale, CA/Huntsville, AL	386.384	35.276		21.500		34.968		-		34.968	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - MDA Program Support	MIPR	Missile Defense Agency (MDA) : Ft. Belvoir, VA/ Huntsville, AL	79.794	11.483		4.244		3.593		-		3.593	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Models & Simulations	MIPR	US Army Research, Development, Engineering Command (RDECOM) : Huntsville, AL	99.213	31.102		27.253		28.000		-		28.000	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Requirements and Design	MIPR	Missile Defense Agency (MDA) : Ft. Belvoir, VA/ Huntsville, AL	0.000	-		-		4.633		-		4.633	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Verification and Assessment	MIPR	Missile Defense Agency (MDA) : Ft. Belvoir, VA/ Huntsville, AL	0.000	-		-		5.123		-		5.123	Continuing	Continuing	Continuing
THAAD Follow-On - THAAD Follow-On Risk Reduction	SS/CPIF	Lockheed Martin : CA, TX, AL	0.000	-		-		13.451	Oct 2015	-		13.451	Continuing	Continuing	Continuing
		Subtotal	614.969	124.768		85.442		166.184		-		166.184	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	Project (Number/Name) MD07 / *THAAD*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

- Increase in FY 2016 R-3 Cost Category Item "Advanced Capability Development" is primarily related to initiation of software developments efforts in FY 2016, some of which were deferred from FY 2015 such as Launch on Link 16 and Regional Peer to Peer Engagement Coordination. Additional increase is due to the acquisition of testbeds to support multiple THAAD battery configurations.

- Increase in FY 2016 R-3 Cost Category Item "Lockheed Martin" is primarily related to requirements to development and delivery of tactical software functionality to support BMDS incremental capability deliveries.

- New R-3 Cost Category Items "Requirements and Design" and "Verification and Assessment" are further breakouts of funds previously included in MDA Program Support.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
THAAD Program Support - Army Cell to Hybrid Program Office	MIPR	Integrated Material Management Center, AMCOM : Huntsville, AL	17.625	-		-		-		-		-	-	17.625	-
THAAD Program Support - MDA Program Support	Various	Missile Defense Agency (MDA) : Huntsville, AL	8.249	-		-		-		-		-	-	8.249	-
THAAD Program Support - Maintenance, Training, Transportation and Operations Support	Various	LMSSC : Sunnyvale, CA/Huntsville, AL	85.460	35.312		-		-		-		-	Continuing	Continuing	Continuing
THAAD Program Support - Mission Support	MIPR	ATEC / OTC / MDA : WSMR, NM / Huntsville, AL	0.000	1.912		8.698		2.059		-		2.059	Continuing	Continuing	Continuing
Program Operations - Program Operations	Various	Missile Defense Agency (MDA) : Ft. Belvoir, VA/ Huntsville, AL	54.634	44.826		45.761		43.543		-		43.543	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Redwood- Details at a Higher Classification - Special Programs	SS/FP	N/A : N/A	57.544	3.722		4.921		4.400		-		4.400	Continuing	Continuing	Continuing
		Subtotal	223.512	85.772		59.380		50.002		-		50.002	-	-	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	838.481	210.540		144.822		216.186		-		216.186	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	Project (Number/Name) MD07 / *THAAD*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*

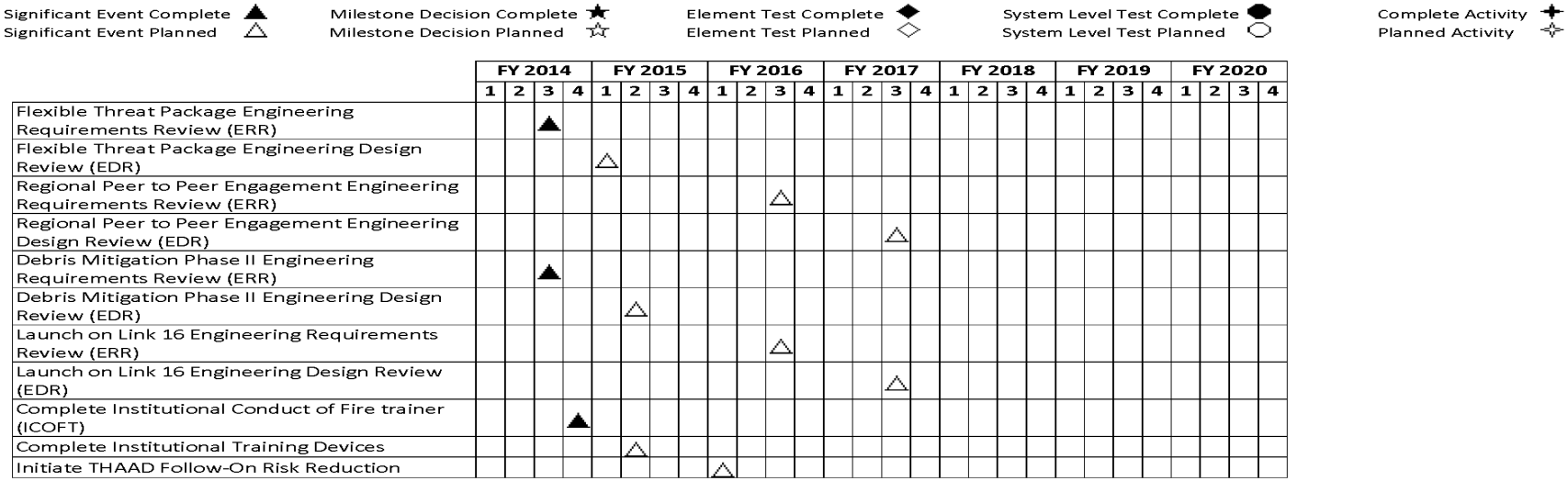

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD07 / *THAAD*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Flexible Threat Package Engineering Requirements Review (ERR)	3	2014	3	2014
Flexible Threat Package Engineering Design Review (EDR)	1	2015	1	2015
Regional Peer to Peer Engagement Engineering Requirements Review (ERR)	3	2016	3	2016
Regional Peer to Peer Engagement Engineering Design Review (EDR)	3	2017	3	2017
Debris Mitigation Phase II Engineering Requirements Review (ERR)	3	2014	3	2014
Debris Mitigation Phase II Engineering Design Review (EDR)	2	2015	2	2015
Launch on Link 16 Engineering Requirements Review (ERR)	3	2016	3	2016
Launch on Link 16 Engineering Design Review (EDR)	3	2017	3	2017
Complete Institutional Conduct of Fire trainer (ICOFT)	4	2014	4	2014
Complete Institutional Training Devices	2	2015	2	2015
Initiate THAAD Follow-On Risk Reduction	1	2016	1	2016

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	Project (Number/Name) MC07 / *Cyber Operations*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MC07: *Cyber Operations*	-	0.799	0.647	0.652	-	0.652	0.664	0.676	0.688	0.699	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

Funding in this project sustains Missile Defense Agency (MDA) DoD Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for MDA Command and Control Battle Management and Communications (C2BMC) mission systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the DIACAP documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&M on all MDA information systems. This project supports THAAD certification to operate in the BMD System. Cyber Operations includes non-recurring requirements in FY 2015 to FY 2017 to transition all THAAD information systems from DIACAP to DoD directed Risk Management Framework.

This project supports the monitoring and tracking of Cybersecurity mitigations detailed in Information Technology security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA Senior Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation (IV&V) 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 (FISMA).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Network / System Certification and Accreditation (C&A)	0.799	0.647	0.652
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: - Conducted cyber security / information assurance engineering and architecture planning for THAAD information technology systems - Developed and test cyber security/information assurance control measures for Ballistic Missile Defense System (BMDS) THAAD systems - Developed THAAD DIACAP certification and accreditation packages - Supported Controls Validation Testing (CVT) of THAAD mission, test, and training systems - Developed Plan of Action and Milestones (POA&Ms) to resource and remediate information assurance deficiencies			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MC07 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conducted annual information assurance reviews on the THAAD enclaves to assess compliance in implementing and maintaining IA controls			
FY 2015 Plans: - Conduct cyber security / information assurance engineering and architecture planning for THAAD information technology systems - Develop and test cyber security/information assurance control measures for Ballistic Missile Defense System (BMDS) THAAD systems - Develop THAAD DIACAP certification and accreditation packages - Support Controls Validation Testing (CVT) of THAAD mission, test, and training systems - Develop Plan of Action and Milestones (POA&Ms) to resource and remediate information assurance deficiencies - Conduct annual information assurance reviews on the THAAD enclaves to assess compliance in implementing and maintaining IA controls			
FY 2016 Plans: - Conduct cyber security / information assurance engineering and architecture planning for THAAD information technology systems - Develop and test cyber security/information assurance control measures for Ballistic Missile Defense System (BMDS) THAAD systems - Develop THAAD DIACAP certification and accreditation packages - Support Controls Validation Testing (CVT) of THAAD mission, test, and training systems - Develop Plan of Action and Milestones (POA&Ms) to resource and remediate information assurance deficiencies - Conduct annual information assurance reviews on the THAAD enclaves to assess compliance in implementing and maintaining IA controls - Transition THAAD systems to Risk Management Framework for DoD IT IAW new DoD cybersecurity direction			
Accomplishments/Planned Programs Subtotals	0.799	0.647	0.652

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MC07 / *Cyber Operations*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	41.051	46.387	49.570	-	49.570	50.533	51.363	52.217	54.247	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0901598C: *Management HQ - MDA*	34.712	35.598	35.871	-	35.871	35.187	34.509	33.466	33.992	Continuing	Continuing
• D1300639: *Fort Drum, New York, IDT Complex*	-	-	-	-	-	-	-	-	-	-	-
• D1400634: *Clear AFS, AK*	17.204	-	-	-	-	-	-	-	-	-	17.204

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MC07 / *Cyber Operations*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services	C/CPFF	Torch Technologies : Various MDA Locations	0.000	0.799		0.647		0.652		-		0.652	Continuing	Continuing	Continuing
		Subtotal	0.000	0.799		0.647		0.652		-		0.652	-	-	-

Remarks

N/A

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.799		0.647		0.652		-		0.652	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MC07 / *Cyber Operations*

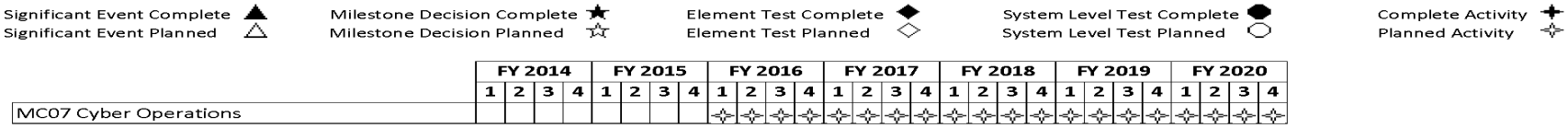

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MC07 / *Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MC07 Cyber Operations	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	Project (Number/Name) MT07 / *THAAD Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT07: *THAAD Test*	55.461	14.086	-	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2015 funding associated with THAAD testing was transferred to a new program element, PE 0604876C: Ballistic Missile Defense Terminal Defense Segment Test

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

Terminal High Altitude Area Defense (THAAD) System Test conducts Ballistic Missile Defense System (BMDS) Flight Tests and Ground Tests with other BMDS elements (including BMDS Command Control / Battle Management and Communication, PATRIOT, and Aegis) in accordance with BMDS Integrated Master Test Plan. THAAD System Test coordinates with Operational Test Agencies, conducts flight test operations, performs post-flight test reporting, and performs data distribution and data storage at Pacific Missile Range Facility and the Reagan Test Site.

THAAD Flight Test Execution includes mission planning, pre-flight integration testing, conduct of readiness reviews, test asset transportation, flight test execution and data collection, post flight test reporting and data distribution.

Ground Test Execution includes mission planning, BMDS test integration, conduct of readiness reviews, ground test execution and data collection, and post test reporting and data distribution.

Infrastructure in FY 2014 and Resources in FY 2015 includes sustained and maintenance of test equipment and facilities. It provides maintenance, repair, and fueling of THAAD Battery assets utilized in testing.

Wargames & Exercises provides support to the various Combatant Commanders with model and simulations and subject matter expertise during various exercises.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Flight Test Execution	4.758	-	-
Articles:	-	-	-
Description: THAAD Flight Test Execution includes mission planning, pre-flight integration testing, conduct of readiness reviews, test asset transportation, flight test execution and data collection, post flight test reporting and data distribution.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MT07 / *THAAD Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
FY 2014 Accomplishments: -Completed Flight Test Operational-01 (FTO-01) post test reporting and data distribution to provide data for analysis and integration into BMDS Modeling and Simulation. -Initiate pre-mission planning for Flight Test THAAD-18 (FTT-18) scheduled for fourth quarter FY 2015. FY 2014 funds were utilized to support FTT-18 long-lead planning activities that initiate approximately 12 months prior to a flight test event. Long-lead planning activities include range safety and weapon system performance analysis. -Initiate pre-mission planning for Flight Test Operational-02 (FTO-02) Event 2 also scheduled for fourth quarter FY 2015. FY 2014 funds were utilized to support FT0-02 Event 2 long-lead planning activities that initiate approximately 12 months prior to a flight test event. Long-lead planning activities for FTO-02 E2 also include range safety and weapon system performance analysis. ***FY 2015 Plans:*** -Plans for this scope are included in PE 0604876C: Ballistic Missile Defense Terminal Defense Segment Test ***FY 2016 Plans:*** -Plans for this scope are included in PE 0604876C: Ballistic Missile Defense Terminal Defense Segment Test			
Title: Infrastructure	4.134	-	-
Articles:	-	-	-
Description: Infrastructure includes sustainment and maintenance of test equipment and facilities. It provides maintenance, repair, and fueling of THAAD Battery assets utilized in testing. ***FY 2014 Accomplishments:*** -Provided data management, facilities operations, and post-test reporting in support of Ballistic Missile Defense System (BMDS) System Tests to ensure data collection and readiness for mission execution -Continued Performance Assessments to evaluate system performance and interoperability within the integrated Ballistic Missile Defense System (BMDS) -Conducted a telemetry study to assess design options to improve power-up/encryption verification, radio frequency downlink, upper-band frequency transmission, transmitter modulation efficiency, and video stream compression -Conducted an analysis of each prospective telemetry system test component and developed a plan to eliminate critical component obsolescence ***FY 2015 Plans:*** -Plans for this scope are included in PE 0604876C: Ballistic Missile Defense Terminal Defense Segment Test ***FY 2016 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MT07 / *THAAD Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Plans for this scope are included in PE 0604876C: Ballistic Missile Defense Terminal Defense Segment Test			
Title: Ground Test Execution	5.109	-	-
Articles:	-	-	-
Description: Ground Test Execution includes mission planning, BMDS test integration, conduct of readiness reviews, ground test execution and data collection, post test reporting and data distribution. ***FY 2014 Accomplishments:*** -Continued THAAD participation in Missile Defense Agency (MDA) Ground Test operational scenario events (GT-04) to ensure THAAD`s ability to conduct coordinated engagements with Aegis and PATRIOT operating with Command and Control, Battle Management, Communications (C2BMC) and forward-based Army Navy Transportable Radar Surveillance and Control (AN/TPY-2) -Provided pre-mission planning, pre and post mission analysis, reporting support, and execution to BMDS Ground Test campaigns -Continued Performance Assessments to evaluate system performance and interoperability within the integrated Ballistic Missile Defense System (BMDS) ***FY 2015 Plans:*** -Plans for this scope are included in PE 0604876C: Ballistic Missile Defense Terminal Defense Segment Test ***FY 2016 Plans:*** -Plans for this scope are included in PE 0604876C: Ballistic Missile Defense Terminal Defense Segment Test System (BMDS)			
Title: Resources	-	-	-
Articles:	-	-	-
Description: Resources include sustainment and maintenance of test labs and facilities. It provides maintenance, repair, and fueling of THAAD Battery assets utilized in testing. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** -Plans for this scope are included in PE 0604876C: Ballistic Missile Defense Terminal Defense Segment Test ***FY 2016 Plans:*** -Plans for this scope are included in PE 0604876C: Ballistic Missile Defense Terminal Defense Segment Test			
Title: Wargames and Exercises	0.085	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MT07 / *THAAD Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Articles:	-	-	-
Description: See planned accomplishments ***FY 2014 Accomplishments:*** -Provided support to the various Combatant Commands (COCOM) with model and simulations and subject matter expertise during the exercise events. Continue to assist in the development/refining of Tactics, Techniques, and Procedures (TTP's) as well as Pre-Planned Responses (PPR's) to incorporate in further exercises, ground, and flight test events. Demonstrate THAAD capability and limitations to the warfighter community in the Integrated and Missile Defense (IAMD) environment. ***FY 2015 Plans:*** -Plans for this scope are included in PE 0604876C: Ballistic Missile Defense Terminal Defense Segment Test ***FY 2016 Plans:*** -Plans for this scope are included in PE 0604876C: Ballistic Missile Defense Terminal Defense Segment Test) environment			
Accomplishments/Planned Programs Subtotals	14.086	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

THAAD awards Indefinite Delivery Indefinite Quantity (IDIQ) Task Orders on the Advanced Capability Development (ACD) contract for the continuation of THAAD 2.0 development and test as described and approved in the MDA Integrated Master Test Plan. The discrete task orders allow management and tracking of Development work.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MT07 / *THAAD Test*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Test Execution - Execution, Support and Planning	Various	MDA : Ft. Belvoir, VA/Huntsville, AL	26.337	0.147		-		-		-		-	-	26.484	-
Flight Test Execution - Planning, Analysis, and Execution	Various	LMSSC : Sunnyvale, CA/Huntsville, AL	18.624	4.611		-		-		-		-	-	23.235	-
Infrastructure - Range Infrastructure	Various	MDA : Ft. Belvoir, VA/Huntsville, AL	1.130	4.134		-		-		-		-	-	5.264	-
Infrastructure - Range Infrastructure Prime	Various	LMSSC : Sunnyvale, CA/Huntsville, AL	2.678	-		-		-		-		-	-	2.678	-
Ground Test Execution - BMDS Ground Test Support	MIPR	US Army AMRDEC : Huntsville, AL	4.909	2.626		-		-		-		-	-	7.535	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MT07 / *THAAD Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Test Execution - Support and Planning	MIPR	MDA : Ft. Belvoir, VA/Huntsville, AL	1.623	2.483		-		-		-		-	-	4.106	-
Resources - Test and Range Infrastructure	MIPR	Various : Huntsville, AL	0.000	-		-		-		-		-	-	-	-
Wargames and Exercises - Wargames and Exercises	MIPR	MDA / SMDC : Huntsville, AL	0.160	0.085		-		-		-		-	-	0.245	-
		Subtotal	55.461	14.086		-		-		-		-	-	69.547	-

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	55.461	14.086		-		-		-		-	-	69.547	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MT07 / *THAAD Test*

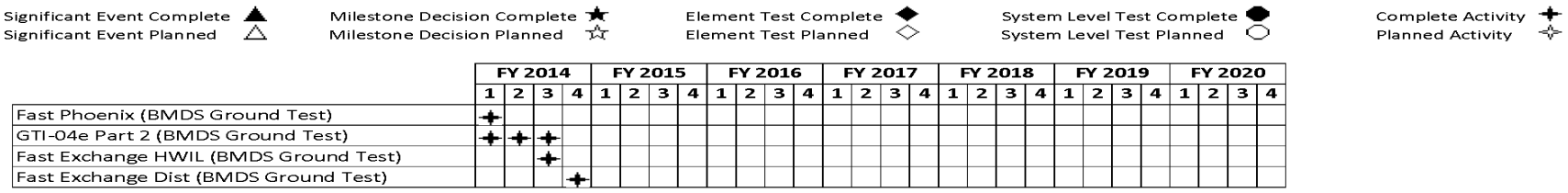

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MT07 / *THAAD Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Fast Phoenix (BMDS Ground Test)	1	2014	1	2014
GTI-04e Part 2 (BMDS Ground Test)	1	2014	3	2014
Fast Exchange HWIL (BMDS Ground Test)	3	2014	3	2014
Fast Exchange Dist (BMDS Ground Test)	4	2014	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	Project (Number/Name) MD06 / *Patriot Advanced Capability-3 (PAC-3)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD06: *Patriot Advanced Capability-3 (PAC-3)*	36.837	1.049	1.082	1.154	-	1.154	1.179	1.197	1.213	1.261	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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.

A. Mission Description and Budget Item Justification

Phased Array Tracking Radar Intercept Of Target (PATRIOT) Advanced Capability (PAC-3) is one of the most mature elements of the Ballistic Missile Defense System (BMDS) and is now operational with the U.S. Army. It is a land-based element built upon the proven PATRIOT air and missile defense infrastructure.

The Army is responsible for production and further development of Advanced Capability-3 System; the Missile Defense Agency remains responsible for the Ballistic Missile Defense System interoperability and integration efforts.

Lower Tier Project Office (LTPO) will utilize Missile Defense Agency funds to further the integration of PATRIOT into the BMDS.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: General Support	1.049	1.082	1.154
Articles:	-	-	-
Description: PATRIOT Advanced Capability (PAC-3) is a U.S. Army short range BMDS that interfaces with the Ballistic Missile Defense System. Missile Defense Agency funds PATRIOT participation in BMDS interoperability integration efforts.			
FY 2014 Accomplishments: -Support the day-to-day tasking that is leveraged upon Lower Tier Project Office (LTPO) by MDA based on the Transfer and Transition Plan Annex L.			
FY 2015 Plans: -Support the day-to-day tasking that is leveraged upon Lower Tier Project Office (LTPO) by Missile Defense Agency (MDA) based on the Transfer and Transition Plan Annex L.			
FY 2016 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD06 / *Patriot Advanced Capability-3 (PAC-3)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Support the day-to-day tasking that is leveraged upon Lower Tier Project Office (LTPO) by Missile Defense Agency (MDA) based on the Transfer and Transition Plan Annex L.			
Accomplishments/Planned Programs Subtotals	1.049	1.082	1.154

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The planned acquisition strategy for PATRIOT (Phased Array Tracking Radar Intercept on Target) support awards Task Orders on multiple contract vehicles and memorandum of Agreements with other government agencies. The program is considering opportunities for potential competitive awards.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	Project (Number/Name) MD06 / *Patriot Advanced Capability-3 (PAC-3)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
General Support - Evolutionary Development Program (EDP) Task 2	SS/FFP	Multiple : Multiple	32.360	-		-		-		-		-	32.360	64.720	32.360
		Subtotal	32.360	-		-		-		-		-	32.360	64.720	32.360

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
General Support - General Support	C/FFP	Intuitive Research and Technology / Wyle CAS / SAIC : Huntsville, AL	4.477	1.049		1.082		1.154		-		1.154	Continuing	Continuing	Continuing
		Subtotal	4.477	1.049		1.082		1.154		-		1.154	-	-	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	Project (Number/Name) MD06 / *Patriot Advanced Capability-3 (PAC-3)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	36.837	1.049		1.082		1.154		-		1.154	-	-	-

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD06 / *Patriot Advanced Capability-3 (PAC-3)*

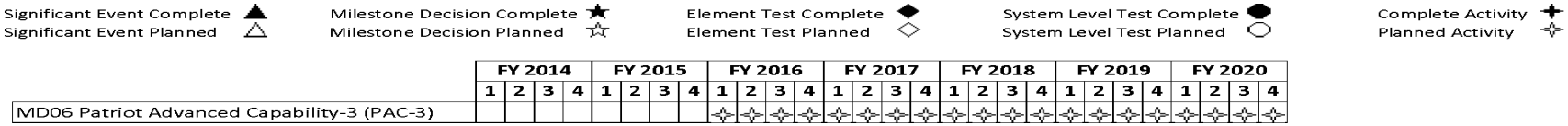

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD06 / *Patriot Advanced Capability-3 (PAC-3)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD06 Patriot Advanced Capability-3 (PAC-3)	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	20.327	25.425	17.341	10.029	-	10.029	10.888	13.162	11.642	13.419	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015 and FY 2016, Program Wide Support reflects a proportional change as a result of decreases in Ballistic Missile Defense Terminal Defense Segment. 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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	25.425	17.341	10.029
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans: See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	25.425	17.341	10.029

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD40 / *Program-Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Facilities and Maintenance (MIPR)	MIPR	Various : VA	0.000	0.911		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, CA, CO, VA	2.658	1.880		3.735	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations User Services	C/CPAF	Various : Multi: AL, CA, CO, VA	0.000	2.795		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	Various : MDA Multi: AL, CO, CA, VA,	0.000	14.049		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support International and Materiel and Readiness	MIPR	Various : Multi: AL, VA, Aust, Japan	1.099	-		0.849	Oct 2014	0.428	Oct 2015	-		0.428	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, VA	16.275	5.790		12.217	Jan 2015	9.006	Jan 2016	-		9.006	Continuing	Continuing	Continuing
Program Wide Support - FFRDC/UARC	C/CPAF	Various : Multi: AL, VA	0.295	-		0.540	Aug 2015	0.595	Aug 2016	-		0.595	Continuing	Continuing	Continuing
		Subtotal	20.327	25.425		17.341		10.029		-		10.029	-	-	-

Remarks

N/A

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	20.327	25.425		17.341		10.029		-		10.029	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD40 / *Program-Wide Support*

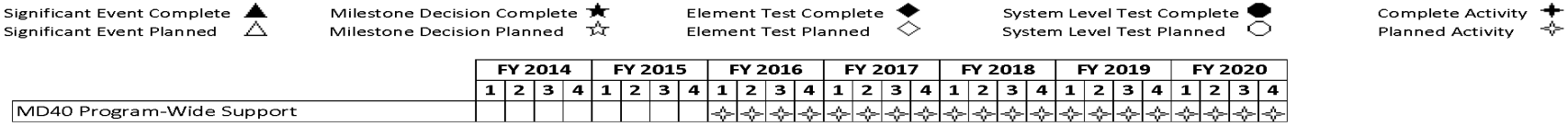

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603881C / *Ballistic Missile Defense Terminal Defense Segment*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	2,798.514	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
MD08: *Ground Based Midcourse*	2,636.202	967.394	812.886	1,225.161	-	1,225.161	888.868	758.909	851.998	859.964	Continuing	Continuing
MC08: *Cyber Operations*	-	3.373	2.938	3.217	-	3.217	3.285	3.340	3.406	3.475	Continuing	Continuing
MT08: *Ground Based Midcourse Test*	69.419	59.372	-	-	-	-	-	-	-	-	Continuing	Continuing
MX08: *Ground Based Midcourse Development Support*	-	2.868	-	-	-	-	-	-	-	-	-	2.868
MD40: *Program-Wide Support*	92.893	31.438	58.099	56.513	-	56.513	44.272	41.143	48.135	49.451	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

In FY 2015, Improved Homeland Defense Interceptors was transferred to new Program Element (PE) Improved Homeland Defense (HLD) Interceptors (0603874C) and Ground Based Midcourse Test was transferred to new PE Ballistic Missile Defense Midcourse Defense Segment Test (0604887C).

The Ground-based Midcourse Defense (GMD) system became operational to protect the homeland in 2004. Last year the Missile Defense Agency (MDA) commissioned a study to assess the GMD system health and status. As a result of the study and warfighter input, MDA is increasing the FY 2016 budget request. The additional funding will address study findings and improve the overall reliability, performance, producibility, testability, and extend the life and health of this system. Additional details are in the program change summary and R2/R3 sections.

A. Mission Description and Budget Item Justification

The Ground-based Midcourse Defense (GMD) program is the element of the Ballistic Missile Defense System (BMDS) that provides combatant commanders with a continuously available (24 hours a day, 7 days a week, 365 days a year) capability to defend the Homeland against limited Intercontinental Ballistic Missile (ICBM) attacks. The GMD capability consists of Ground Based Interceptors (GBI), GMD Fire Control system (GFC), GMD Communications Network (GCN), In-Flight Interceptor Communications System Data Terminals (IDT) and all of the ground Launch Support Systems (LSS) (silos, silo interface vaults (SIVs), environmental control systems, command launch equipment (CLE), firing circuits and safety systems). By the end of FY 2016, the Missile Defense Agency (MDA) will deploy an additional 6 GBIs, from 30 to 36 operationally deployed GBIs located at Fort Greely, Alaska (32 GBIs) and Vandenberg Air Force Base, California (4 GBIs). Each GBI delivers a single Exoatmospheric Kill Vehicle (EKV) to defeat threat warheads in space during the midcourse phase of the ballistic trajectory. The GMD Fire Control system consists of fire control nodes in Fort Greely, Alaska and Missile Defense Integration and Operations Center (MDIOC) Colorado Springs, Colorado. IDTs are currently located in Fort Greely, Alaska, Vandenberg Air Force Base, California, Eareckson Air Station, Alaska, and the Missile Defense Agency (MDA) plans to deliver an additional IDT to Fort Drum, New York. The GMD capability leverages integration of Ballistic Missile Defense System sensors in Alaska, California, United Kingdom, Japan, and Greenland. Development objectives for GMD include: testing and validating the performance of the Capability Enhancement I and II (CE-I and CE-II) GBIs, development and testing

of capability upgrades, manufacturing additional GBIs in support of operational requirements, flight testing, upgrading fielded GBIs, and conducting comprehensive component ground testing that will improve GBI reliability and minimize the number of GBIs required to destroy each ICBM threat.

For FY 2016, this Program Element includes three budget projects: Ground Based Midcourse, Cyber Operations, and Program Wide Support.

In FY 2015, Improved Homeland Defense Interceptors was transferred to new PE 0604874C and Ground Based Midcourse Test moved to new PE 0604887C.

Ground Based Midcourse includes development, production, and deployment of additional Ground Based Interceptors, enhancements to ground systems hardware and software, Program Management, Systems Engineering and Integration, and improvements to Ground Base Midcourse models and simulations that improve the effectiveness, reliability and capacity of the Homeland missile defense system.

This Program Element also includes support for the Discrimination Improvements for Homeland Defense (DIHD) effort. The goal of this effort is to develop and field an integrated set of Element capabilities to improve BMDS reliability, lethality, and discrimination. The end result will be a deployed future BMDS architecture more capable of discriminating and destroying a reentry vehicle with a high degree of confidence that will improve Warfighter shot doctrine and preserve inventory. This effort will encompass a DIHD Near-Term capability fielding and a DIHD Mid-Term capability fielding.

Cyber Operations sustains the Missile Defense Agency (MDA) Department of Defense (DoD) Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of Plans of Action and Milestones (POA&Ms) for MDA Ground-based Midcourse Defense (GMD) mission systems.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	910.852	1,003.768	1,131.060	-	1,131.060
Current President's Budget	1,064.445	873.923	1,284.891	-	1,284.891
Total Adjustments	153.593	-129.845	153.831	-	153.831
• Congressional General Reductions	-	-0.468			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	50.000			
• Congressional Directed Transfers	-	-179.377			
• Reprogrammings	167.845	-			
• SBIR/STTR Transfer	-14.252	-			
• Other Adjustment	-	-	153.831	-	153.831

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0603882C *I Ballistic Missile Defense Midcourse Defense Segment*

Change Summary Explanation

FY 2014 - Increase due to reprogramming to support CE-II GBI Upgrades, Flight Test Ground-based Midcourse Defense-07 (FTG-07) failure mitigations, GBI Design and Reliability Characterization (D&RC), Stockpile Reliability Program (SRP), and Command Launch Equipment (CLE) Re-architecture Phase 1

FY 2015 - Changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act. Decrease due to transfer of the Ground Based Midcourse Defense Test and Improved Homeland Defense Interceptor efforts to new Program Elements and a Congressional increase for CE-II GBI upgrades, Stockpile Reliability Program (SRP), and Command Launch Equipment (CLE) Re-architecture Phase 1

FY 2016 - MDA increased the funding request for the GMD program for the following content additions:
-After the FTG-07 flight test failure, the Missile Defense Agency commissioned an Independent Expert Panel (IEP) to assess the confidence in reliable Ground Based Interceptors (GBI) through a thorough investigation of the GBI fleet, the identification of any design, manufacturing, quality and acceptance test issues with the as-built GBI configurations with a focus on reliable GBI operation and any changes to the design or manufacturing processes that will provide the most improvements in reliability. The below recommendations are being implemented in the program:
--Implement GBI Design and Reliability Characterization (D&RC) to increase warfighter confidence in reliability of the current fleet, inform the 3-stage upgraded booster avionics production and influence future design of the integrated boost vehicle and Redesigned Kill Vehicle (RKV)
--Expand Stockpile Reliability Program (SRP) with focus on “energetics” and limited life components
--Upgrade fielded CE-II GBIs to the proven Flight Test Ground-based Midcourse Defense-06b (FTG-06b) configuration
--Incorporate new integrated boost vehicle development for integration into operational fleet
--Incorporate robust Ground Systems modernization and tech refresh efforts and on-demand communications
--Initiate acquisition of two additional GBI integrated boost vehicle for support of the Integrated Master Test Plan (IMTP)

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MD08 / *Ground Based Midcourse*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD08: *Ground Based Midcourse*	2,636.202	967.394	812.886	1,225.161	-	1,225.161	888.868	758.909	851.998	859.964	Continuing	Continuing
Quantity of RDT&E Articles	10	1	-	-	-	-	-	-	-	-		

Note

The Ground-based Midcourse Defense (GMD) GMD system became operational to protect the homeland in 2004. Last year the Missile Defense Agency (MDA) commissioned a study to assess the GMD system health and status. As a result of the study and warfighter input, MDA is increasing the FY 2016 budget request. The additional funding will address study findings and improve the overall reliability, performance, producibility, testability, and extend the life and health of this system.

A. Mission Description and Budget Item Justification

The Ground-based Midcourse Defense (GMD) program content is described as follows:

Ground-based Midcourse includes development, production, and deployment of additional Ground Based Interceptors (GBIs), enhancements to Ground Systems hardware and software, Program Management, Systems Engineering and Integration, and improvements to Ground-based Midcourse models and simulations that improve the effectiveness, reliability and capacity of the Homeland missile defense system.

A successful controlled flight test during Control Test Vehicle-01 (CTV-01) and a successful intercept of a threat representative target during Flight Test Ground-based Midcourse Defense-06b (FTG-06b) demonstrated the effectiveness of design changes that remedied failures experienced in three previous flight tests. GMD will incorporate these configuration changes in new FY 2015 CE-II interceptors and deliver them to the operational fleet by end of FY 2016. GMD will complete development of alternate thrusters for the Divert and Attitude Control System (DACS) and will test the improved DACS as part of the non-intercept CTV-02+ Flight Test in first quarter FY 2016. GMD will complete modifications to address near term obsolescence and improve avionics performance of the integrated boost vehicle. GMD will integrate these modifications into a CE-II Block 1 configuration. Following a successful intercept test in 4th quarter FY 2016, GMD will deliver nine CE-II Block 1 interceptors to the operational fleet by the end of calendar year (CY) 2017, achieving a total of 44 operationally deployed GBIs.

GMD plans to confirm and improve the reliability of GBIs by instituting a Configuration 2 (C2) Booster Reliability Demonstration Testing Program, and expanding the Stockpile Reliability Program (SRP). GMD will conduct flight and ground tests, analyze performance trends, and identify reliability improvements for GBI component hardware. Testing of deployed GBIs will demonstrate current reliability while companion SRP efforts on assemblies and components ensure that ongoing fleet upgrades are effective.

GMD will complete the refurbishment, upgrade, blast shielding, and High Altitude Electromagnetic Pulse (HEMP) hardening of Missile Field 1 at Fort Greeley, Alaska. GMD will continue improvements to the GMD Ground System hardware and software to improve system performance and reliability. GMD will complete testing and field Ground Fire Control (GFC) 6B2.2 in FY 2015. GMD will continue development of GFC 6B3, testing in FY 2015 and fielding in FY 2016. GFC 6B3 will provide enhanced utilization of BMDS sensors and provide additional discrimination data to interceptors in flight. GMD will develop and deliver an equipment refresh and upgrades

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

to the Command and Launch Equipment that will improve system reliability and reduce operating costs. GMD will also deliver and integrate an In-Flight Interceptor Communications System (IFICS) at Fort Drum NY during FY 2016.

GMD will perform systems engineering and complete requirements verification for the delivered system. GMD will conduct Independent Verification and Validation (IV&V) of GMD Interceptor and Ground System software. GMD will update Modeling and Simulation Tools with new system configurations and conduct IV&V of GMD models.

The Discrimination Improvements for Homeland Defense (DIHD) effort will develop and field integrated Element capabilities to improve BMD System ability to identify lethal and non-lethal objects. Ground-based Midcourse Defense will improve the Exoatmospheric Kill Vehicle (EKV) usage of off-board sensor discrimination data, update the EKV onboard discrimination capability, improve GMD Fire Control system (GFC) salvo management, and conduct element and system level testing to support Near, Mid, and Far-term phases.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Ground Based Interceptor	646.190	-	-
Articles:	1	-	-

Description: Ground-based Midcourse Defense (GMD) will complete the delivery of Capability Enhancement II (CE-II) Ground Based Interceptors (GBIs) (34-44) and the delivery of eight CE-II GBIs upgraded with Flight Test Ground-based Midcourse Defense-06a (FTG-06a) fixes successfully tested during Flight Test Ground-based Midcourse Defense-06b (FTG-06b). GMD will continue the manufacture of CE-II Block 1 GBIs (48-58) and deliver the Flight Test Interceptor required to support their fielding. The CE-II Block 1 GBIs will include the new Configuration 2 Integrated Boost Vehicle. Additionally, the CE-II block 1 kill vehicle will have the FTG-06a kill vehicle fixes plus Alternate Divert Thrusters and electrical improvements. The GBI program supports defense of the Homeland by manufacturing both flight test and operational interceptors to demonstrate performance. To aid in the accomplishment of this mission, the GBI program provides developmental assets through conversion of older fielded GBIs to Flight Test configuration to support the Integrated Master Test Plan (IMTP). Available GBI components are being used in the collection of reliability and aging data as part of the Stockpile Reliability Program (SRP).

FY 2014 Accomplishments:
-Completed CE-II intercept flight test (FTG-06b) successfully which resulted in the restart of manufacturing for the remaining Capability Enhancement II (CE-II) Ground Based Interceptors (GBI) (GBIs 34-44)
-Continued acquisition of remaining CE-II (Legacy) Ground Based Interceptors (GBIs 34-44)
-Continued GBI Fleet Upgrade program to include upgrade of fielded CE-II GBIs to the proven FTG-06b configuration
-Continued acquisition of CE-II Configuration 2 (C2) integrated boost vehicle with Consolidated Booster Avionics Upgrade (CBAU) and CE-II Block I Exoatmospheric Kill Vehicles (EKV)) GBIs 48-58 to support both operations and testing, including a flight test to demonstrate the capability of the CE-II Block 1 EKV with C2 CBAU booster GBIs
-Continued GBI Software Builds and Sustainment to support operational and flight test objectives

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continued development and testing of EKV design modifications to mitigate the FTG-07 flight test failure -Completed EKV Divert and Attitude Control System (DACS) Alternate Thruster design to increase GBI reliability -Initiated kill vehicle concepts and requirements development in association with the Redesigned Kill Vehicle (RKV) -Continued flight test rotation program of fielded GBIs to support the Integrated Master Test Plan (IMTP) requirements and the Component Reliability Program -Continued Upgrades and Limited Life Item Hardware purchases that will be used to upgrade the fielded GBIs -Developed the probabilistic risk assessment model to characterize the reliability of the GBI fleet -Conducted aging and surveillance testing on a GBI removed from the fleet -Continued to collect Reliability, Availability, Maintainability and Test (RAM-T) data and calculate and track performance metrics on the Operational System -Continued Exoatmospheric Kill Vehicle (EKV) Divert and Attitude Control System (DACS) Alternate Divert Thruster Design Verification Testing (DVT) and Qualification testing -Continued development of the capability for the EKV to utilize sensor inputs in support of near and mid-term Discrimination Improvements for Homeland Defense (DIHD) -Completed development of ground test campaign requirements for DIHD Near-term improvements ***FY 2015 Plans:*** -This accomplishment is broken into 3 new accomplishments starting in FY 2015: Ground Based Interceptor Development, Ground Based Interceptor Manufacturing, and Ground Based Interceptor Reliability ***FY 2016 Plans:*** -This accomplishment is broken into 3 new accomplishments starting in FY 2015: Ground Based Interceptor Development, Ground Based Interceptor Manufacturing, and Ground Based Interceptor Reliability			
Title: Ground Based Interceptor Development	-	112.493	104.364
Articles:	-	-	-
Description: The Ground Based Interceptor (GBI) Program will continue to develop improvements to ensure that GBIs improve reliability, counter emerging threats, eliminate obsolescence and incorporate available technologies. ***FY 2014 Accomplishments:*** -Located in Ground Based Interceptor accomplishment ***FY 2015 Plans:*** -Continue flight test rotation program of fielded GBIs to support the Integrated Master Test Plan (IMTP) requirements			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Initiate development of new integrated boost vehicle configuration that incorporates enhanced lightning protection, power transient protection, survivability enhancements, two-way communication enhancements, kill assessment enhancements, and 2-stage mode capability for integration into operational fleet -Develop, test and field a near term discrimination (NTD) capability Exoatmospheric Kill Vehicle (EKV) software -Complete Discrimination Improvements for Homeland Defense (DIHD) Near-term capability developments -Complete integration phase of DIHD Near-term ground testing via Ground Test Integrated-06 (GTI-06) -Complete Exoatmospheric Kill Vehicle (EKV) Divert and Attitude Control System (DACS) Alternate Divert Thruster design qualification to increase GBI reliability and initiate production -Incorporate Flight Test Ground-based Midcourse Defense-07 (FTG-07) flight test failure mitigations into the CE-II Block 1 design and into the fielded CE-I GBIs ***FY 2016 Plans:*** -Decrease from FY 2015 to FY 2016 due to completion of FTG-07 mitigations and Divert and Attitude Control System (DACS) Alternate Divert Thruster design. -Conduct flight test utilizing Exoatmospheric Kill Vehicle (EKV) Divert and Attitude Control System (DACS) Alternate Divert Thruster -Conduct flight test utilizing CE-II Block 1 EKV with Configuration 2 (C2) integrated boost vehicle. -Continue flight test rotation program of fielded GBIs to support the Integrated Master Test Plan (IMTP) requirements -Continue development of new integrated boost vehicle configuration that incorporates enhanced lightning protection, power transient protection, survivability enhancements, two-way communication enhancements, kill assessment enhancements, and 2-stage mode capability for integration into operational fleet -Field Discrimination Improvements for Homeland Defense (DIHD) Near-term capability			
Title: Ground Based Interceptor Manufacturing	-	286.216	362.216
Articles:	-	-	-
Description: The Ground Based Interceptor (GBI) Program will continue to manufacture GBIs to support the SECDEF mandate of 44 fielded GBIs by 2017. ***FY 2014 Accomplishments:*** -Located in Ground Based Interceptor accomplishment ***FY 2015 Plans:*** -Continue acquisition of remaining CE-II (Legacy) Ground Based Interceptors (GBIs 34-44)			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continue acquisition of CE-II Configuration 2 (C2) integrated boost vehicle with Consolidated Booster Avionics Upgrade (CBAU) and CE-II Block I Exoatmospheric Kill Vehicles (EKV) Ground Based Interceptors (GBIs 48-58) to support both operations and testing, including a flight test to demonstrate the capability of the CE-II Block 1 with C2 CBAU booster GBIs ***FY 2016 Plans:*** -Increase from FY 2015 to FY 2016 due to acquisition of two additional boosters for flight testing and additional GBI manufacturing costs. -Complete integration and delivery of remaining CE-II (Legacy) Ground Based Interceptors (GBIs) (34-44) -Initiate acquisition of two additional boosters for support of the Integrated Master Test Plan (IMTP) -Continue manufacturing of CE-II Configuration 2 (C2) integrated boost vehicle with Consolidated Booster Avionics Upgrade (CBAU) and CE-II Block I Exoatmospheric Kill Vehicles (EKV) Ground Based Interceptors (GBIs 48-58) to support both operations and testing, including a flight test to demonstrate the capability of the CE-II Block 1 with C2 CBAU booster GBIs			
Title: Ground Based Interceptor Reliability	-	41.594	239.669
Articles:	-	-	-
Description: The GBI reliability program is the analysis and testing necessary to characterize the reliability and service life of the GBI Fleet. The data generated from the reliability program is used by the Program Office to manage the GBI fleet, develop design improvements, develop fleet maintenance strategies, and to extend service life. The data is also used by MDA engineering in developing battle simulations for the ground test program; and by the Warfighter in developing tactics, techniques, and procedures. ***FY 2014 Accomplishments:*** -Located in Ground Based Interceptor accomplishment ***FY 2015 Plans:*** -Continue Ground Based Interceptor (GBI) Fleet Upgrade program to include upgrade of the fielded Capability Enhancement II (CE-II) GBIs to the proven Flight Test Ground-based Midcourse Defense-06b (FTG-06b) configuration -Continue development of the probabilistic risk assessment model to characterize the reliability of the GBI fleet -Develop a GBI system level Failure Modes, Effects and Criticality Analysis (FMECA) using the probabilistic risk assessment model -Conduct rocket motor static firings to gain performance data on aged motors -Perform a process failure modes and effects analysis on GBI production -Continue to conduct aging, surveillance, and reverse flow testing on the Stockpile Reliability Program (SRP) GBIs removed from the fleet			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Evaluate Acceptance Test Procedure strategy and test levels for each GBI configuration -Continue to collect Reliability, Availability, Maintainability and Test (RAM-T) data and calculate and track performance metrics on the Operational System -Develop an All-Up Round (AUR) acquisition strategy that incorporates integrated boost vehicle improvements and the Redesigned Kill Vehicle (RKV)			
FY 2016 Plans: Increase from FY 2015 to FY 2016 due to: Upgrades to fielded CE-II GBIs to the proven Flight Test Ground-based Midcourse Defense-06b (FTG-06b) configuration, Enhanced Stockpile Reliability Program (SRP); Interceptor Rotations for BMDS Testing; Implementation of Independent Expert Panel recommendation for a rigorous GBI Design and Reliability Characterization (D&RC) program; GBI All-Up Round (AUR) system design, engineering, and component testing. -Complete upgrade and delivery of the fielded CE-II GBIs -Continue to collect Reliability, Availability, Maintainability and Test (RAM-T) data and calculate and track performance metrics on the Operational System -Continue the Reliability and Systems Engineering (RSE) and the GBI Design and Reliability Characterization (D&RC) program that includes: --Design upgrades studies, Booster Avionics Module (BAM) level qualification testing and power on re-set trade study to address known flight test anomalies --Continue Configuration 2 (C2) Booster Reliability Demonstration Testing, electromagnetic interference/compatibility testing to quantify system performance and capability --Establish GBI All-Up Round (AUR) system-level Failure Modes, Effects and Criticality Analysis. Evaluate Acceptance Test Procedure strategy and test levels for each GBI AUR configuration. Continue Probabilistic Risk Assessment (reliability model) development to help prioritize future engineering efforts --Establish AUR physical design schematics & electrical grounding control plans. Conduct key engineering assessments including integrated sneak circuit analyses, Worst Case Circuit Analysis, and electrical / thermal derating analyses to document current performance/capability and identify potential risk areas -Initiate functional testing of naturally aged GBI subsystems and components removed during upgrade/modification to understand performance and aging characteristics in order to establish life limits -Initiate and maintain electronic As-Built/As-Fielded GBI configuration database for real-time access to GBI configuration data across the production and maintenance organization -Continue rocket motor static firings and initiate motor dissections			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Conduct reliability demonstration testing and initiate highly accelerated life testing on a Stockpile Reliability Program (SRP) GBI removed from the fleet			
Title: Systems Engineering and Program Management	152.027	148.892	216.219
Articles:	-	-	-
Description: Ground-based Midcourse Defense (GMD) Systems Engineering and Program Management provide essential services for the development and fielding of the GMD hardware and software and Industry Program Management operations. Included in this effort are concept definition, requirements and interfaces, system design, integration, test planning and verification efforts. Key products are development and maintenance of the technical baseline and critical engineering processes for implementation and delivery of an integrated GMD element capability. Program Management provides for prime contractor management of the GMD program. Included in this effort is program and business management, program administration, technical and testing oversight, verification of hardware and software development, quality/safety/mission assurance, integrated logistics support, and infrastructure to develop, test and sustain the GMD system and components.			
FY 2014 Accomplishments: -Redefined GMD threat space from single threat system to multiple threat system and performed systems engineering activities to increase performance -Continued requirements development, engineering analysis, capability integration, and performance verification for GMD development and BMDS integration -Continued effort to assess the current GMD capabilities against the evolving threat -Continued modeling and simulation development and integration to assess component and system performance in support of annual technical assessments -Continued the development of modeling and simulation wrapped tactical code to reduce the life cycle cost and increase the fidelity of the results, and initiated the code integration into a single BMDS framework to facilitate the interoperability between BMDS elements -Continued modeling and simulation verification and validation to establish high confidence in Warfighter assessments -Supported Component Requirements Reviews and Preliminary Design Reviews (PDR) for the GMD contribution to the BMDS Enhanced Homeland Defense including the Ground System Fire Control and Communications software development and GBI hardware (e.g., CE-II Block 1) and software capabilities development to ensure delivery of a successful capability -Continued design, planning, pre- and post-flight test analysis for current and future flight and ground tests to assess system performance and implemented a rigorous test plan for verifying successful operation of capabilities delivered to the Warfighter			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Utilized Exoatmospheric Kill Vehicle (EKV) HWIL 10-foot vacuum space chamber (10V Chamber) for operational analysis of emerging threats and Pre-Mission Testing and Post Flight analysis and reconstruction in accordance with the Integrated Master Test Plan (IMTP) to reduce execution risks from additional data and gaining confidence that capabilities performed as expected -Provided contractor program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight to ensure program meets all cost, schedule, and performance requirements -Initiated development, testing and fielding a near term discrimination (NTD) capability through GMD Fire Control system (GFC)and Exoatmospheric Kill Vehicle (EKV) software -Developed the capability for GFC and EKV to utilize sensor inputs in support of Discrimination Improvements for Homeland Defense (DIHD) Near-Term capability -Completed development of ground test campaign requirements for DIHD Near-Term improvements -Conducted data collection and analysis for final assessment of discrimination technology candidates planned for DIHD Mid-term improvements -Initiated the purchase and installation of the additional hardware to represent current and future capabilities at existing GMD Models & Simulations venues (Integrated System Test Capability lab, Boeing GMD Simulation Lab, and AMRDEC Labs) in testing and performance assessments			
FY 2015 Plans: -Continue requirements development, engineering analysis, capability integration, and performance verification for GMD development and BMDS integration -Continue effort to assess the current GMD capabilities against the evolving threat -Continue modeling and simulation development and integration to assess component and system performance in support of annual technical assessments -Continue the development of modeling and simulation wrapped tactical code to reduce the life cycle cost and increase the fidelity of the results, and initiate the code integration into a single BMDS framework to facilitate the interoperability between BMDS elements -Continue modeling and simulation verification and validation to establish high confidence in Warfighter assessments -Support Component Requirements Reviews and Preliminary Design Reviews (PDR) for the GMD contribution to the BMDS Enhanced Homeland Defense including the Ground System Fire Control and Communications software development and GBI hardware (e.g., CE-II Block 1) and software capabilities development to ensure delivery of a successful capability -Continue design, planning, pre- and post-flight test analysis for current and future flight and ground tests to assess system performance and implement a rigorous test plan for verifying successful operation of capabilities delivered to the Warfighter -Utilize Exoatmospheric Kill Vehicle (EKV) HWIL 10-foot vacuum space chamber (10V Chamber) for operational analysis of emerging threats and Pre-Mission Testing and Post Flight analysis and reconstruction in accordance with the Integrated Master Test Plan (IMTP) to reduce execution risks from additional data and gaining confidence that capabilities performed as expected			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Provide contractor program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight to ensure program meets all cost, schedule, and performance requirements -Continue development, testing and fielding a near term discrimination (NTD) capability through GMD Fire Control system (GFC) and Exoatmospheric Kill Vehicle (EKV) software -Continue Discrimination Improvements for Homeland Defense (DIHD) Near-Term capability developments -Continue integration phase of DIHD Near-Term ground testing via Ground Test Integrated-06 (GTI-06)			
FY 2016 Plans: -Increase from FY 2015 to FY 2016 due to: Acquisition of spare parts to minimize testing downtime in EKV Hardware-In-The-Loop (HWIL) Space Chamber; Enhanced Modeling and Simulation (M&S) capabilities with integration of the new wrapped tactical code; Upgrade and integrate GMD-level digital simulation (GMDSim)into Objective Simulation Framework (OSF); Initiate rigorous Independent verification and validation (IV&V) and system engineering analysis of GMD software to increase Warfighter confidence in the tactical system performance and reliability; Incorporate Independent Expert Panel recommendations to improve Systems Engineering processes that will increase system reliability and decrease late failure discovery/redesign. -Continue requirements development, engineering analysis, capability integration, and performance verification for GMD development and BMDS integration -Continue effort to assess the current GMD capabilities against the evolving threat -Continue modeling and simulation development and integration to assess component and system performance in support of annual technical assessments -Continue the development of modeling and simulation wrapped tactical code to reduce the life cycle cost and increase the fidelity of the results and integrate GMD-level digital simulation (GMDSim) into the new Object Simulation Framework (OSF) -Continue modeling and simulation verification, validation, and accreditation (VV&A) to establish high confidence in Warfighter assessments -Continue design, planning, pre- and post-flight test analysis for current and future flight and ground tests to assess system performance and implement a rigorous test plan for verifying successful operation of capabilities delivered to the Warfighter -Utilize Exoatmospheric Kill Vehicle (EKV) Hardware in the loop (HWIL) 10-foot vacuum space chamber (10V Chamber) for operational analysis of emerging threats and Pre-Mission Testing and Post Flight analysis and reconstruction in accordance with the Integrated Master Test Plan (IMTP) to reduce execution risks from additional data and gaining confidence that capabilities performed as expected -Provide contractor program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight to ensure program meets all cost, schedule, and performance requirements -Field Discrimination Improvements for Homeland Defense (DIHD) Near-term capability -Complete DIHD Near-term ground testing via ground test distributed (GTD-06)			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Initiate top-down and bottoms-up requirements audit to include: functional decomposition / traceability, bottoms-up verification sufficiency audit, and establish detailed performance requirement error budgets and allocations to ensure complete understanding of system capability and potential gaps -Initiate a rigorous independent verification and validation (IV&V) and system engineering analysis of GMD software to increase Warfighter confidence in the tactical system performance and reliability			
Title: Program Operations	93.281	109.655	136.641
Articles:	-	-	-
Description: Program Operations provides for government management of the Ground-based Midcourse Defense (GMD) program. Included in this effort is program and business management, program administration, technical and testing oversight, verification of hardware and software development, quality / safety / mission assurance, integrated logistics support, and government manpower and infrastructure to develop, test and sustain the GMD system and components.			
FY 2014 Accomplishments: -Provided technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities, to the Program Director with critical program status and decision quality data -Ensured Ground-based Midcourse Defense (GMD) program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process -Conducted internal Baseline Execution Reviews (BER) to measure program progress against the six Missile Defense Agency (MDA) approved baselines -Continued a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs -Provided Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability to ensure high quality products are delivered to the Warfighter			
FY 2015 Plans: -Provide technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities, to the Program Director with critical program status and decision quality data -Ensure Ground-based Midcourse Defense (GMD) program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process -Conduct internal Baseline Execution Reviews (BER) to measure program progress against the six Missile Defense Agency (MDA) approved baselines			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continue a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs -Provide Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability to ensure high quality products are delivered to the Warfighter -Establish Technical Direction Agent activities to provide the technical expertise and program execution experience required to offer the GMD Program Director independent assessment/analysis, unbiased and objective defensive weapon system level-oriented advice on technical issues and product development, and providing recommendations on technical issues and product development challenges facing the GMD Program			
FY 2016 Plans: -Increase from FY 2015 to FY2016 due to: Incorporation of Independent Expert Panel recommendation for a Technical Direction Agent to provide independent analysis/assessments of GMD system; Core information technology and communications services; and MDA is budgeting for the Congressionally mandated Small Business Innovation Research / Small Business Technology Transfer (SBIR/STTR). -Provide technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities, to the Program Director with critical program status and decision quality data -Ensure Ground-based Midcourse Defense (GMD) program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process -Conduct internal Baseline Execution Reviews (BER) to measure program progress against the six Missile Defense Agency (MDA) approved baselines -Continue a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety in all phases of the system life cycle, throughout the supply chain and at all levels of assembly emphasizing high yield rates which minimize test and rework costs -Provide Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability to ensure high quality products are delivered to the Warfighter -Continue sustainment of core information technology data and unified communications services to accomplish research and development activities. -Continue Technical Direction Agent activities to provide the technical expertise and program execution experience required to offer the GMD Program Director independent assessment/analysis, unbiased and objective defensive weapon system level-			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
oriented advice on technical issues and product development, and providing recommendations on technical issues and product development challenges facing in the GMD Program			
Title: Ground Systems	75.896	114.036	166.052
Articles:	-	-	-
Description: The Ground-based Midcourse Defense (GMD) Ground Systems enable control and operation of the GMD Element as part of the Ballistic Missile Defense System (BMDS). Ground Systems consists of the GMD Fire Control system, GMD Communications Network, In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT), Launch Site Components (LSC) (silos, silo interface vaults [SIVs]), and Launch Support Systems (LSS) (Command and Launch Equipment (CLE), which includes Launch Support Equipment (LSE).			
FY 2014 Accomplishments: -Delivered Ground Systems suite 6B2 to integrate the Clear, AK and Cape Cod, MA UEWR and Ft. Drum, NY IDT assets, support Space-Based Infrared System (SBIRS) interface changes, incorporate evolving threats, Warfighter requirements, and BMDS element interoperability associated changes -Continued Ground Systems suite 6B3 software development to include Near-Term Discrimination (NTD) capability, and design and develop Discrimination Improvements for Homeland Defense (DIHD) near term discrimination capability, including limited Reliability/Obsolescence/Technology Refresh of the Ground System hardware -Continued integration efforts for an In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT) at Fort Drum, NY that will increase system performance in specific engagement scenarios -Initiated the Ground Systems Technology Refresh for limited IDT components and GFC Workstations which provides upgrades to the Ground Systems components by reducing life cycle costs and ensuring sustainability -Initiated the Command Launch Equipment (CLE) Re-architecture Phase 1 to mitigate obsolescence, and increase reliability, sustainability, and availability of the CLE with added failover capability -Initiated the refurbishment, upgrade, blast shielding, and High Altitude Electromagnetic Pulse (HEMP) hardening of Missile Field 1 at Fort Greely, Alaska -Continue development of Command Launch Equipment (CLE) software and hardware to interface with the new tactical 3 Stage Configuration 2 (C2) (CBAU) Ground-Based Interceptor (GBI) -Continued upgrade of Telemetry and other Non-Tactical Equipment (NTE) at the Vandenberg AFB Launch Control Center (LCC) -Initiated the CONUS Interceptor Site (CIS) environmental impact statements			
FY 2015 Plans: -Complete Discrimination Improvements for Homeland Defense (DIHD) Near-Term capability developments -Initiate testing Ground Systems suite 6B3 software upgrade for Near-Term Discrimination (NTD) capability, and DIHD near term discrimination capability, including limited Reliability/Obsolescence/Technology Refresh of the Ground System hardware			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Complete integration phase of DIHD Near-Term ground testing via Ground Test Integrated-06 (GTI-06) -Continue integration efforts for an In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT) at Fort Drum, NY that will increase system performance in specific engagement scenarios -Continue the Ground Systems Technology Refresh for limited IDT components and GFC Workstations which provides upgrades to the Ground Systems components by reducing life cycle costs and ensuring sustainability -Continue the refurbishment, upgrade, blast shielding, and High Altitude Electromagnetic Pulse (HEMP) hardening of Missile Field 1 at Fort Greely, Alaska -Continue design and development of Command Launch Equipment (CLE) software 6B3.1 and hardware to interface with the new tactical 3 Stage Configuration 2 (C2) (CBAU) Ground-Based Interceptor (GBI) -Initiate design and development for Ground Systems suite 7A to integrate limited IDT component upgrades, and CLE/GFC Re-architecture Phase I, and interface with C2BMC build 8.2. -Initiate design and development efforts for Ground Systems suite 7B upgrade for DIHD Mid-Term discrimination capability -Continue the Command Launch Equipment (CLE)/GFC Re-architecture Phase 1 to mitigate obsolescence, and increase reliability, sustainability, and availability of the CLE with added failover capability			
FY 2016 Plans: -Increase from FY 2015 to FY 2016 due to: Initiation of On-Demand Communications capability for improved Redesigned Kill Vehicle (RKV) systems discrimination data, directed engagements and hit assessments and Continuation of Command Launch Equipment (CLE) Re-architecture Phase 1 to mitigate obsolescence and increase reliability, sustainability, and failover capability. -Field Ground Systems suite 6B3 software upgrade for Near-Term Discrimination (NTD) capability, and DIHD near-term discrimination capability, including limited Reliability/Obsolescence/Technology Refresh of the Ground System hardware to the Warfighter -Continue design and development for Ground Systems suite 7A to integrate limited IDT component upgrades, and CLE/GFC Re-architecture Phase I, and interface with C2BMC build 8.2. -Continue Ground Systems suite 7B upgrades for mid-term DIHD to provide data aggregation, update salvo-logic, midterm threat set, 2-stage interceptor capability, on-demand communications supporting Redesigned Kill Vehicle capabilities (RKV), and integration of BMDS Overhead Persistent Infra-red (OPIR) architecture sensor assets into the GMD configuration - Continue Technology Refresh to address obsolescence issues to support improved availability, reliability, sustainability, and Cybersecurity posture -Complete integration efforts for an In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT) at Fort Drum, NY to provide increased system performance in specific engagement scenarios -Complete the refurbishment, upgrade, blast shielding, and High Altitude Electromagnetic Pulse (HEMP) hardening of Missile Field 1 at Fort Greely, Alaska			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continue the Command Launch Equipment (CLE)/GFC Re-architecture Phase 1 to mitigate obsolescence, and increase reliability, sustainability, and availability of the CLE with added failover capability			
Accomplishments/Planned Programs Subtotals	967.394	812.886	1,225.161

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603294C: *Common Kill Vehicle Technology*	67.796	25.639	46.753	-	46.753	75.262	71.476	86.814	99.701	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing
• 0604873C: *Long Range Discrimination Radar (LRDR)*	-	50.500	137.564	-	137.564	154.327	147.562	132.905	77.679	Continuing	Continuing
• 0604874C: *Improved Homeland Defense (HLD) Interceptors*	-	99.500	278.944	-	278.944	279.565	71.663	14.004	14.251	Continuing	Continuing
• 0604887C: *Ballistic Missile Defense Midcourse Defense Segment Test*	-	79.877	64.618	-	64.618	73.485	81.385	73.848	94.954	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Ground-based Midcourse Defense (GMD) program will continue to follow testing, development, and evolutionary acquisition through incremental development. The Agency acquisition strategy ensures that the GMD components are upgraded to improve both All-Up System (AUS) performance and All-Up Round (AUR) performance in order to retain the proven GMD contribution to the Integrated Ballistic Missile Defense System (BMDS). This acquisition approach reduces obsolescence risk, provides opportunities for incremental capability improvements, and allows decision makers to make informed trades between cost, schedule, and performance while exploring improved operational and technological capabilities.

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GMD awarded a competitive Development and Sustainment Contract (DSC) on December 30, 2011. This contract continues development, fielding, test, systems engineering, integration, and configuration management; equipment manufacturing and upgrade; training, operations and sustainment of the GMD system and associated support facilities. The DSC emphasizes the application of performance-based tenets to provide timely high quality support of the core GMD system while reducing life cycle and long-term ownership costs. GMD's acquisition strategy for transition of the legacy content into the DSC provides uninterrupted field operations; development of both Ground Systems and Interceptor (GBI) products, including manufacturing additional interceptors to support both operations and testing and the requirement to demonstrate war fighting capability through a rigorous ground and flight test program.

E. Performance Metrics

N/A

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Based Interceptor - Component Lab Testing	MIPR	NASA : WSTF/NM	0.000	0.906		-		-		-		-	-	0.906	-
Ground Based Interceptor - Currently Fielded CE-II Upgrades	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	78.170		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - FTG-07 Mitigations	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	70.985		-		-		-		-	-	70.985	-
Ground Based Interceptor - GBI Prime Product Support	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	1.072	42.335		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Interceptor Manufacturing Support	MIPR	NASA MSFC& AMRDEC, HSV, AL : Draper Laboratory, MA; Vanguard, HSV, AL	1.008	0.060		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Kill Vehicle Concepts & Requirements Development	C/CPFF	Boeing, AL/ Raytheon : AL/ Lockheed Martin, AL	0.000	8.595		-		-		-		-	-	8.595	-
Ground Based Interceptor - Prime Alternate Thruster Program	SS/CPAF	Boeing AL/AK/AZ : CA/CO/TX/VA	67.977	31.524		-		-		-		-	-	99.501	-
Ground Based Interceptor - Prime Component Lab Testing	C/CPIF	Boeing AL/AK/AZ/ CA : CO/TX/VA	59.379	0.669		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime Ground Based Interceptors 34-44	SS/CPAF	Boeing AL/AK/AZ : CA/CO/TX/VA	748.680	166.379		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime Ground Based Interceptors 48-58	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	88.003	124.627		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime New Interceptor Development (CBAU)	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	138.807	29.244		-		-		-		-	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Based Interceptor - Prime Reliability Program	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	40.906	25.176		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime Software Maintenance & Updates	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	21.884	19.049		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime Upgrades & Operational Spares	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	138.758	19.845		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Reliability Program	MIPR	AMRDEC / Redstone Arsenal, AL : NSWC Crane, Indiana	1.088	4.048		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Rotations for Ballistic Missile Defense System Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	245.810	20.825		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Upgrades for BMDS Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	1.124	3.753		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Prime Alternate Thruster Program	SS/CPAF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		38.746		24.798		-		24.798	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Component Lab Testing	MIPR	NASA : WSTF/NM	0.000	-		1.359		-		-		-	-	1.359	-
Ground Based Interceptor Development - FTG-07 Mitigations	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		10.685		-		-		-	-	10.685	-
Ground Based Interceptor Development - GBI Functional Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		-		6.732		-		6.732	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Prime	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		27.900		51.200		-		51.200	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
2 Stage Mode Booster Development															
Ground Based Interceptor Development - Prime Component Lab Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		1.136		2.177		-		2.177	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Prime New Interceptor Development (CBAU)	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		10.613		1.819		-		1.819	-	12.432	-
Ground Based Interceptor Development - Prime Software Maintenance & Updates	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		10.013		9.127		-		9.127	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Rotations for Ballistic Missile Defense System Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		11.784		8.421		-		8.421	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Upgrades for BMDS Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		0.257		0.090		-		0.090	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - 2 Additional Boosters for Flight Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		-		41.400		-		41.400	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - GBI Prime Product Support	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		46.028		48.464		-		48.464	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Interceptor Manufacturing Support	MIPR	NASA MSFC& AMRDEC, HSV, AL : Draper Laboratory, MA; Vanguard, HSV, AL	0.000	-		3.260		3.595		-		3.595	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Prime	C/CPAF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		74.500		86.407		-		86.407	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Based Interceptors 34-44															
Ground Based Interceptor Manufacturing - Prime Ground Based Interceptors 48-58	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		156.928		171.225		-		171.225	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Prime Reliability & Systems Engineering Program	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		5.500		11.125		-		11.125	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - CBAU 2/3 Stage Design Robustness	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		-		21.866		-		21.866	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - CBAU 2/3 Stage Reliability Demonstration Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		-		37.480		-		37.480	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Configuration Database	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		-		3.493		-		3.493	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Currently Fielded CE-II Upgrades	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		14.070		128.535		-		128.535	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Prime Reliability Program	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		18.470		33.983		-		33.983	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Prime Upgrades & Operational Spares	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		2.000		6.814		-		6.814	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Reliability Program	MIPR	AMRDEC / Redstone Arsenal, AL : NSWC Crane, IN	0.000	-		7.054		7.498		-		7.498	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Systems - CLE Re-Architecture	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	3.177		9.032		24.100		-		24.100	Continuing	Continuing	Continuing
Ground Systems - CONUS Interceptor Site Environmental Impact Statements	MIPR	Various : AL/VA	3.327	10.000		-		-		-		-	-	13.327	-
Ground Systems - Communications Infrastructure	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	1.726		0.643		2.211		-		2.211	Continuing	Continuing	Continuing
Ground Systems - Fort Drum IDT	MIPR	MDA/AL : /VA/NY	0.093	0.282		0.496		0.496		-		0.496	Continuing	Continuing	Continuing
Ground Systems - HW/SW Updates for 2/3 Stage GBI	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	-		-		10.700		-		10.700	Continuing	Continuing	Continuing
Ground Systems - On Demand Communications	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	-		-		34.850		-		34.850	Continuing	Continuing	Continuing
Ground Systems - Prime Fort Drum IDT	C/CPIF	Boeing AL : CO/NY/ VA	5.365	0.965		3.813		-		-		-	-	10.143	-
Ground Systems - Prime Ground Systems Software Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	140.932	52.076		59.670		56.916		-		56.916	Continuing	Continuing	Continuing
Ground Systems - Prime MF-1 Repair and Refurbishment	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	0.271		28.417		22.011		-		22.011	Continuing	Continuing	Continuing
Ground Systems - Technology Refresh	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	4.620		11.965		9.943		-		9.943	Continuing	Continuing	Continuing
Ground Systems - Upgrades for BMDS Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	1.444	2.779		-		4.825		-		4.825	Continuing	Continuing	Continuing
		Subtotal	1,705.657	722.086		554.339		872.301		-		872.301	-	-	-

Remarks

Ground Based Interceptor accomplishment is broken into 3 new accomplishments starting in FY 2015: Ground Based Interceptor Development, Ground Based Interceptor Manufacturing, and Ground Based Interceptor Reliability

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering and Program Management - EKV HWIL Tests in Space Chamber	MIPR	AEDC : Tullahoma, TN	4.475	4.988		5.000		11.204		-		11.204	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Model & Simulations Support	MIPR	Various : AL/VA	0.000	11.603		9.875		10.237		-		10.237	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Modeling and Simulation	MIPR	SED and Morrow Labs : Redstone Arsenal/AL	16.113	13.181		14.625		36.900		-		36.900	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime EKV HWIL Tests in Space Chamber	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	61.223	2.349		2.376		2.220		-		2.220	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime Modeling and Simulation	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	119.939	15.248		19.578		20.769		-		20.769	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime Requirements Assessments Verification	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		0.618		24.418		-		24.418	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime System Engineering and Integration	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	230.006	33.032		33.996		36.320		-		36.320	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime-Program Management	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	26.347	56.926		52.089		53.955		-		53.955	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis	MIPR	Various : AL/VA	0.000	9.607		6.945		6.940		-		6.940	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering and Program Management - Systems Engineering & Analysis - CSS Support	C/CPFF	CSC : AL	0.000	-		-		5.092		-		5.092	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis – FFRDC / UARC	MIPR	Various : AL/VA	0.000	-		0.583		1.205		-		1.205	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis – Industry Support	C/CPAF	Boeing : AL	0.000	5.093		3.207		6.959		-		6.959	Continuing	Continuing	Continuing
Program Operations - Contract Support Services	C/CPFF	Various : AL/AK/CA/CO/VA	272.501	47.244		45.440		43.611		-		43.611	Continuing	Continuing	Continuing
Program Operations - FFRDC Support	MIPR	MIT/LL : AL/VA/CO	27.743	8.676		10.436		8.630		-		8.630	Continuing	Continuing	Continuing
Program Operations - Government Civilian Salaries	MIPR	MDA : AL/VA	142.450	30.271		31.144		31.918		-		31.918	Continuing	Continuing	Continuing
Program Operations - Government Furnished Equipment	MIPR	MDA : AL/AK/CA/VA	0.000	-		2.645		5.382		-		5.382	Continuing	Continuing	Continuing
Program Operations - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	-		-		13.513		-		13.513	Continuing	Continuing	Continuing
Program Operations - Misc Software/BB/PCS	MIPR	MDA : AL/CA/VA/CO/AK	1.312	0.783		0.394		0.335		-		0.335	Continuing	Continuing	Continuing
Program Operations - Other Govt Agencies	MIPR	Various : AL/VA/FL/CO	24.783	4.862		4.864		4.973		-		4.973	Continuing	Continuing	Continuing
Program Operations - Safety and Quality	MIPR	MDA : AL/AK/CA/VA	0.390	0.050		0.073		0.048		-		0.048	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MD08 / *Ground Based Midcourse*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Operations - Small Business Innovation Research (SBIR)	MIPR	MDA : AL/VA	0.000	-		0.313		11.813		-		11.813	Continuing	Continuing	Continuing
Program Operations - Technical Direction Agent	MIPR	Various : Various	0.000	-		13.000		15.300		-		15.300	Continuing	Continuing	Continuing
Program Operations - Travel	MIPR	MDA : AL/VA	3.263	1.395		1.346		1.118		-		1.118	Continuing	Continuing	Continuing
		Subtotal	930.545	245.308		258.547		352.860		-		352.860	-	-	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MD08 / *Ground Based Midcourse*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2,636.202	967.394		812.886		1,225.161		-		1,225.161	-	-	-

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

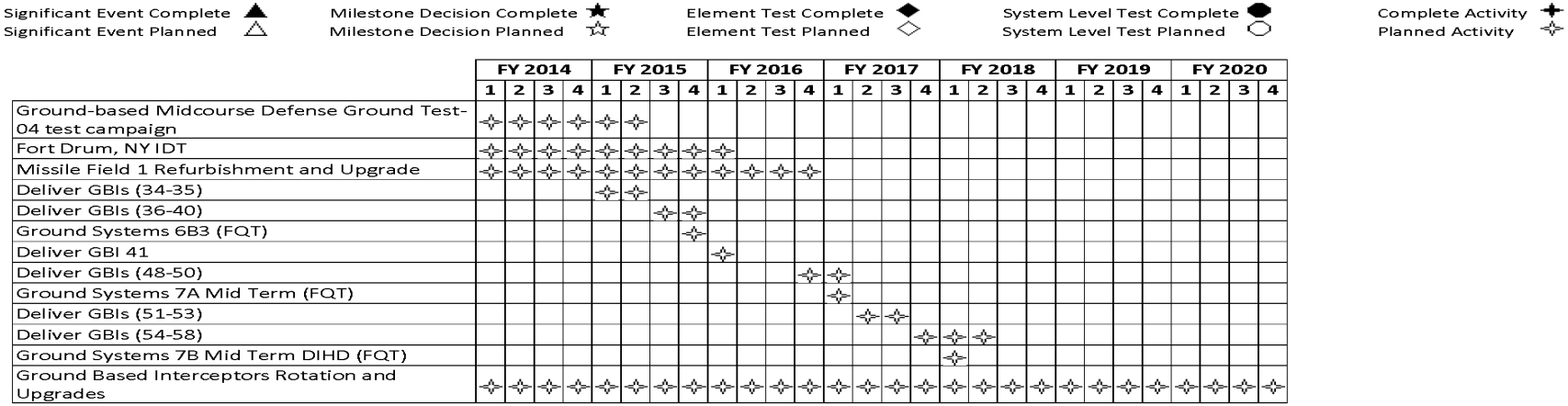

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ground-based Midcourse Defense Ground Test-04 test campaign	1	2014	2	2015
Fort Drum, NY IDT	1	2014	1	2016
Missile Field 1 Refurbishment and Upgrade	1	2014	4	2016
Deliver GBIs (34-35)	1	2015	2	2015
Deliver GBIs (36-40)	3	2015	4	2015
Ground Systems 6B3 (FQT)	4	2015	4	2015
Deliver GBI 41	1	2016	1	2016
Deliver GBIs (48-50)	4	2016	1	2017
Ground Systems 7A Mid Term (FQT)	1	2017	1	2017
Deliver GBIs (51-53)	2	2017	3	2017
Deliver GBIs (54-58)	4	2017	2	2018
Ground Systems 7B Mid Term DIHD (FQT)	1	2018	1	2018
Ground Based Interceptors Rotation and Upgrades	1	2014	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MC08 / *Cyber Operations*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MC08: *Cyber Operations*	-	3.373	2.938	3.217	-	3.217	3.285	3.340	3.406	3.475	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

The funding in this project sustains Missile Defense Agency (MDA) Department of Defense (DoD) Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for MDA Ground-based Midcourse Defense (GMD) mission systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the DIACAP documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&Ms on all MDA information systems.

This project supports the monitoring and tracking of Cybersecurity mitigations detailed in Information Technology security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA Senior Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation (IV&V) 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 (FISMA).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Network / System Certification and Accreditation (C&A)	3.373	2.938	3.217
Articles:	-	-	-
Description: The Network/Systems Certification and Accreditation project sustains the Missile Defense Agency (MDA) Department of Defense (DoD) Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for MDA Command and Control Battle Management and Communications (C2BMC) mission systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the DIACAP documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority [DAA] accreditation decisions) and POA&M on all MDA information systems.			
FY 2014 Accomplishments: -Provided Ground-based Midcourse Defense (GMD) Information Assurance Manager (IAM) civilian salaries -Conducted cyber security / Information Assurance (IA) engineering and architecture planning for GMD information technology systems			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MC08 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Planned and tested the IA controls for Ballistic Missile Defense System (BMDS) GMD systems -Developed GMD DoD Information Assurance Certification and Accreditation Program (DIACAP) certification and accreditation packages -Conducted Controls Validation Testing (CVT) of GMD mission systems and provide Plan of Action and Milestones to mitigate IA deficiencies -Conducted annual information assurance reviews on the GMD enclaves to assess compliance in implementing and maintaining IA controls ***FY 2015 Plans:*** -Provide Ground-based Midcourse Defense (GMD) Information Assurance Manager (IAM) civilian salaries -Conduct cyber security / Information Assurance (IA) engineering and architecture planning for GMD information technology systems -Plan and test the IA controls for Ballistic Missile Defense System (BMDS) GMD systems -Develop GMD DoD Information Assurance Certification and Accreditation Program (DIACAP) certification and accreditation packages -Conduct Controls Validation Testing (CVT) of GMD mission systems and provide Plan of Action and Milestones to mitigate IA deficiencies -Conduct annual information assurance reviews on the GMD enclaves to assess compliance in implementing and maintaining IA controls ***FY 2016 Plans:*** -Provide Ground-based Midcourse Defense (GMD) Information Assurance Manager (IAM) civilian salaries -Conduct cyber security / Information Assurance (IA) engineering and architecture planning for GMD information technology systems -Plan and test the IA controls for Ballistic Missile Defense System (BMDS) GMD systems -Develop GMD DoD Information Assurance Certification and Accreditation Program (DIACAP) certification and accreditation packages -Conduct Controls Validation Testing (CVT) of GMD mission systems and provide Plan of Action and Milestones to mitigate IA deficiencies -Conduct annual information assurance reviews on the GMD enclaves to assess compliance in implementing and maintaining IA controls			
Accomplishments/Planned Programs Subtotals	3.373	2.938	3.217

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MC08 / *Cyber Operations*

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MC08 / *Cyber Operations*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C&A) - BMDS CND/IA Advisory and Assistance Services	C/CPFF	Booz Allen Hamilton : MDA AL	0.000	0.725		0.773		0.723		-		0.723	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services	C/CPFF	Torch Technologies : MDA AL	0.000	1.911		1.425		1.747		-		1.747	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Civilian Salaries	MIPR	MDA : AL/VA	0.000	0.737		0.740		0.747		-		0.747	Continuing	Continuing	Continuing
		Subtotal	0.000	3.373		2.938		3.217		-		3.217	-	-	-

Remarks

N/A

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	3.373		2.938		3.217		-		3.217	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MC08 / *Cyber Operations*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GMD Cybersecurity Mitigation Monitoring and Tracking	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧
GMD Cybersecurity Program Policy / Risk Management	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧
GMD Information Assurance Certification and Accreditation (C&A) Package Preparation/Submission	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧
GMD Transition to Cybersecurity Risk Management Framework (CRMF)	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧
BMDS Cybersecurity Policy Development	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MC08 / *Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GMD Cybersecurity Mitigation Monitoring and Tracking	1	2014	4	2020
GMD Cybersecurity Program Policy / Risk Management	1	2014	4	2020
GMD Information Assurance Certification and Accreditation (C&A) Package Preparation/ Submission	1	2014	4	2020
GMD Transition to Cybersecurity Risk Management Framework (CRMF)	1	2014	4	2020
BMDS Cybersecurity Policy Development	1	2014	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MT08 / *Ground Based Midcourse Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT08: *Ground Based Midcourse Test*	69.419	59.372	-	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2015, the MT08 Ground Based Midcourse Test project was transferred to PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in accordance with Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

A. Mission Description and Budget Item Justification

Ground-based Midcourse Test consists of three accomplishment areas; Resources, Flight Test Execution, and Ground Test Execution. Resources consist of the support and framework required to successfully conduct both flight and ground testing. Flight Test Execution and Ground Test Execution accomplishments consist of the execution of the individual tests.

Ground-based Midcourse Defense (GMD) executes an enhanced test program that includes expanding our flight and ground test programs to demonstrate our Initial Homeland Defense and Enhanced Homeland Defense capabilities against long-range threats. The GMD elements of the BMDS Integrated Master Test Plan (IMTP) are intended to demonstrate the integrated missile defense capabilities under development and ensure the capabilities delivered to the Warfighter are operationally effective, suitable, and survivable.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Resources	19.780	-	-
Articles:	-	-	-
Description: Provides support associated with day-to-day operations of the flight and ground test programs to include engineering support for ground test planning, execution, and post-event reconstruction.			
FY 2014 Accomplishments: -Provided test infrastructure and coordination of flight test range support from Vandenberg Air Force Base, California for all range activities, engineering, operators and GBI transportation, including preparation for the first GBI salvo flight test -Provided Ballistic Missile Defense System (BMDS) flight and ground test execution situational awareness through the use of the Missile Defense Agency Integration and Operations Center (MDIOC) housing flight, ground and operational controlled assets of the GMD system from Colorado Springs, CO -Supported pre- and post-flight test mission communications to include fulfillment of requirements and data analysis -Provided System Test Lab support to the engineering, accreditation, operations and maintenance of Flight and Ground Test Programs			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MT08 / *Ground Based Midcourse Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Supported risk reduction testing through the use of the Prime Consolidated Integration Lab designed for engineering and integration activities leading up to scheduled flight tests and supported by appropriate analysts, environments and equipment ***FY 2015 Plans:*** -Located in PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in MT08 ***FY 2016 Plans:*** -Located in PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in MT08			
Title: Flight Test Execution ***Articles:*** ***Description:*** Flight tests demonstrate the capabilities and/or phenomenology that cannot be adequately tested or obtained during ground testing. Flight tests also provide opportunities to test actual hardware and to demonstrate Ballistic Missile Defense System (BMDS) Element interoperability under operationally realistic conditions. ***FY 2014 Accomplishments:*** -Conducted Flight Test Ground-based Midcourse Defense-06b (FTG-06b), a 3-stage Capability Enhancement II (CE-II) intercept engagement with associated objects, using a GBI launched from Vandenberg Air Force Base, California against a target launched from Reagan Test Site (RTS) -Initiated planning for Ground-based Midcourse Defense Control Test Vehicle-02+ (CTV-02+), a 3-stage Capability Enhancement II (CE-II) non intercept engagement using a GBI launched from Vandenberg Air Force Base, California against an intermediate-range ballistic missile (IRBM)air-launched target with associated object, utilizing resources previously planned for Flight Test Ground-based Midcourse Defense-09 (FTG-09) per revised MDA Integrated Master Test Plan -Re-phased Flight Test Ground-based Midcourse Defense-11 (FTG-11), a salvo intercept test of two GBIs against one Intercontinental Ballistic Missile (ICBM) target using GBIs launched from Vandenberg Air Force Base, California from 3QFY 2020 to 4QFY 2017 and continuing range infrastructure upgrade studies in preparation for planning for the Flight Test Ground-based Midcourse Defense-11 (FTG-11) -Collected Critical Engagement Conditions (CEC) / Empirical Measurement Events (EME) data that validates Models and Simulations (M&S) ***FY 2015 Plans:*** -Located in PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in MT08 ***FY 2016 Plans:*** -Located in PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in MT08	34.327 -	- -	- -
Title: Ground Test Execution	5.265	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MT08 / *Ground Based Midcourse Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Articles:	-	-	-
Description: Ground tests demonstrate and validate Warfighter tactics, techniques, and procedures. Ground tests are executed both in the Hardware-in-the-loop (HWIL) lab and in the field. HWIL lab tests integrate and assess Ballistic Missile Defense System (BMDS) system- level performance based on new element capabilities. Ground tests in the field use existing fielded element assets and tactical communication networks, to integrate, assess and demonstrate the new element capabilities. ***FY 2014 Accomplishments:*** -Continued to support execution of BMDS Ground Test-04 test campaign to assess BMDS capabilities with integration of additional BMDS sensors -Completed Ground Test Integrated-04e (GTI-04e) Part 2 execution of BMDS Ground Test-04 campaign -Supported planning of BMDS Ground Test-06 test campaign to assess BMDS capabilities with integration of additional BMDS assets (Ft. Drum, NY In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT), Clear and Cape Cod Upgraded Early Warning Radar (UEWR) Integration, and the Space-Based Infrared System (SBIRS) Increment 2 Change) ***FY 2015 Plans:*** -Located in PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in MT08 ***FY 2016 Plans:*** -Located in PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in MT08			
Accomplishments/Planned Programs Subtotals	59.372	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	501.170	455.068	513.256	-	513.256	585.727	484.242	442.202	460.945	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Ground-based Midcourse Defense (GMD) program will continue to follow testing, development, and evolutionary acquisition through incremental development. The Agency acquisition strategy ensures that the GMD components are upgraded to improve both system performance and interceptor reliability in order to retain the proven GMD contribution to the Integrated Ballistic Missile Defense System (BMDS). This acquisition approach minimizes the risk of parts availability, provides opportunities

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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for incremental capability improvements, and allows decision makers to make informed trades between cost, schedule, and performance while exploring improved operational and technological capabilities.

GMD awarded a competitive Development and Sustainment Contract (DSC) on December 30, 2011. This contract continues development, fielding, test, systems engineering, integration, and configuration management; equipment manufacturing and upgrade; training, operations and sustainment of the GMD system and associated support facilities. The DSC emphasizes the application of performance-based tenets to provide timely high quality support of the core GMD system while reducing life cycle and long-term ownership costs. GMD's acquisition strategy for transition of the legacy content into the DSC provides uninterrupted field operations; development of both Ground Systems and Interceptor (GBI) products, including manufacturing additional interceptors to support both operations and testing; and the requirement to demonstrate war fighting capability through a rigorous ground and flight test program.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MT08 / *Ground Based Midcourse Test*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Resources - Ballistic Missile Defense System Hardware-In-The-Loop	C/CPIF	Boeing AL/AK/AZ/ CA : CO/TX/VA	7.754	9.083		-		-		-		-	-	16.837	-
		Subtotal	7.754	9.083		-		-		-		-	-	16.837	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Resources - Government Infrastructure Support, Labs, and Communications	MIPR	VAFB/AL : CO	5.052	4.815		-		-		-		-	-	9.867	-
Resources - Prime Infrastructure Support, Labs, and Communications	C/CPAF	Boeing AL/AK/AZ/ CA : CO/TX/VA	5.305	5.882		-		-		-		-	-	11.187	-
Flight Test Execution - Planning and Silo Refurbishment	C/CPAF	Boeing AL/AK/AZ/ CA : CO/OR/TX/VA	30.112	18.669		-		-		-		-	-	48.781	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MT08 / *Ground Based Midcourse Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Test Execution - Range, Resources, and Engineering	MIPR	VAFB/CO : PMRF	17.521	15.658		-		-		-		-	-	33.179	-
Ground Test Execution - Ground Test-04 Campaign	C/CPAF	Boeing AL/AK/AZ/ CA : CO/TX/VA	3.675	5.065		-		-		-		-	-	8.740	-
Ground Test Execution - Ground Test-06 Campaign	C/CPAF	Boeing AL/AK/AZ/ CA : CO/TX/VA	0.000	0.200		-		-		-		-	-	0.200	-
		Subtotal	61.665	50.289		-		-		-		-	-	111.954	-

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	69.419	59.372		-		-		-		-	-	128.791	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MT08 / *Ground Based Midcourse Test*

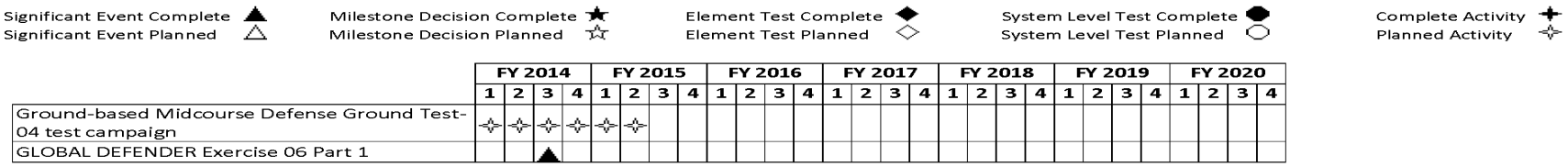


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MT08 / *Ground Based Midcourse Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ground-based Midcourse Defense Ground Test-04 test campaign	1	2014	2	2015
GLOBAL DEFENDER Exercise 06 Part 1	3	2014	3	2014

Note

Notes: CTV - Controlled Test Vehicle; GTI - Ground Test Integrated; GTD - Ground Test Distributed; GTX - Ground Test Exercise; GDEx - Global Defender Exercise; FTG - Flight Test Ground-Based Interceptor; FTO - Flight Test Operational; FTX - Flight Test Exercise

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MX08 / *Ground Based Midcourse Development Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MX08: *Ground Based Midcourse Development Support*	-	2.868	-	-	-	-	-	-	-	-	-	2.868
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Moved to Operations and Maintenance, Defense-Wide appropriation

A. Mission Description and Budget Item Justification

Missile Defense Agency (MDA) will continue to provide for the operations, training, and sustainment of Ground-based Midcourse Defense (GMD) fielded capability at Fort Greeley, Alaska; Eareckson Air Station, Alaska; Vandenberg Air Force Base, California; the Missile Defense Integration Operations Center (MDIOC), Colorado and across the nation-wide GMD Communications Network.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Sustainment	2.868	-	-
Articles:	-	-	-
Description: The Operations and Sustainment (O&S) mission provides for the operations, maintenance, repair, training, and sustaining engineering of the Ground-based Midcourse Defense (GMD) System. In addition to the above, O&S provides base operations support for GMD facilities in Colorado Springs, Colorado; Vandenberg Air Force Base, California; Fort Greely, Alaska and Eareckson Air Station, Alaska.			
FY 2014 Accomplishments: -Transported Missile Defense Agency (MDA), Ground-based Midcourse Defense (GMD) hardware from Continental United States (CONUS) locations to/from Alaska sites -Prepared Fort Drum Interceptor Data Terminal Complex for cabling and fiber optic connections and installation -Provided funding for Exoatmospheric Kill Vehicle chamber calibration and support			
FY 2015 Plans: N/A			
FY 2016 Plans: N/A			
Accomplishments/Planned Programs Subtotals	2.868	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MX08 / *Ground Based Midcourse Development Support*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Ground-based Midcourse Defense (GMD) program will continue to follow testing, development, and evolutionary acquisition through incremental development. The Agency acquisition strategy ensures that the GMD components are upgraded to improve both system performance and interceptor reliability in order to retain the proven GMD contribution to the Integrated Ballistic Missile Defense System (BMDS). This acquisition approach minimizes the risk of parts availability, provides opportunities for incremental capability improvements, and allows decision makers to make informed trades between cost, schedule, and performance while exploring improved operational and technological capabilities.

GMD awarded a competitive Development and Sustainment Contract (DSC) on December 30, 2011. This contract continues development, fielding, test, systems engineering, integration, and configuration management; equipment manufacturing and upgrade; training, operations and sustainment of the GMD system and associated support facilities. The DSC emphasizes the application of performance-based tenets to provide timely high quality support of the core GMD system while reducing life cycle and long-term ownership costs. GMDs DSC acquisition strategy for transition of the legacy content into the DSC provides uninterrupted field operations; development of both Ground Systems and Interceptor (GBI) products, including manufacturing additional interceptors to support both operations and testing; and the requirement to demonstrate war fighting capability through a rigorous ground and flight test program.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MX08 / *Ground Based Midcourse Development Support*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sustainment - EKV Chamber Calibration and Support	MIPR	Air Force Metrology and Calibration / OH : ARRDEC / AL	0.000	1.462		-		-		-		-	-	1.462	-
Sustainment - Ft Drum IDT	MIPR	MDA : AL/VA	0.000	0.355		-		-		-		-	-	0.355	-
Sustainment - GM Site Sustainment Operations	MIPR	FGA BOS : JRDC / CS	0.000	0.051		-		-		-		-	-	0.051	-
Sustainment - Interceptor Transportation	Various	US TRANSCOM : Scott AFB/ IL	0.000	1.000		-		-		-		-	-	1.000	-
		Subtotal	0.000	2.868		-		-		-		-	-	2.868	-

Remarks

N/A

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	2.868		-		-		-		-	-	2.868	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MX08 / *Ground Based Midcourse Development Support*

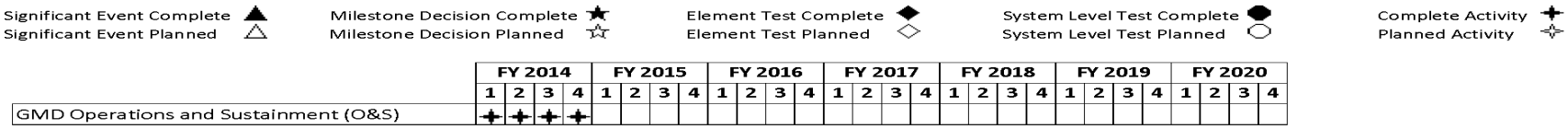


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MX08 / *Ground Based Midcourse Development Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GMD Operations and Sustainment (O&S)	1	2014	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	92.893	31.438	58.099	56.513	-	56.513	44.272	41.143	48.135	49.451	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015 and FY 2016, Program Wide Support reflects a proportional change as a result of increases in Ballistic Missile Defense Midcourse Defense Segment. 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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	31.438	58.099	56.513
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans: See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	31.438	58.099	56.513

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	C/CPAF	Various : Multi: AL, CA, CO, VA	10.558	0.900		1.916	Mar 2015	0.010	Mar 2016	-		0.010	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	MDA : Multi: AK, AL, CA, CO, VA	66.780	28.626		38.133	Nov 2014	42.928	Oct 2015	-		42.928	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (FFP)	C/FFP	PHACIL, INC : Multi: AK, AL, CA, CO, VA	0.420	-		12.032	Nov 2014	1.568	Nov 2015	-		1.568	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (MIPR)	MIPR	Various : Multi: AK, AL, CO, CA, HI, VA	10.875	-		-		0.010	Apr 2016	-		0.010	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AK, AL,CA, CO, HI, VA	0.000	1.912		0.321	Feb 2015	11.997	Feb 2016	-		11.997	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Sustainment Transportation	Reqn	Various : AK, AL, CA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - FFRDC/UARC	C/CPFF	Utah St Univ; JHU/ APL LLC : Multi: MD, UT	1.260	-		-		-		-		-	3.500	4.760	-
Program Wide Support - Facilities and Maintenance	MIPR	Various : Multi: AK, AL, CA, VA	3.000	-		5.697	Mar 2015	-		-		-	Continuing	Continuing	Continuing
		Subtotal	92.893	31.438		58.099		56.513		-		56.513	-	-	-

Remarks

Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the adjusted RDT&E profile

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MD40 / *Program-Wide Support*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	92.893	31.438		58.099		56.513		-		56.513	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD40 / *Program-Wide Support*

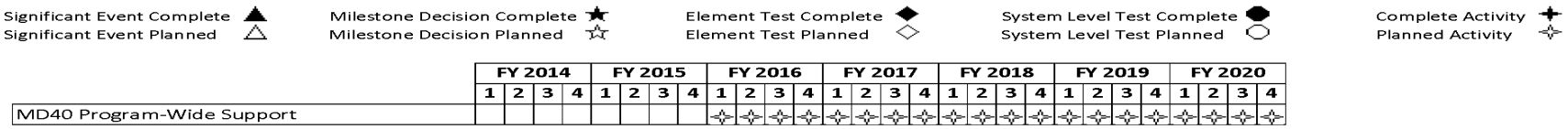


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603884C / *Ballistic Missile Defense Sensors*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	500.670	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
MD11: *BMDS Radars*	429.107	273.056	246.107	222.076	-	222.076	216.365	133.764	131.901	132.694	Continuing	Continuing
MC11: *Cyber Operations*	-	1.543	1.212	1.239	-	1.239	1.272	1.308	1.341	1.361	Continuing	Continuing
MT11: *BMDS Radars Test*	43.953	49.925	-	-	-	-	-	-	-	-	Continuing	Continuing
MD40: *Program-Wide Support*	27.610	15.867	23.582	10.273	-	10.273	10.800	7.291	7.498	7.678	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

Beginning in FY 2015, funding for the BMDS Radars Test (MT11) Budget Project will be realigned to the Ballistic Missile Defense Sensor Test Program Element (0604879C).

Beginning in FY 2015, funding for the Long Range Discrimination Radar (MD96) Budget Project will be realigned to the Long Range Discrimination Radar Program Element (0604873C).

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense System (BMDS) network of layered Sensors provides essential situational awareness and fire control data for the command and control of BMDS weapon systems, such as Ground-based Midcourse Defense (GMD), Aegis Ballistic Missile Defense, and Terminal High Altitude Area Defense (THAAD). The suite of remote ground-based sensors provide early warning, midcourse and terminal ballistic missile defense threat data enabling layered detection and tracking of ballistic missile targets, providing fire-control quality position, velocity, and discrimination data through Command and Control, Battle Management, Communications (C2BMC).

Overlapping coverage of geographically diverse sensors provides improved threat track data as well as reducing the loss of any one sensor and reducing the potential impact of countermeasures. The extended coverage and accuracy provided by a network of layered sensors increases the defensive footprint and reduces the number of target engagements required, thereby conserving interceptor inventory and ensuring a high probability of successful engagement. Networked forward-based sensors enables C2BMC to pair the best sensor coverage with the best available weapon system to provide the most effective defense against ballistic missile threats.

This Program Element includes support for the Discrimination Improvements for Homeland Defense (DIHD) effort. The goal of this effort is to develop and field an integrated set of Element capabilities to improve BMDS reliability, lethality, and discrimination. The end result will be a deployed future BMDS architecture more capable of discriminating and destroying a reentry vehicle with a high degree of confidence that will improve Warfighter shot doctrine and preserve inventory. This effort will encompass a Near-Term, Mid-Term capability, and Far-term DIHD capability fielding. DIHD is a combined effort between Systems Engineering, Ground-based Midcourse Defense (PE 0603882C), BMD Sensors (PE 0603884C), C2BMC (PE 0603896C), Aegis BMD (PE 0603892C) and Advanced C4ISR (PE 0603179C).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*

The BMD Sensors Program contributes to regional missile defense through the following activities:

Development, delivery and deployment or redeployment of remote, forward based Army Navy/Transportable Radar Surveillance and Control (AN/TPY-2) radars to include radars for tests or operations. Radars provide early warning, track, and discrimination data through all phases of ballistic missile flight. Through the BMDS C2BMC and coalition data links, the AN/TPY-2 provides fire control data to enable remote Standard Missile (SM)-3 engagements by Aegis BMD, to allow earlier engagement by the Arrow Weapon System, and to cue deployed THAAD and U.S. and partner PATRIOT batteries.

Provides the enhancements/development of AN/TPY-2 software across the fleet of radars. Lessons learned from each radar are addressed in new software builds that are developed, tested, and subsequently installed at each radar.

AN/TPY-2 radars can be configured to operate either as a THAAD Fire Unit Radar (terminal mode) or Forward-Based Radar. These radars are transportable, adding flexibility to respond to geographical changes in threats. The AN/TPY-2 used in a Forward-Based role detects and acquires ballistic missile threats and provides precision track and discrimination data during the boost and midcourse phases of flight. The BMDS C2BMC provides this track and discrimination data, for cueing and engagements, to GFC for GMD defense of the homeland and to Link 16 for Aegis and other regional missile defense systems to support defense of U.S., deployed forces, friends and allies. This track and discrimination data identifies the lethal object, significantly reduces the target uncertainty, and provides additional reaction time to increase the probability of successful BMDS engagements. The AN/TPY-2 used in terminal mode is an integral component of the THAAD Battery. The THAAD battery radar is capable of tracking multiple threats and multiple interceptors during engagements in the terminal phase. It provides surveillance, acquisition, track, discrimination, interceptor communications, and hit assessment data collection for the fire control. The current and planned utilization of the AN/TPY-2 radars supports GMD, THAAD, and the Aegis Weapon System via C2BMC.

The Ballistic Missile Defense System (BMDS) network of sensors also includes the COBRA DANE Radar at Eareckson Air Force Station in Alaska, and the Upgraded Early Warning Radars (UEWR) at Beale Air Force Base, CA, Fylingdales Royal Air Force, United Kingdom, and at Thule Air Force Base in Greenland.

These Ultra High Frequency Early Warning Radars (EWR) have been upgraded to include missile defense functionality. This upgrade expands the capabilities of the U.S. to include defense against limited long-range threats.

The Clear EWR, located at Clear Air Force Station, AK, and the Cape Cod EWR, Located at Cape Cod Air Force Station, MA are also being upgraded to include missile defense functionality. Upgrade activities began in FY 2012 and are expected to be completed in FY 2017. The addition of the Clear UEWR and Cape Cod UEWRs the BMDS sensor architecture will improve BMDS sensor coverage and provide new engagement options against long-range missile threats.

The BMD Vision Study, conducted by MDA with USSTRATCOM, identified the need to enhance the discrimination capabilities of our sensors and weapon systems. There is an Enhanced Discrimination and sensors program that will improve discrimination capabilities of the AN/TPY-02, Cobra Dane, Sea Based X-Band, and the UEWR radars against the long range missile threat.

The BMDS Sensors Program also contributes to the testing and proving of the U.S. missile defense systems through the following activities:

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0603884C *I Ballistic Missile Defense Sensors*

-Modeling and simulation (M&S) efforts to include: enhanced sensor models, development of Radio Frequency scene generators, integration of digital simulations into the BMDS M&S architecture, and Verification, Validation, and Accreditation of radar models.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	366.590	392.893	462.030	-	462.030
Current President's Budget	340.391	270.901	233.588	-	233.588
Total Adjustments	-26.199	-121.992	-228.442	-	-228.442
• Congressional General Reductions	-	-0.183			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-121.809			
• Reprogrammings	-20.000	-			
• SBIR/STTR Transfer	-6.199	-			
• Other Adjustment	-	-	-228.442	-	-228.442

Change Summary Explanation

FY 2015 changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

The FY 2016 decrease reflects the realignment of funds from the Long Range Discrimination Radar (MD96) Budget Project to the Long Range Discrimination Radar Program Element (0604873C) and the realignment of funds from the BMDS Radars Test (MT11) Budget Project to the BMD Sensor Test Program Element (0604879C). The decrease also reflects funds realigned to the Sea Based X-Band Radar Program Element (0603907C) for evolving requirements for maintaining readiness to support contingency operations.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / *Ballistic Missile Defense Sensors*	Project (Number/Name) MD11 / *BMDS Radars*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD11: *BMDS Radars*	429.107	273.056	246.107	222.076	-	222.076	216.365	133.764	131.901	132.694	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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.

FY 2016 decrease due to completion of Near-Term DIHD development and ramping down of development activities for the upgrade of Clear and Cape Cod Early Warning Radars.

A. Mission Description and Budget Item Justification

Activities in this project include:
-Development of future Army Navy/Transportable Radar Surveillance and Control (AN/TPY-2) and Upgraded Early Warning Radar (UEWR) capabilities
-Development of radar discrimination advanced algorithms for X-Band radars and selectable X-Band software for AN/TPY-2 radars to address evolving threats
-System engineering, software development, and testing support for X-Band, COBRA DANE, and UEWR sensors
-Modeling and Simulation (M&S) efforts to include: enhanced sensor models, development of Radio Frequency scene generators, integration of digital simulations into the Ballistic Missile Defense System (BMDS), M&S architecture, and Verification, Validation, and Accreditation of radar models
-Participation in Ballistic Missile Defense System (BMDS) element ground test campaigns

The Discrimination Improvements for Homeland Defense (DIHD) effort will develop and field integrated Element capabilities to improve BMD System ability to identify lethal and non-lethal objects. Sensors will update radar databases, mature advanced discrimination techniques, and conduct element and system level testing to support Near and Mid-term phases capability against the threat systems defined by MDA Engineering.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Basic Development Program	45.291	46.380	43.014
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments:			
-Conducted Materiel Release closure plan for Army Navy/Transportable Radar Surveillance and Control (AN/TPY-2), including a Forward Based Mode Materiel Release Reliability, Availability, and Maintainability Get Well Plan to promote reliability growth in the suite of AN/TPY-2 radars via incorporation of retrofit change notice			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Conducted Phase II, Debris Mitigation Development activities required to provide enhanced Warfighter capability in complex tactical environments -Continued to conduct Information Assurance (IA) certification and accreditation of all Sensors systems -Supported Bi-Annual IA testing for vulnerabilities and Third Party IA assessment of the systems -Performed Upgrade Early Warning Radar (UEWR) development associated with the reinforcement of the surveillance fence that results in the increased probability of acquisition			
FY 2015 Plans: -Complete ground test and flight test for Phase Adaptive Approach (PAA) Phase II and conduct Material Release Analysis for software delivery -Complete Material Release Closure Plan for Forward Base Mode (FBM) and continue to conduct Material Release Closure Plan for Terminal Mode (TM) for Army Navy/Transportable Radar Surveillance and Control (AN/TPY-2) including Reliability, Availability, and Maintainability Get Well Plan to promote reliability growth in the suite of AN/TPY-2 radars via incorporation of retrofit change notice -Conduct Phase Adaptive Approach (PAA) Phase III: Objective Debris Mitigation Development and THAAD Threat Development required to provide enhanced capability to the Warfighter in a tactical environment -Continue performing Upgrade Early Warning Radar (UEWR) development such as the reinforcement of the surveillance fence that results in the increased probability of acquisition and the reduction/correction of the radar angle bias that results in increased accuracy of threat tracking -Continue to conduct Information Assurance (IA) certification and accreditation of all Sensors systems -Continue to support Bi-Annual IA testing for vulnerabilities and Third Party IA assessment of the systems			
FY 2016 Plans: -Complete ground test and flight test for Phase Adaptive Approach (PAA) Phase II and conduct Materiel Release Analysis for software delivery -Complete Material Release Closure Plan for Forward Base Mode (FBM) and continue to conduct Material Release Closure Plan for Terminal Mode (TM) for Army Navy/Transportable Radar Surveillance and Control (AN/TPY-2.) Materiel Release Closure Plan includes Reliability, Availability, and Maintainability Program to promote reliability growth in the suite of AN/TPY-2 radars via product improvements and Electronic Equipment Unit (EEU) depot upgrade for computer processing improvements -Continue software development of a new discrimination architecture that supports the addition of new algorithms that will support EPAA Phase III and THAAD Threat Development required to provide enhanced capability to the Warfighter in a tactical environment -Optimize software to take advantage of new increased processing capability			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continue performing Upgrade Early Warning Radar (UEWR) development such as the reinforcement of the surveillance fence that results in the increased probability of acquisition and the reduction/correction of the radar angle bias that results in increased accuracy of threat tracking -Continue to conduct Information Assurance (IA) certification and accreditation of all Sensors systems -Continue to support Bi-Annual IA testing for vulnerabilities and Third Party IA assessment of the systems			
Title: BMDS Radars Modeling & Simulation (M&S)	28.807	31.765	37.343
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** -Continued to support technical assessments and performance assessments, using OSM and other models/tools, as appropriate -Continued to develop, maintain, verify, validate, and certify digital and Hardware in the Loop (HWIL) representations of the tactical versions of Army Navy/Transportable Radar Surveillance and Control (AN/TPY2)(CX1.2), Sea Based X-Band Radar (SBX) 3.21, Upgraded Early Warning Radar (UEWR) 8.0.3, and Cobra Dane Upgrade(CDU) 2.6.97 and updated Critical Engagement Conditions (CEC) and Empirical Measurement Events (EME) -Began development of replacement RF scene generator for AN/TPY-2 and new RF scene generators for Sea Based X-Band Radar (SBX), and Upgraded Early Warning Radar (UEWR) -Began updates to the Objective Stimulation Framework (OSF)-E interfaces allowing for future events utilizing the OSF-E test architecture -Continued to support Warfighter training games and exercise events -Executed FY 2014 element-level ground test campaign to support anchoring M&S for verification and validation and/or for various Critical Engagement Conditions (CEC) and Empirical Measurement Events ***FY 2015 Plans:*** -Continue to maintain digital and Hardware in the Loop (HWIL) representations of the tactical versions of Army Navy/ Transportable Radar Surveillance and Control (AN/TPY2)(CX1.2/2.0), Sea Based X-Band Radar (SBX) 2.3, Upgraded Early Warning Radar (UEWR) 11-1, and Cobra Dane Upgrade(CDU) 2.6.9 and Critical Engagement Condition (CEC) and Empirical Measurement Event (EME) -Continue updates to the Objective Stimulation Framework (OSF)-E interfaces allowing for future events utilizing the OSF-E test architecture -Continue to support Warfighter games and exercises -Execute FY 2015 element-level ground test campaign to support anchoring M&S for various Critical Engagement Conditions (CEC) and Empirical Measurement Events (EME) -Support technical assessments and performance assessments, using OSM and other models/tools, as appropriate			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continue full development of replacement RF scene generator for AN/TPY-2, Sea Based X-Band Radar (SBX), Upgraded Early Warning Radar (UEWR), and Cobra Dane ***FY 2016 Plans:*** -Continue to maintain digital and Hardware in the Loop (HWIL) representations of the tactical versions of Army Navy/ Transportable Radar Surveillance and Control (AN/TPY2)(CX 2.x), Sea Based X-Band Radar (SBX) 3.x, Upgraded Early Warning Radar (UEWR) 11-1, and Cobra Dane Upgrade(CDU) 2.6.9 -Continue updates to the Objective Simulation Framework (OSF)-E interfaces allowing for future events utilizing the OSF-E test architecture -Continue to support Warfighter games and exercises -Execute FY 2016 element-level ground test campaign to support anchoring M&S for various Critical Engagement Conditions (CEC) and Empirical Measurement Events (EME) -Support technical assessments and performance assessments, using OSM and other models/tools, as appropriate -Continue full development of replacement RF scene generator for AN/TPY-2, Sea Based X-Band Radar (SBX), Upgraded Early Warning Radar (UEWR), and Cobra Dane -Increase due to FY 2016 need to maintain Hardware in the Loop (HWIL) RF scene generator while simultaneously developing a replacement product			
Title: Capability Development Program ***Articles:*** ***Description:*** N/A ***FY 2014 Accomplishments:*** -Provided engineering support to enable compliance with Ballistic Missile Defense System (BMDS) Spec Threat Capabilities -Continued Debris Mitigation Updates to enhance AN/TPY-2 raid handling capability -Completed software upgrades required to facilitate future Raid and Debris Mitigation capability development -Completed Continued PAA Phase 2 capability to address advanced D2 threats -Developed AN/TPY-2 capability to support Space Situational Awareness -Developed AN/TPY-2 capability and interface upgrades to support THAAD Debris Mitigation Phase 2 -Developed AN/TPY-2 update to support THAAD Packaged Threat Product -Continued to perform object classification performance updates to Cobra Dane and UEWR radars -Accelerated improvements to X-Band Radar simulations for discrimination performance testing -Initiated Long Range Discrimination Radar (LRDR) site planning, studies, evaluations, acquisition planning,and environmental analysis to help determine location and scope of discrimination to be performed	64.791 -	69.103 -	53.286 -

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Matured planned discrimination technology candidates to support the Discrimination Improvements for Homeland Defense (DIHD) Mid-term phase through analysis and prototyping -Developed DIHD Near-term capability of sensor database and software improvements for the Sea-Based X-band Radar, AN/TPY-2 forward-based radar, and Cobra Dane. Began developing DIHD Mid-term capability of sensor database improvements for the UEWRs -Completed development of ground test campaign requirements for DIHD Near-term improvements			
FY 2015 Plans: -Upgrade the entire AN/TPY-2 fleet (Forward-based and THAAD Modes) with a common secure hardware and software configuration -Continue providing engineering support to enable compliance with BMDS Spec Threat Capabilities -Initiate X86 Performance Optimization & Requirements to enhance and increase X86 processing speed. -Initiate PAA Phase 3 capability to address advanced D3 threats. -Test and conduct Material Release Analysis on PAA Phase 2 Capability to address D2 threats. -Conduct software development to support THAAD Launch on Remote, Debris Mitigation Updates, and Threat Updates. -Transition Debris Mitigation to Objective Debris Mitigation Phase II. -Continue to perform object classification performance updates to Cobra Dane and UEWR radars. -Continue development of new discrimination capabilities for X-Band Radar. -Complete DIHD Near-term capability development and Element level testing of sensor database improvements for the Sea-Based X-Band Radar, AN/TPY-2 forward based radar, and Cobra Dane. -Complete integration phase of DIHD Near-term ground testing via GTI-06. -Conduct data collection and analysis for final assessment of discrimination technology candidates planned for DIHD Mid-term improvements.			
FY 2016 Plans: -Decrease due to completion of Near-term DIHD development for Cobra Dane, Forward Based AN/TPY-2 and Sea Based X-Band Radars -Upgrade the entire AN/TPY-2 fleet (Forward-based and THAAD Modes) with a common secure hardware and software configuration -Continue providing engineering support to enable compliance with BMDS Spec Threat Capabilities -Continue X86 Performance Optimization & Requirements to enhance and increase X86 processing speed -Continue PAA Phase III capability development to address the advanced threats prevalent in 2016 and beyond -Continue testing and Materiel Release Analysis on PAA Phase 2 Capability to address the advanced threats prevalent in 2016 and beyond -Continue software development to support THAAD Launch on Remote, Debris Mitigation Updates, and Threat Updates			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Complete transition of Debris Mitigation to Objective Debris Mitigation Phase II -Complete capability fielding of Sea Based X-Band Radar and AN/TPY-2 Forward Based discrimination for Homeland Defense Near-term DIHD -Continue development of new Mid-Term DIHD capabilities for X-Band radars -Continue to perform object classification performance updates to Cobra Dane and UEWR radars -Participate in Far-term DIHD threat models specification. -Develop model of Far-term technologies in support of the Far-term DIHD program. -Participate in planning and conduct technology trades and analysis to refine capabilities to mitigate the Far-term DIHD threats.			
Title: Sensors Directorate Operations ***Articles:*** ***Description:*** N/A ***FY 2014 Accomplishments:*** -This effort continued to provide operations support -Procured Information Technology (IT) equipment, software and services to implement Department of Defense (DoD) mandated IT projects ***FY 2015 Plans:*** -Continue to provide operations support ***FY 2016 Plans:*** -Increase due to procurement of Information Technology (IT) equipment, software and services to implement Department of Defense (DoD) mandated IT projects in FY 2016 -Continue to provide operations support	68.101 -	60.283 -	66.883 -
Title: Upgrade Clear Early Warning Radar ***Articles:*** ***Description:*** N/A ***FY 2014 Accomplishments:*** -Continued upgrade Clear Early Warning Radar with option to upgrade Cape Cod Early Warning Radar to include but not limited to: -Continued purchasing and manufacturing of Upgraded Early Warning Radar (UEWR) Receiver/Exciter -Continued purchase of non-original manufacturer equipment -Continued adaptation of hardware and software to UEWR infrastructure	41.433 -	38.576 -	21.550 -

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continued to support Ballistic Missile Defense Systems communications and architecture work -Continued facility design and work -Continued Upgraded Early Warning Radar (UEWR) Huntsville System Test Lab ***FY 2015 Plans:*** -Continue upgrade of Clear and Cape Cod Early Warning Radars to include but not limited to: -Purchasing and manufacturing of Upgraded Early Warning Radar (UEWR) Receiver/Exciter -Purchase of non-original manufacturer equipment -Continue adaptation of hardware and software to UEWR infrastructure -Continue to support Ballistic Missile Defense Systems communications and architecture work -Continue facility design and work -Continue Upgraded Early Warning Radar Huntsville System Test Lab ***FY 2016 Plans:*** -Decrease due to ramping down of development activities in preparation of deployments -Continue upgrade of Clear and Cape Cod Early Warning Radars to include but not limited to: -Continue manufacturing of Upgraded Early Warning Radar (UEWR) Receiver/Exciter -Continue purchase of non-original manufacturer equipment -Continue adaptation of hardware and software to UEWR infrastructure -Continue to support Ballistic Missile Defense Systems communications and architecture work -Continue facility design and work and installation/test at Cape Cod and Clear sites -Continue Upgraded Early Warning Radar Huntsville System Test Lab -Prepare for removal of legacy equipment at Clear site			
Title: AN/TPY-2 Radar Deployment / Site Activation	24.633	-	-
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** -Deployed an AN/TPY-2 Radar with personnel and ancillary equipment to U.S. Pacific Command (PACOM) -Completed site survey, prepared and established site for AN/TPY-2 Radar operations -Completed pre-deployment tasks needed to ship radar and communications equipment -Completed deployment and installation activities: radar installation, power installation, fuel tank installation -Completed Contractor Logistic Support (CLS) training of operators and maintainers ***FY 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-No planned deployments in FY 2015 ***FY 2016 Plans:*** -No planned deployments in FY 2016			
Accomplishments/Planned Programs Subtotals	273.056	246.107	222.076

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	41.051	46.387	49.570	-	49.570	50.533	51.363	52.217	54.247	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
• 0604873C: *Long Range Discrimination Radar (LRDR)*	-	50.500	137.564	-	137.564	154.327	147.562	132.905	77.679	Continuing	Continuing
• 0604879C: *Ballistic Missile Defense Sensor Test*	-	71.309	86.764	-	86.764	104.271	93.310	102.736	106.377	Continuing	Continuing
• 13999903: *Planning and Design, Defense Wide*	10.891	38.704	-	-	-	8.233	8.397	8.525	8.822	Continuing	Continuing
• D1400634: *BMDS Upgrade Early Warning Radar (UEWR), Clear AFS, AK*	17.204	-	-	-	-	-	-	-	-	-	17.204

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

D. Acquisition Strategy

The Radar Sustainment Contract (RSC) was awarded in 2012 to sustain all the X-Band Radars including the Army Navy/Transportable Radar Surveillance (AN/TPY-2); the Sea Based X-Band (SBX) Radar; and the Ground Based Radar Prototype (GBR-P). The contract provides sustainment of previously developed X-Band radar products, such as: 1) Software -maintenance of existing software developed to support the X-Band Radars; 2) Models & Simulation; (a) development, maintenance, and verification of high fidelity models, (b) support for war games and exercises, (c) support for performance assessment events; 3) Engineering Services -engineering support for deployed radars to facilitate maintenance efforts which may include but are not limited to hardware obsolescence studies, hardware redesign, technology insertion, and refurbishment efforts; 4) BMDS Test Planning, Execution, and Analysis -planning, execution and analysis of BMDS test requirements for previously developed hardware and software in accordance with the MDA Integrated Master Test Plan (IMTP). The contract is an Indefinite Delivery/Indefinite Quantity (IDIQ) task order contract.

The Missile Defense Agency (MDA) conducted a full and open competition for the Clear Early Warning Radar (EWR) Upgrade. MDA issued a Request for Proposal (RFP) on this effort in 2nd quarter FY 2012 with award in 4th quarter FY 2012. The Cape Cod EWR upgrade option under this contract was awarded in 1st quarter FY 2013.

The Ballistic Missile Defense System (BMDS) Communications System Complex-Transportable (BCSC-T) Program Plan addresses the design, development, acquisition, testing, integration, activation, and fielding of the BCSC-T. The overall executing agent is the Program Manager - Communications and Transmission Systems (PMDCATS). Lockheed Martin Mission Systems (C2BMC prime contractor) via an Other Transaction Agreement provides on-site support.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Basic Development Program - Ground Based Radar Prototype (GBR-P) Caretaker	MIPR	SMDC : AL	0.000	3.700		2.068	Nov 2014	2.725	Nov 2015	-		2.725	Continuing	Continuing	Continuing
Basic Development Program - Information Assurance AN/TPY-2	SS/CPFF	Raytheon : MA	0.000	5.499		5.688	Nov 2014	5.332	Nov 2015	-		5.332	Continuing	Continuing	Continuing
Basic Development Program - Information Assurance SBX	SS/CPFF	Raytheon : MA	0.000	0.219		0.232	Nov 2014	0.215	Nov 2015	-		0.215	Continuing	Continuing	Continuing
Basic Development Program - Material Release Get Well Plan	SS/CPFF	Raytheon : MA	0.000	1.015		7.245	Nov 2014	6.892	Nov 2015	-		6.892	Continuing	Continuing	Continuing
Basic Development Program - Sys Integration & Tech Assessments	SS/CPFF	Raytheon : MA/AL	0.000	5.758		6.984	Nov 2014	5.163	Nov 2015	-		5.163	Continuing	Continuing	Continuing
Basic Development Program - X-Band Software Enhancements/ Development	SS/CPFF	Raytheon : AL	0.000	29.100		24.163	Nov 2014	22.687	Nov 2015	-		22.687	Continuing	Continuing	Continuing
BMDS Radars Modeling & Simulation (M&S) - M&S Development	SS/CPFF	Raytheon, Northrup Grumman : MA, CO	48.273	19.701		25.117	Nov 2014	25.780	Nov 2015	-		25.780	Continuing	Continuing	Continuing
BMDS Radars Modeling & Simulation (M&S) - VV&A of Models	MIPR	AMRDEC : AL	21.691	7.668		4.712	Nov 2014	9.640	Nov 2015	-		9.640	Continuing	Continuing	Continuing
BMDS Radars Modeling & Simulation (M&S) - Warfighter Exercises	SS/CPFF	Raytheon : MA	3.056	1.438		1.936	Nov 2014	1.923	Nov 2015	-		1.923	Continuing	Continuing	Continuing
Capability Development Program - Advanced Technology Discrimination	SS/CPAF	Raytheon : MA	0.000	-		-		7.322	Nov 2015	-		7.322	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / *Ballistic Missile Defense Sensors*	Project (Number/Name) MD11 / *BMDS Radars*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Capability Development Program - Enhanced Discrimination	C/CPAF	USAF, Raytheon : Hanscom AFB MA	0.000	39.984		21.927	Nov 2014	15.905	Nov 2015	-		15.905	Continuing	Continuing	Continuing
Capability Development Program - Enhanced Discrimination Studies and Analysis Support	MIPR	SED/AMRDEC, MIT/LL/JHU/APL : AL/MA/VA	0.000	7.204		-		-		-		-	-	7.204	-
Capability Development Program - Program AN/TPY-2 Capability Development	SS/CPAF	Raytheon : MA	0.000	13.833		35.176	Nov 2014	30.059	Nov 2015	-		30.059	Continuing	Continuing	Continuing
Capability Development Program - UEWR Capability Development	TBD	USAF : Hanscom AFB MA	0.000	3.770		12.000	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Sensors Directorate Operations - Army Hybrid Program Office	MIPR	SMDC : AL	0.000	1.725		1.030	Nov 2014	1.987	Nov 2015	-		1.987	Continuing	Continuing	Continuing
Sensors Directorate Operations - Govt Salaries, Travel, Training (MDA Sensors)	MIPR	MDA : AL, VA, MA	67.963	20.762		21.876	Nov 2014	22.203	Nov 2015	-		22.203	Continuing	Continuing	Continuing
Sensors Directorate Operations - MiDAESS, FFRDC/UARC	SS/CPAF	CSS, APL, LL, OGA : AL/MA/VA/MD	142.081	34.707		29.097	Nov 2014	34.522	Nov 2015	-		34.522	Continuing	Continuing	Continuing
Sensors Directorate Operations - Network and Infrastructure Services	SS/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	15.471	8.234		-		5.595	Oct 2015	-		5.595	Continuing	Continuing	Continuing
Sensors Directorate Operations - Other Govt Agencies	MIPR	SMDC/AL, Hanscom AFB : MA	22.225	2.673		8.280	Nov 2014	2.576	Nov 2015	-		2.576	Continuing	Continuing	Continuing
Upgrade Clear Early Warning Radar - BCN Upgrades	MIPR	MDA C2BMC / DISA : MA, AK	15.690	1.173		0.528	Nov 2014	0.489	Nov 2015	-		0.489	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Upgrade Clear Early Warning Radar - Facilities Site Activation/Admin Comms	MIPR	MDA C2BMC : MA, AK	2.812	0.636		1.794	Nov 2014	1.775	Nov 2015	-		1.775	Continuing	Continuing	Continuing
Upgrade Clear Early Warning Radar - GMD Fire Control Integration	SS/CPAF	Boeing/AK/AL, Raytheon : MA	2.775	2.364		0.625	Sep 2015	0.588	Nov 2015	-		0.588	Continuing	Continuing	Continuing
Upgrade Clear Early Warning Radar - HSV UEWR Test Lab Upgrades & Clear Test Lab Representations	SS/CPAF	Raytheon : MA/AL	0.000	4.122		2.763	Sep 2015	2.602	Nov 2015	-		2.602	Continuing	Continuing	Continuing
Upgrade Clear Early Warning Radar - Program Office - OGA	MIPR	USAF : Hanscom AFB, MA	1.755	-		-		-		-		-	-	1.755	-
Upgrade Clear Early Warning Radar - Radar Upgrade -- Prime Contractor	C/CPAF	Raytheon : MA	33.456	33.138		32.866	Nov 2014	16.096	Nov 2015	-		16.096	Continuing	Continuing	Continuing
Upgrade Clear Early Warning Radar - SPA Upgrade & Processor Rehost	MIPR	USAF : Hanscom AFB, MA	1.848	-		-		-		-		-	-	1.848	-
AN/TPY-2 Radar Deployment / Site Activation - Deployment Primary Facilities	MIPR	MDA Deployment : OCONUS, AL	8.070	-		-		-		-		-	-	8.070	-
AN/TPY-2 Radar Deployment / Site Activation - Site Activation & Deployment	SS/CPAF	Raytheon, Global Deployment : OCONUS, AL	41.941	24.633		-		-		-		-	-	66.574	-
		Subtotal	429.107	273.056		246.107		222.076		-		222.076	-	-	-

Remarks

Note: Project Oak is described at a higher level of classification.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Note: Clear Early Warning Upgrade Program includes upgrade of the Cape Cod EWR.															

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

Operations and sustainment of Upgraded Early Warning Radar (UEWR), COBRA DANE (CD), and Army Navy/Transportable Radar Surveillance and Control (AN/TPY-2) Radars Contract Logistics Support (CLS) are Operations and Maintenance (O&M) Defense-Wide appropriations and are described in the Missile Defense Agency (MDA) O-Documents.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

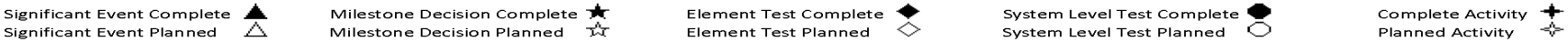
Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / *Ballistic Missile Defense Sensors*	Project (Number/Name) MD11 / *BMDS Radars*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	429.107	273.056		246.107		222.076		-		222.076	-	-	-

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NIMBLE TITAN Event 1Wargame Event - 2014	▲																											
VIGILANT SHIELD 14 Exercise Planning - 2014	▲																											
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 14- 2014	▲																											
GLOBAL LIGHTNING 14 Exercise Event - 2014	▲																											
AIR and MISSILE DEFENSE Exercise USCENTCOM Event 1 - 2014	▲																											
RAMSTEIN ALLIANCE EXERCISE - 2014	▲																											
KEY RESOLVE Planning Exercise - 2014	▲																											
GLOBAL THUNDER 15 Exercise Planning - 2014	▲																											
MISSILE DEFENSE CONFERENCE Event - 2014	▲																											
BMDS WARGAME 2015 Event - 2014		▲																										
KEEN EDGE 14 Exercise Event - 2014		▲																										
FLEET SYNTHETIC TRAINING Exercise - 2014		▲																										
NIMBLE FIRE Exercise Event 2 - 2014		▲																										
NIMBLE FIRE Exercise Event 3- 2014		▲																										
NIMBLE TITAN Event 2 Wargame Event - 2014			▲																									
JUNIPER COBRA 14 - 2014				▲																								
GLOBAL THUNDER 15 Exercise Event - 2015					△																							
VIGILANT SHIELD 15 Exercise Event - 2015					△																							
ULCHI FREEDOM GUARD 15 Event - 2015					△																							
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 15 - 2015					△																							
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 1 - 2015					△																							
AIR and MISSILE DEFENSE 15 USCENTCOM Exercise 1 - 2015					△																							
MISSILE DEFENSE CONFERENCE Wargame Event - 2015					△																							
EPOCH PLANEX 15 Exercise - 2015					△																							
RAMSTEIN ALLIANCE EXERCISE - 2015					△																							
ARABIAN GULF SHIELD 15 Exercise Event 1 - 2015					△																							

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬟ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NIMBLE FIRE 15 Wargame Event 1 - 2015					△																							
AUSTERE CHALLENGE 15 Exercise - 2015					✧	✧	✧	✧																				
BMDS WARGAME 2015 Event - 2015						△																						
KEEN EDGE 15 Exercise Event - 2015						△																						
EAGLE RESOLVE 15 Exercise Event - 2015						△																						
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 2 - 2015						△																						
AIR and MISSILE DEFENSE 15 USCENTCOM Exercise 2 - 2015						△																						
KEEN SWORD 15 Exercise - 2015						△																						
ARABIAN GULF SHIELD 15 Exercise Event 2-2015						△																						
NIMBLE FIRE 15 Wargame Event 2 - 2015						△																						
GLOBAL LIGHTNING 15 Exercise Event - 2015							△																					
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 3 - 2015							△																					
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 4 - 2015							△																					
GLOBAL DEFENDER Exercise 06 Part 2							△																					
GDEx-06 Part 2 (Ground Test) (Warfighter Exercise)							△																					
KEY RESOLVE 15 Exercise - 2015							△																					
FLEET SYNTHETIC TRAINING Exercise - 2015							△																					
ARABIAN GULF SHIELD 15 Exercise Event 3 - 2015							△																					
NIMBLE FIRE 15 Wargame Event 3 - 2015							△																					
JOINT AIR and MISSILE DEFENSE CENTCOM Exercise Event 5 - 2015								△																				
VIGILANT SHIELD 16 Exercise Event - 2016									△																			
AIR and MISSILE DEFENSE Exercise Series - 2016									△																			
GLOBAL THUNDER 16 Exercise Event - 2016									△																			
EPOCH PLANEX Exercise - 17									△																			
ARABIAN GULF SHIELD 16 Exercise Event 1 - 2016									△																			
SNG-U-D-1									✧	✧																		

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬟ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SNG-A-H-1									✧	✧	✧																	
SNG-U-H-1									✧	✧	✧																	
KEY RESOLVE 16 Exercise - 2016										△																		
FLEET SYNTHETIC TRAINING Exercise - 2016										△																		
ARABIAN GULF SHIELD 16 Exercise Event 2-2016										△																		
GLOBAL LIGHTNING 16 Exercise Event - 2016										✧	✧																	
JUNIPER COBRA 16 Exercise - 2016										✧	✧																	
TERMINAL FURY 16 Exercise - 2016										✧	✧																	
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 16 - 2016											△																	
HUNTSVILLE WARGAMES Event - 16											△																	
RONALD REAGAN FORUM Exercise - 16											△																	
ULCHI FREEDOM GUARD 16 Event - 2016											✧	✧																
SNG-C-D-1											✧	✧																
BMDS Wargame 2017 Event - 2017											✧	✧	✧	✧														
EAGLE RESOLVE 16 Exercise Event - 2016												△																
ARABIAN GULF SHIELD 16 Exercise Event 3 - 2016												△																
MISSILE DEFENSE CONFERENCE Wargame Event - 2016												✧	✧															
RAMSTEIN ALLIANCE Exercise - 2016												✧	✧															
SNG-S-H-1												✧	✧	✧														
NIMBLE TITAN 18 Wargame Year 1 - 18												✧	✧	✧	✧													
VIGILANT SHIELD 17 Exercise Event - 2017													△															
AIR and MISSILE DEFENSE Exercise Series - 2017													△															
EPOCH PLANEX Exercise - 18													△															
ARABIAN GULF SHIELD 17 Exercise Event 1 - 2017													△															
GLOBAL RESPONSE Exercise Event - 2016													△															
GLOBAL THUNDER 17 Exercise Event - 2017													△															
SNG-A-D-2													✧	✧														
SNG-C-H-1													✧	✧	✧													
KEY RESOLVE 17 Exercise - 2017														△														

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

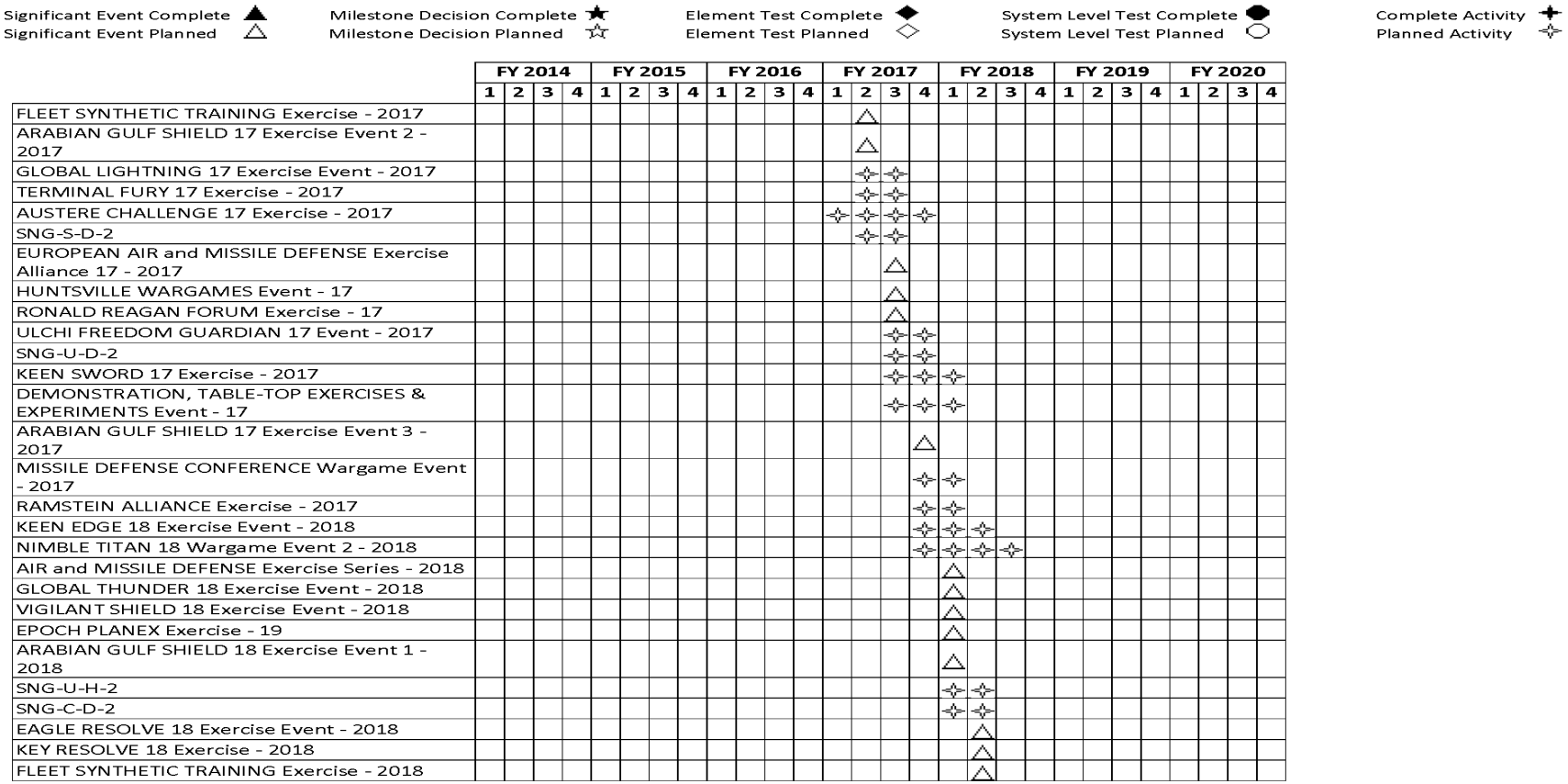


Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬬ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ARABIAN GULF SHIELD 18 Exercise Event 2 - 2018																		△										
GLOBAL RESPONSE (GREx) Exercise Event - 2018																		△										
GLOBAL LIGHTNING 18 Exercise Event - 2018																		✧	✧									
JUNIPER COBRA 18 Exercise - 2018																		✧	✧									
TERMINAL FURY 18 Exercise - 2018																		✧	✧									
SNG-A-H-2																		✧	✧									
SNG-C-H-2																		✧	✧									
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 18 - 2018																			△									
HUNTSVILLE WARGAMES Event - 18																			△									
RONALD REAGAN FORUM Exercise - 18																			△									
ULCHI FREEDOM GUARDIAN 18 Event - 2018																			✧	✧								
SNG-S-H-2																			✧	✧								
DEMONSTRATION, TABLE-TOP EXERCISES & EXPERIMENTS Event - 18																			✧	✧	✧							
ARABIAN GULF SHIELD 18 Exercise Event 3 - 2018																				△								
MISSILE DEFENSE CONFERENCE Wargame Event - 2018																				✧	✧							
RAMSTEIN ALLIANCE Exercise - 2018																				✧	✧							
BMDS WARGAME 2019 Event - 2019																				✧	✧	✧						
NIMBLE TITAN 20 Wargame Event 1 - 2020																				✧	✧	✧	✧					
AIR and MISSILE DEFENSE Exercise Series- 2019																					△							
GLOBAL THUNDER 19 Exercise Event - 2019																					△							
VIGILANT SHIELD 19 Exercise Event - 2019																					△							
EPOCH PLANEX Exercise - 20																					△							
ARABIAN GULF SHIELD 19 Exercise Event 1 - 2019																					△							
EPOCH PLANEX Exercise - 21																					✧	✧	✧	✧	✧			
KEY RESOLVE 19 Exercise - 2019																						△						
FLEET SYNTHETIC TRAINING Exercise - 2019																						△						
ARABIAN GULF SHIELD 19 Exercise Event 2 - 2019																						△						

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD11 / *BMDS Radars*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬟ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GLOBAL LIGHTNING 19 Exercise Event - 2019																						✧	✧					
TERMINAL FURY 19 Exercise - 2019																						✧	✧					
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 19 - 2019																							△					
HUNTSVILLE WARGAMES Event - 19																							△					
RONALD REAGAN FORUM Exercise - 19																							△					
ULCHI FREEDOM GUARD 19 Event - 2019																							✧	✧				
KEEN SWORD 19 Exercise - 2019																							✧	✧	✧			
KEEN EDGE 20 Exercise Event - 2020																							✧	✧	✧	✧		
EAGLE RESOLVE 19 Exercise Event - 2019																								△				
ARABIAN GULF SHIELD 19 Exercise Event 3 - 2019																								△				
MISSILE DEFENSE CONFERENCE Wargame Event - 2019																								✧	✧			
RAMSTEIN ALLIANCE Exercise - 2019																								✧	✧			
NIMBLE TITAN 20 Wargame Event 2- 2020																								✧	✧	✧	✧	
AIR and MISSILE DEFENSE Exercise Series - 2020																									△			
GLOBAL THUNDER 20 Exercise Event - 2020																									△			
VIGILANT SHIELD 20 Exercise Event - 2020																									△			
ARABIAN GULF SHIELD 20 Exercise Event 1 - 2020																									△			
KEY RESOLVE 20 Exercise - 2020																										△		
FLEET SYNTHETIC TRAINING Exercise - 2020																										△		
ARABIAN GULF SHIELD 20 Exercise Event 2 - 2020																										△		
GLOBAL RESPONSE Exercise Event - 2020																										△		
GLOBAL LIGHTNING 20 Exercise Event - 2020																										✧	✧	
TERMINAL FURY 20 Exercise - 2020																										✧	✧	
EAGLE RESOLVE 21 Exercise Event - 2020																										✧	✧	✧
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 20- 2020																											△	
JUNIPER COBRA 20 Exercise - 2020																											✧	
HUNTSVILLE WARGAMES Event - 20																											△	
RONALD REAGAN FORUM Exercise - 20																											△	

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
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Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬡ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
KEEN SWORD 21 Exercise - 2021																											✧	✧
ULCHI FREEDOM GUARDIAN 20 Event - 2020																												△
ARABIAN GULF SHIELD 20 Exercise Event 3 - 2020																												△
MISSILE DEFENSE CONFERENCE Wargame Event - 2020																												✧
RAMSTEIN ALLIANCE Exercise - 2020																												✧
BMDS WARGAME 2021 Event - 2021																												✧
NIMBLE TITAN 21 Wargame Event 1 - 2021																												✧
NIMBLE TITAN 21 Wargame Event 2 - 2021																												✧

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NIMBLE TITAN Event 1Wargame Event - 2014	1	2014	1	2014
VIGILANT SHIELD 14 Exercise Planning - 2014	1	2014	1	2014
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 14- 2014	1	2014	1	2014
GLOBAL LIGHTNING 14 Exercise Event - 2014	1	2014	1	2014
AIR and MISSILE DEFENSE Exercise USCENTCOM Event 1 - 2014	1	2014	1	2014
RAMSTEIN ALLIANCE EXERCISE - 2014	1	2014	1	2014
KEY RESOLVE Planning Exercise - 2014	1	2014	1	2014
GLOBAL THUNDER 15 Exercise Planning - 2014	1	2014	1	2014
MISSILE DEFENSE CONFERENCE Event - 2014	1	2014	1	2014
BMDS WARGAME 2015 Event - 2014	2	2014	2	2014
KEEN EDGE 14 Exercise Event - 2014	2	2014	2	2014
FLEET SYNTHETIC TRAINING Exercise - 2014	2	2014	2	2014
NIMBLE FIRE Exercise Event 2 - 2014	2	2014	2	2014
NIMBLE FIRE Exercise Event 3- 2014	2	2014	2	2014
NIMBLE TITAN Event 2 Wargame Event - 2014	3	2014	3	2014
JUNIPER COBRA 14 - 2014	4	2014	4	2014
GLOBAL THUNDER 15 Exercise Event - 2015	1	2015	1	2015
VIGILANT SHIELD 15 Exercise Event - 2015	1	2015	1	2015
ULCHI FREEDOM GUARD 15 Event - 2015	1	2015	1	2015
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 15 - 2015	1	2015	1	2015
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 1 - 2015	1	2015	1	2015
AIR and MISSILE DEFENSE 15 USCENTCOM Exercise 1 - 2015	1	2015	1	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MISSILE DEFENSE CONFERENCE Wargame Event - 2015	1	2015	1	2015
EPOCH PLANEX 15 Exercise - 2015	1	2015	1	2015
RAMSTEIN ALLIANCE EXERCISE - 2015	1	2015	1	2015
ARABIAN GULF SHIELD 15 Exercise Event 1 - 2015	1	2015	1	2015
NIMBLE FIRE 15 Wargame Event 1 - 2015	1	2015	1	2015
AUSTERE CHALLENGE 15 Exercise - 2015	1	2015	4	2015
BMDS WARGAME 2015 Event - 2015	2	2015	2	2015
KEEN EDGE 15 Exercise Event - 2015	2	2015	2	2015
EAGLE RESOLVE 15 Exercise Event - 2015	2	2015	2	2015
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 2 - 2015	2	2015	2	2015
AIR and MISSILE DEFENSE 15 USCENTCOM Exercise 2 - 2015	2	2015	2	2015
KEEN SWORD 15 Exercise - 2015	2	2015	2	2015
ARABIAN GULF SHIELD 15 Exercise Event 2- 2015	2	2015	2	2015
NIMBLE FIRE 15 Wargame Event 2 - 2015	2	2015	2	2015
GLOBAL LIGHTNING 15 Exercise Event - 2015	3	2015	3	2015
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 3 - 2015	3	2015	3	2015
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 4 - 2015	3	2015	3	2015
GLOBAL DEFENDER Exercise 06 Part 2	3	2015	3	2015
GDEx-06 Part 2 (Ground Test) (Warfighter Exercise)	3	2015	3	2015
KEY RESOLVE 15 Exercise - 2015	3	2015	3	2015
FLEET SYNTHETIC TRAINING Exercise - 2015	3	2015	3	2015
ARABIAN GULF SHIELD 15 Exercise Event 3 - 2015	3	2015	3	2015
NIMBLE FIRE 15 Wargame Event 3 - 2015	3	2015	3	2015
JOINT AIR and MISSILE DEFENSE CENTCOM Exercise Event 5 - 2015	4	2015	4	2015
VIGILANT SHIELD 16 Exercise Event - 2016	1	2016	1	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AIR and MISSILE DEFENSE Exercise Series - 2016	1	2016	1	2016
GLOBAL THUNDER 16 Exercise Event - 2016	1	2016	1	2016
EPOCH PLANEX Exercise - 17	1	2016	1	2016
ARABIAN GULF SHIELD 16 Exercise Event 1 - 2016	1	2016	1	2016
SNG-U-D-1	1	2016	2	2016
SNG-A-H-1	1	2016	3	2016
SNG-U-H-1	1	2016	3	2016
KEY RESOLVE 16 Exercise - 2016	2	2016	2	2016
FLEET SYNTHETIC TRAINING Exercise - 2016	2	2016	2	2016
ARABIAN GULF SHIELD 16 Exercise Event 2- 2016	2	2016	2	2016
GLOBAL LIGHTNING 16 Exercise Event - 2016	2	2016	3	2016
JUNIPER COBRA 16 Exercise - 2016	2	2016	3	2016
TERMINAL FURY 16 Exercise - 2016	2	2016	3	2016
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 16 - 2016	3	2016	3	2016
HUNTSVILLE WARGAMES Event - 16	3	2016	3	2016
RONALD REAGAN FORUM Exercise - 16	3	2016	3	2016
ULCHI FREEDOM GUARD 16 Event - 2016	3	2016	4	2016
SNG-C-D-1	3	2016	4	2016
BMDS Wargame 2017 Event - 2017	3	2016	2	2017
EAGLE RESOLVE 16 Exercise Event - 2016	4	2016	4	2016
ARABIAN GULF SHIELD 16 Exercise Event 3 - 2016	4	2016	4	2016
MISSILE DEFENSE CONFERENCE Wargame Event - 2016	4	2016	1	2017
RAMSTEIN ALLIANCE Exercise - 2016	4	2016	1	2017
SNG-S-H-1	4	2016	2	2017
NIMBLE TITAN 18 Wargame Year 1 - 18	4	2016	3	2017

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
VIGILANT SHIELD 17 Exercise Event - 2017	1	2017	1	2017
AIR and MISSILE DEFENSE Exercise Series - 2017	1	2017	1	2017
EPOCH PLANEX Exercise - 18	1	2017	1	2017
ARABIAN GULF SHIELD 17 Exercise Event 1 - 2017	1	2017	1	2017
GLOBAL RESPONSE Exercise Event - 2016	1	2017	1	2017
GLOBAL THUNDER 17 Exercise Event - 2017	1	2017	1	2017
SNG-A-D-2	1	2017	2	2017
SNG-C-H-1	1	2017	3	2017
KEY RESOLVE 17 Exercise - 2017	2	2017	2	2017
FLEET SYNTHETIC TRAINING Exercise - 2017	2	2017	2	2017
ARABIAN GULF SHIELD 17 Exercise Event 2 - 2017	2	2017	2	2017
GLOBAL LIGHTNING 17 Exercise Event - 2017	2	2017	3	2017
TERMINAL FURY 17 Exercise - 2017	2	2017	3	2017
AUSTERE CHALLENGE 17 Exercise - 2017	1	2017	4	2017
SNG-S-D-2	2	2017	3	2017
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 17 - 2017	3	2017	3	2017
HUNTSVILLE WARGAMES Event - 17	3	2017	3	2017
RONALD REAGAN FORUM Exercise - 17	3	2017	3	2017
ULCHI FREEDOM GUARDIAN 17 Event - 2017	3	2017	4	2017
SNG-U-D-2	3	2017	4	2017
KEEN SWORD 17 Exercise - 2017	3	2017	1	2018
DEMONSTRATION, TABLE-TOP EXERCISES & EXPERIMENTS Event - 17	3	2017	1	2018
ARABIAN GULF SHIELD 17 Exercise Event 3 - 2017	4	2017	4	2017
MISSILE DEFENSE CONFERENCE Wargame Event - 2017	4	2017	1	2018
RAMSTEIN ALLIANCE Exercise - 2017	4	2017	1	2018

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
KEEN EDGE 18 Exercise Event - 2018	4	2017	2	2018
NIMBLE TITAN 18 Wargame Event 2 - 2018	4	2017	3	2018
AIR and MISSILE DEFENSE Exercise Series - 2018	1	2018	1	2018
GLOBAL THUNDER 18 Exercise Event - 2018	1	2018	1	2018
VIGILANT SHIELD 18 Exercise Event - 2018	1	2018	1	2018
EPOCH PLANEX Exercise - 19	1	2018	1	2018
ARABIAN GULF SHIELD 18 Exercise Event 1 - 2018	1	2018	1	2018
SNG-U-H-2	1	2018	2	2018
SNG-C-D-2	1	2018	2	2018
EAGLE RESOLVE 18 Exercise Event - 2018	2	2018	2	2018
KEY RESOLVE 18 Exercise - 2018	2	2018	2	2018
FLEET SYNTHETIC TRAINING Exercise - 2018	2	2018	2	2018
ARABIAN GULF SHIELD 18 Exercise Event 2 - 2018	2	2018	2	2018
GLOBAL RESPONSE (GREx) Exercise Event - 2018	2	2018	2	2018
GLOBAL LIGHTNING 18 Exercise Event - 2018	2	2018	3	2018
JUNIPER COBRA 18 Exercise - 2018	2	2018	3	2018
TERMINAL FURY 18 Exercise - 2018	2	2018	3	2018
SNG-A-H-2	2	2018	3	2018
SNG-C-H-2	2	2018	3	2018
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 18 - 2018	3	2018	3	2018
HUNTSVILLE WARGAMES Event - 18	3	2018	3	2018
RONALD REAGAN FORUM Exercise - 18	3	2018	3	2018
ULCHI FREEDOM GUARDIAN 18 Event - 2018	3	2018	4	2018
SNG-S-H-2	3	2018	4	2018
DEMONSTRATION, TABLE-TOP EXERCISES & EXPERIMENTS Event - 18	3	2018	1	2019

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ARABIAN GULF SHIELD 18 Exercise Event 3 - 2018	4	2018	4	2018
MISSILE DEFENSE CONFERENCE Wargame Event - 2018	4	2018	1	2019
RAMSTEIN ALLIANCE Exercise - 2018	4	2018	1	2019
BMDS WARGAME 2019 Event - 2019	4	2018	2	2019
NIMBLE TITAN 20 Wargame Event 1 - 2020	4	2018	3	2019
AIR and MISSILE DEFENSE Exercise Series- 2019	1	2019	1	2019
GLOBAL THUNDER 19 Exercise Event - 2019	1	2019	1	2019
VIGILANT SHIELD 19 Exercise Event - 2019	1	2019	1	2019
EPOCH PLANEX Exercise - 20	1	2019	1	2019
ARABIAN GULF SHIELD 19 Exercise Event 1 - 2019	1	2019	1	2019
EPOCH PLANEX Exercise - 21	1	2019	1	2020
KEY RESOLVE 19 Exercise - 2019	2	2019	2	2019
FLEET SYNTHETIC TRAINING Exercise - 2019	2	2019	2	2019
ARABIAN GULF SHIELD 19 Exercise Event 2 - 2019	2	2019	2	2019
GLOBAL LIGHTNING 19 Exercise Event - 2019	2	2019	3	2019
TERMINAL FURY 19 Exercise - 2019	2	2019	3	2019
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 19 - 2019	3	2019	3	2019
HUNTSVILLE WARGAMES Event - 19	3	2019	3	2019
RONALD REAGAN FORUM Exercise - 19	3	2019	3	2019
ULCHI FREEDOM GUARD 19 Event - 2019	3	2019	4	2019
KEEN SWORD 19 Exercise - 2019	3	2019	1	2020
KEEN EDGE 20 Exercise Event - 2020	3	2019	2	2020
EAGLE RESOLVE 19 Exercise Event - 2019	4	2019	4	2019
ARABIAN GULF SHIELD 19 Exercise Event 3 - 2019	4	2019	4	2019
MISSILE DEFENSE CONFERENCE Wargame Event - 2019	4	2019	1	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
RAMSTEIN ALLIANCE Exercise - 2019	4	2019	1	2020
NIMBLE TITAN 20 Wargame Event 2- 2020	4	2019	3	2020
AIR and MISSILE DEFENSE Exercise Series - 2020	1	2020	1	2020
GLOBAL THUNDER 20 Exercise Event - 2020	1	2020	1	2020
VIGILANT SHIELD 20 Exercise Event - 2020	1	2020	1	2020
ARABIAN GULF SHIELD 20 Exercise Event 1 - 2020	1	2020	1	2020
KEY RESOLVE 20 Exercise - 2020	2	2020	2	2020
FLEET SYNTHETIC TRAINING Exercise - 2020	2	2020	2	2020
ARABIAN GULF SHIELD 20 Exercise Event 2 - 2020	2	2020	2	2020
GLOBAL RESPONSE Exercise Event - 2020	2	2020	2	2020
GLOBAL LIGHTNING 20 Exercise Event - 2020	2	2020	3	2020
TERMINAL FURY 20 Exercise - 2020	2	2020	3	2020
EAGLE RESOLVE 21 Exercise Event - 2020	2	2020	2	2021
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 20- 2020	3	2020	3	2020
JUNIPER COBRA 20 Exercise - 2020	3	2020	3	2020
HUNTSVILLE WARGAMES Event - 20	3	2020	3	2020
RONALD REAGAN FORUM Exercise - 20	3	2020	3	2020
KEEN SWORD 21 Exercise - 2021	3	2020	2	2021
ULCHI FREEDOM GUARDIAN 20 Event - 2020	4	2020	4	2020
ARABIAN GULF SHIELD 20 Exercise Event 3 - 2020	4	2020	4	2020
MISSILE DEFENSE CONFERENCE Wargame Event - 2020	4	2020	1	2021
RAMSTEIN ALLIANCE Exercise - 2020	4	2020	1	2021
BMDS WARGAME 2021 Event - 2021	4	2020	2	2021
NIMBLE TITAN 21 Wargame Event 1 - 2021	4	2020	3	2021
NIMBLE TITAN 21 Wargame Event 2 - 2021	4	2020	3	2021

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
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COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MC11: *Cyber Operations*	-	1.543	1.212	1.239	-	1.239	1.272	1.308	1.341	1.361	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project MC11 is a new Defensive Cyber Operations Project established in this Program Element (PE) for PB 2014. Funds were previously reported in Project MD11 of this PE.

A. Mission Description and Budget Item Justification

The funds in this project will be utilized to implement and sustain the new DoDI 8510.01 Risk Management Framework (RMF) for DoD Information Technology (IT) requirement for the Missile Defense Agency (MDA) Sensors Directorate and conduct Security Control Assessments (SCA) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for MDA Sensors mission systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the RFM documentation (artifacts, validation results, and Cybersecurity Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&M on all MDA information systems.

This project supports the monitoring and tracking of Cybersecurity mitigation detailed in Information Technology security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA Senior Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation (IV&V) 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 (FISMA).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Network / System Certification and Accreditation (C&A)	1.543	1.212	1.239
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: -Funded Sensors Directorate Information System Security Manager (ISSM) civilian salary & support contractors -Conducted cybersecurity / information assurance engineering and architecture planning for Sensors information technology systems -Planned and tested the cybersecurity controls for the Ballistic Missile Defense System (BMDS) Sensors systems -Developed and maintained DoD Information Assurance Certification and Accreditation (DIACAP) packages for Sensors mission, test, and non-mission support systems -Maintained security posture through reporting, tracking, disseminating, and implementing positive control mechanisms to mitigate potentially critical software vulnerabilities in accordance with DoD IA Vulnerability Management (IAVM) requirements			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Conducted Control Validation Tests (CVT)/Security Control Assessments (SCA) of Sensors mission and supporting systems and provided Plans of Action and Milestones (POA&M) to mitigate cybersecurity/ information assurance deficiencies -Initiated planning for an orderly transition from DIACAP to DoD Risk Management Framework (RMF) for future security authorizations; draft system categorizations for all Sensors mission, test, and non-mission support systems have been generated and security control selection begun -100% of Sensors mission, test, and non-mission supporting information systems are registered in the DoD Information Technology Portfolio Registry (DITPR) database, and 100% of Sensors systems now report and maintain cybersecurity authorization documentation and approvals through the DISA Enterprise Mission Assurance Support Service (eMASS) -Participated in BMDS-level cybersecurity penetration testing in accordance with requirements from the Office of the Director, Operational Test and Evaluation (DOT&E) -Conducted cybersecurity/ information assurance reviews on the Sensors enclaves to assess compliance in implementing and maintaining cybersecurity controls			
FY 2015 Plans: - Continue to fund Sensors Directorate Information Assurance Manager (IAM) civilian salaries - Continue cyber security / information assurance engineering and architecture planning for Sensors information technology systems - Continue to plan and test the IA controls for Ballistic Missile Defense System (BMDS) Sensors systems - Continue to develop Sensors DIACAP certification and accreditation packages - Continue to conduct Controls Validation Testing (CVT) of Sensors mission systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies - Continue to conduct annual information assurance reviews on the Sensors enclaves to assess compliance in implementing and maintaining IA controls			
FY 2016 Plans: - Continue to fund Sensors Directorate Information System Security Manager (ISSM) civilian salaries - Continue cybersecurity / information assurance engineering and architecture planning for Sensors information technology systems - Continue to plan and test the cybersecurity / information assurance controls for Ballistic Missile Defense System (BMDS) Sensors systems - Continue to maintain Sensors DIACAP certification and accreditation packages and begin the transition to the new Risk Management Framework (RMF) accreditation paradigm for Sensors-managed information systems. - Continue to conduct Controls Validation Testing (CVT) / Security Controls Assessment (SCA) of Sensors mission and support systems and provide and maintain Plans of Action and Milestones to mitigate cybersecurity / information assurance deficiencies			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Continue to conduct annual cybersecurity / information assurance reviews on the Sensors enclaves to assess compliance in implementing and maintaining IA controls			
Accomplishments/Planned Programs Subtotals	1.543	1.212	1.239

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	41.051	46.387	49.570	-	49.570	50.533	51.363	52.217	54.247	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0901598C: *Management HQ - MDA*	34.712	35.598	35.871	-	35.871	35.187	34.509	33.466	33.992	Continuing	Continuing
• 13999903: *Planning and Design, Defense Wide*	10.891	38.704	-	-	-	8.233	8.397	8.525	8.822	Continuing	Continuing
• D1300630: *Deveselu, Romania AA Missile Defense System Complex*	50.000	-	-	-	-	-	-	-	-	-	50.000
• D1400634: *Upgrade Early Warning Radar (UEWR), Clear AFS, AK*	17.204	-	-	-	-	-	-	-	-	-	17.204
• D1600640: *Poland, AA Missile Defense System*	-	-	170.597	-	170.597	-	-	-	-	-	170.597

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services (Booz Allen)	C/CPFF	Booz Allen Hamilton : AL, CO, VA	0.000	0.727		0.560	Jul 2015	0.569	Jul 2016	-		0.569	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services (Torch Technologies)	C/CPFF	Torch Technologies : AL, CO, VA	0.000	0.645		0.492	Jul 2015	0.507	Jul 2016	-		0.507	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Civilian Salaries	Various	MDA : AL, CO, VA	0.000	0.171		0.160	Jul 2015	0.163	Jul 2016	-		0.163	Continuing	Continuing	Continuing
		Subtotal	0.000	1.543		1.212		1.239		-		1.239	-	-	-

Remarks

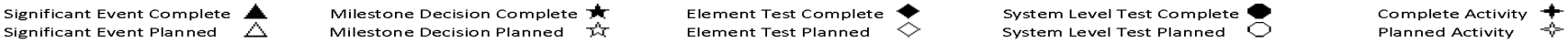
N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	1.543		1.212		1.239		-		1.239	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MC11 / *Cyber Operations*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
BMDS Cyber Security Policy Development	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧				
SN Transition to Cyber Security Risk Management Framework (CRMF)	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧				
SN Information Assurance Certification and Accreditation (C&A) Package Preparation / Submission	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧				
SN Cyber Security Program Policy / Risk Management	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧				
SN Cyber Security Mitigation Monitoring and Tracking	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧				

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MC11 / *Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BMDS Cyber Security Policy Development	1	2014	4	2019
SN Transition to Cyber Security Risk Management Framework (CRMF)	1	2014	4	2019
SN Information Assurance Certification and Accreditation (C&A) Package Preparation / Submission	1	2014	4	2019
SN Cyber Security Program Policy / Risk Management	1	2014	4	2019
SN Cyber Security Mitigation Monitoring and Tracking	1	2014	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / *Ballistic Missile Defense Sensors*	Project (Number/Name) MT11 / *BMDS Radars Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT11: *BMDS Radars Test*	43.953	49.925	-	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The MT11 R-4/4A depicts only test events for which Sensors participation is planned. For a full listing of Ballistic Missile Defense System (BMDS) test events, see the R-4/4A in the BMDS Test and Evaluation Program Element (0603914C).
Beginning in FY 2015 the funding for the BMDS Radars Test (MT11) budget project will be realigned to the BMD Sensor Test Program Element (0604879C)

A. Mission Description and Budget Item Justification

The Sensors test program for European Phased Adaptive Approach (EPAA) Phase I Initial Integrated Defense supported the Integrated Master Test Plan (IMTP) for Operational Test and Evaluation of theater/regional defense systems that were fielded at the end of Calendar Year 2011 (CY 2011) and supported an Operational Assessment of the Ground-based Midcourse Defense (GMD) weapon system.

The Sensors test program for (FY 2013-2015) supports EPAA Phase II Robust Medium Range Ballistic Missile (MRBM) Defense, Discrimination Improvements for Homeland Defense and supports the IMTP for Operational Test and Evaluation of regional and strategic BMDS that will be fielded at the end of calendar year 2015. Refer to R-4 for specific test events.

The Sensors test program (FY16-18) supports EPAA Phase III Robust Intermediate Range Ballistic Missile (IRBM) Defense, Enhanced Homeland Defense and supports the IMTP for Operational Test and Evaluation of the regional and strategic BMDS architecture that will be fielded at the end of Calendar Year 2018 (CY 2018). Refer to R-4 for specific test events.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Ballistic Missile Defense System (BMDS) Level Testing	31.443	-	-
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: -Planned and executed Sensors participation in BMDS Ground Tests in accordance with the BMDS Integrated Master Test Plan (IMTP) -Planned and executed Sensors participation in BMDS Flight Tests in accordance with the BMDS IMTP			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MT11 / *BMDS Radars Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Plans for this scope are included in the Program Element 0604879C Ballistic Missile Defense Sensor Test, Budget Project MT11 ***FY 2016 Plans:*** -Plans for this scope are included in the Program Element 0604879C Ballistic Missile Defense Sensor Test, Budget Project MT11			
Title: Element Test and Infrastructure	18.482	-	-
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** -Configured and maintained Sensors HWILs for use in BMDS Ground Tests and element-level ground tests: Fast Phoenix, GTD-04e Part 2, GTI-04e Part 2, Fast Exchange -Configured and maintained Sensors HWILs for use in BMDS Flight Tests System Pre-Mission Testing: FTG-06b -Supported evolving Single Stimulation Framework (SSF) (software upgrades) integration into the BMDS HWIL Ground Test Infrastructure ***FY 2015 Plans:*** -Plans for this scope are included in the Program Element 0604879C Ballistic Missile Defense Sensor Test, Budget Project MT11 ***FY 2016 Plans:*** -Plans for this scope are included in the Program Element 0604879C Ballistic Missile Defense Sensor Test, Budget Project MT11			
Accomplishments/Planned Programs Subtotals	49.925	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	41.051	46.387	49.570	-	49.570	50.533	51.363	52.217	54.247	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MT11 / *BMDS Radars Test*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
• 13999903: *Planning and Design, Defense Wide*	10.891	38.704	-	-	-	8.233	8.397	8.525	8.822	Continuing	Continuing
• D1400634: *Upgrade Early Warning Radar (UEWR), Clear AFS, AK*	17.204	-	-	-	-	-	-	-	-	-	17.204

Remarks

D. Acquisition Strategy

Test & Evaluation projects use multiple existing development contracts depending on the system(s) involved in the testing.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / *Ballistic Missile Defense Sensors*	Project (Number/Name) MT11 / *BMDS Radars Test*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ballistic Missile Defense System (BMDS) Level Testing - AN/TPY-2 & SBX FT & GT	SS/CPFF	Raytheon : MA	27.643	28.299		-		-		-		-	-	55.942	-
Ballistic Missile Defense System (BMDS) Level Testing - UEWR/CD FT & GT	C/FPIF	deciBel : MA/AL	1.577	3.144		-		-		-		-	-	4.721	-
Element Test and Infrastructure - TPY-2 & SBX SSF Integration & Infrastructure, Sys Test Lab	SS/CPFF	Raytheon : MA	11.210	13.492		-		-		-		-	-	24.702	-
Element Test and Infrastructure - UEWR	C/FPIF	Raytheon, deciBel : AL/MA	3.523	4.990		-		-		-		-	-	8.513	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MT11 / *BMDS Radars Test*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SSF Integration & Infrastructure, Sys Test Lab															
		Subtotal	43.953	49.925		-		-		-		-	-	93.878	-

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	43.953	49.925		-		-		-		-	-	93.878	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MT11 / *BMDS Radars Test*

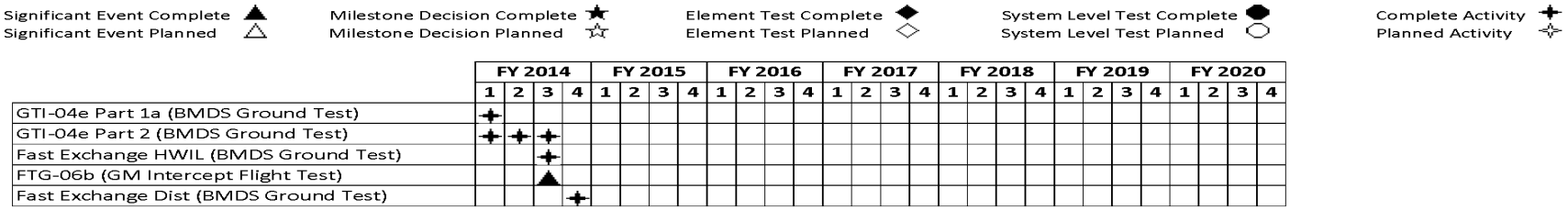


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MT11 / *BMDS Radars Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GTI-04e Part 1a (BMDS Ground Test)	1	2014	1	2014
GTI-04e Part 2 (BMDS Ground Test)	1	2014	3	2014
Fast Exchange HWIL (BMDS Ground Test)	3	2014	3	2014
FTG-06b (GM Intercept Flight Test)	3	2014	3	2014
Fast Exchange Dist (BMDS Ground Test)	4	2014	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / *Ballistic Missile Defense Sensors*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	27.610	15.867	23.582	10.273	-	10.273	10.800	7.291	7.498	7.678	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015, Program Wide Support reflects a proportional change as a result of increases and in FY 2016, reflects a proportional change as a result of decrease to the Ballistic Missile Defense Sensors program element.
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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	15.867	23.582	10.273
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD40 / *Program-Wide Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	15.867	23.582	10.273

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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD40 / *Program-Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	C/CPAF	Various : Multi: AL, CA, CO, VA	2.966	1.302		3.174		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations User Services	MIPR	Various : Multi: AL, CO, NM, VA, VARIOUS	0.000	-		8.251		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (MIPRs)	MIPR	Various : Multi:AL,VA	2.050	3.049		5.150	Nov 2014	0.550	Oct 2015	-		0.550	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (Reqn)	Reqn	Department of Labor : Washington, DC	0.000	-		0.156		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, CO, CA, VA	20.864	11.169		2.447	Jan 2015	9.473	Jan 2016	-		9.473	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support civilian Salaries, Travel	Allot	MDA : Multi:AK, AL,CA, CO, VA	0.000	-		4.160		0.250	Nov 2015	-		0.250	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support, International, and Materiel and Readiness	C/CPAF	JRDC : JRDC	0.000	0.347		0.244		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations, Sustainment and GPC	Allot	Various : Multi: AL, CO, CA, VA	1.730	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	27.610	15.867		23.582		10.273		-		10.273	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / *Ballistic Missile Defense Sensors*	Project (Number/Name) MD40 / *Program-Wide Support*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	27.610	15.867		23.582		10.273		-		10.273	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD40 / *Program-Wide Support*

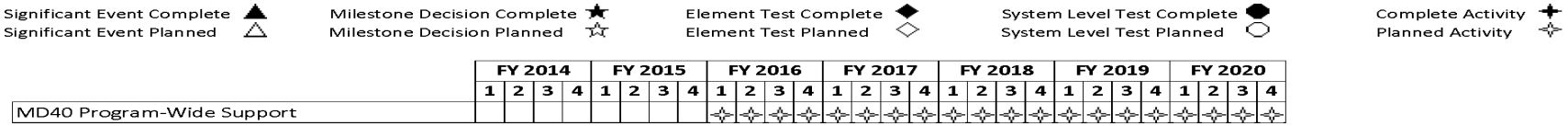


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884C / *Ballistic Missile Defense Sensors*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603890C / *BMD Enabling Programs*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	949.270	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing
MD24: *System Engineering & Integration*	341.857	123.434	138.633	141.651	-	141.651	137.594	139.599	141.353	142.459	Continuing	Continuing
MT23: *Enabling - Test*	29.288	30.298	18.961	19.576	-	19.576	23.709	27.677	26.632	24.968	Continuing	Continuing
MD28: *Intelligence & Security*	62.314	37.969	37.131	40.263	-	40.263	45.182	45.773	46.108	48.378	Continuing	Continuing
MD30: *BMD Information Management Systems*	82.677	79.572	95.197	95.710	-	95.710	97.050	83.201	82.506	87.440	Continuing	Continuing
MC30: *Cyber Operations*	-	12.389	15.452	20.017	-	20.017	23.044	21.164	21.330	24.088	Continuing	Continuing
MD31: *Modeling & Simulation*	245.823	36.388	41.957	43.668	-	43.668	45.989	48.495	48.953	50.782	Continuing	Continuing
MC31: *M&S Cyber Operations*	-	-	0.223	0.225	-	0.225	0.227	0.233	0.235	0.244	Continuing	Continuing
MD32: *Quality, Safety, and Mission Assurance*	122.042	25.982	30.637	29.986	-	29.986	30.294	30.291	30.607	31.756	Continuing	Continuing
MD40: *Program-Wide Support*	65.269	22.933	23.780	17.992	-	17.992	20.003	21.398	22.380	23.489	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

N/A

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense (BMD) System Enabling Programs provide the Missile Defense Agency (MDA) with the critical products and processes needed to combine element missile defense systems into a single, integrated and layered Ballistic Missile Defense System (BMDS), providing the capability required by the BMD Review while improving protection performance and minimizing force structure costs. BMD System-level engineering and integration enables interoperability and drives future capability development from a System perspective to maximize the effectiveness of BMD technologies. Specifically, the Enabling Programs evaluate the integrated BMD System functionality, threat, manufacturing maturity, technical safeguards, and mission assurance effectiveness while simultaneously assessing whether the System is proficient at maintaining its integrity and superiority with advances in technology development. As a result, MDA is able to provide evolving, integrated and layered BMDS performance and capabilities that have been thoroughly assessed and validated through testing and Modeling and Simulation.

This Program Element includes support for the Discrimination Improvements for Homeland Defense (DIHD) effort. The goal of this effort is to develop and field an integrated set of Element capabilities to improve BMDS effectiveness and resilience against the evolving threat. The end result will be a future BMDS architecture more capable of discriminating and destroying a re-entry vehicle with a high degree of confidence, improving Warfighter shot doctrine and preserving inventory. This

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*

effort encompasses a Near-term, Mid-term, and Far-term DIHD capability fielding. DIHD is a combined effort between Systems Engineering, Ground-based Midcourse Defense (PE 0603882C), BMD Sensors (PE 0603884C), C2BMC (PE 0603896C), Aegis BMD (PE 0603892C) and Advanced C4ISR (PE 0603179C).

The MDA Enabling Programs are:
-(MD24) Systems Engineering and Integration (SE&I) - Systems Engineering and Integration leads the integration of the Ballistic Missile Defense (BMD) System using Element and Component capabilities to provide the Warfighter with the ability to defend the United States and its friends and allies from ballistic missile attacks. Systems Engineering defines and develops integrated BMD System capability improvements through BMD level control of system requirements, and allocates those requirements to the Elements and Components most capable of supporting intercepts in a particular Phased Adaptive Approach (PAA) phase.
-(MT23) Enabling-Test - The Enabling Programs Test project drives BMDS test planning, execution and post-test assessment and provides critical data for proving that missile defense works.
-(MD28) Intelligence and Security - MDA develops data from intelligence sources into the necessary engineering products that drive the design, development, and testing used to inform and support decision-making for BMD System capability deliveries. Engineering processes translate missile data into threat parameter space and generate threat scenarios contained in the SE&I-developed Adversary Capability Document. These products are also fundamental for system ground testing, hardware-in-the-loop testing, and the target development for live-fire testing necessary to assess system operation and verify and validate system performance. Security is also provided as an Enabling Program to apply protection across the entire BMDS and MDA.
-(MD30) Information Management Systems - Information Management is vital to the efficient operation and safeguarding of all information, from development to fielding new BMDS capabilities.
-(MC30) Cyber Operations - The Cyber Operations project sustains MDA's DoD Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities. It also funds the MDA Security Operations Center (SOC), responsible for monitoring, managing, patching, and maintaining MDA network and core Information Technology (IT) services; issuing and tracking Technical Compliance Orders; and coordinating overarching Enterprise NetOps. The MDA Computer Emergency Response Team (CERT), funded in this project, monitors the classified and unclassified information technology MDA administrative IT networks and report 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 also funds Information Assurance (IA) governance management and administrative management support, annual Agency-wide computer-based IA training and metrics reporting, implementation of Public Key Infrastructure and Enabling and Communications Security (COMSEC) related activities.
-(MD31) Modeling and Simulation (M&S) - As missile defense technologies continually advance and the threat changes, M&S develops system-level models, simulations, and environments, then evaluates performance of the Elements, Components, and overall BMD System in support of verification, validation and accreditation activities. MDA's M&S program provides a cost effective means to assess and explore the performance space of the BMDS beyond what can be physically tested under current test range conditions and within the Agency's fiscal constraints. Through conceptual simulation activities, M&S provides the capability to design and develop technologies to hedge against future missile threats.
-(MC31) M&S Cyber Operations provides the network / system certification and accreditation of M&S related information technology networks and systems necessary to comply with the Federal Information Security Management Act.
-(MD32) Quality, Safety, and Mission Assurance - Quality, Safety, and Mission Assurance has the distinct management role of improving quality, safety, and mission assurance throughout the product life cycle of design, manufacturing, test and system operation, in order to achieve a safe and reliable BMD System.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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*

-(MD40) Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	372.309	410.863	412.264	-	412.264
Current President's Budget	368.965	401.971	409.088	-	409.088
Total Adjustments	-3.344	-8.892	-3.176	-	-3.176
• Congressional General Reductions	-	-0.192			
• Congressional Directed Reductions	-	-8.700			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.526	-			
• SBIR/STTR Transfer	-5.870	-			
• Other Adjustment	-	-	-3.176	-	-3.176

Change Summary Explanation

FY 2015 changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

The FY 2016 decrease reflects realignment of Department of Defense priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / *BMD Enabling Programs*	Project (Number/Name) MD24 / *System Engineering & Integration*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD24: *System Engineering & Integration*	341.857	123.434	138.633	141.651	-	141.651	137.594	139.599	141.353	142.459	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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.

A. Mission Description and Budget Item Justification

Systems Engineering and Integration (SE&I) continues to develop and improve the integrated Ballistic Missile Defense System (BMDS) architectures, engineer major improvements to regional Ballistic Missile Defense (BMD) capabilities, provide system improvements that enable earlier BMD engagements, and develop the BMDS level Models and Simulations (M&S) necessary to support BMDS testing and delivery to the Warfighter. SE&I is the single team that applies its technical expertise and tools across many disciplines and specialties to lead a collaborative effort to define, design, test and integrate the Ballistic Missile Defense System. SE&I develops technical roadmaps, knowledge points, and capability trades at the BMDS level to balance integration and capability improvement efforts. The SE&I workforce, including Industry and Contractor Support Services (CSS), also provides analysis, decision-making and planning activities for real-world operations to the National Command Authority, Joint Staff, Military Services, North Atlantic Treaty Organization (NATO), Combatant Commanders, Operational Test Agencies, Director of Operational Test and Evaluation, Allies, and others.

Fundamental to the System Engineering and Integration approach is development, coordination, and dissemination of fully vetted products at each stage of the engineering process. These products document and communicate key information such as: technical goals and objectives, design trades and resulting decisions to update system design and interface requirements; integration plans and schedules; test objectives that include the collection of data needed to anchor the system representative models and simulations and enable independent verification and validation; assessment through ground and flight test results; and fielding plans.

SE&I defines required system-wide behavior, validates Element system designs, and assesses and verifies system capabilities. The system engineering projects that accomplish these functions include: Future Concepts and Planning; Requirements and Design; and System Level Verification and Assessment. Additional engineering efforts cross multiple stages of the system engineering process: Discrimination, BMDS Assessment, Engineering Analysis and Quick Response Team, Knowledge Centers, Risk Management, Anti-Tamper, Manufacturing and Producibility, and Integrated Air and Missile Defense (IAMD).

The Discrimination Improvements for Homeland Defense (DIHD) effort will develop and field integrated Element capabilities to improve BMD System ability to identify lethal and non-lethal objects. System Engineering and Integration (SE&I) will perform BMDS performance analysis and requirements engineering activities to specify the BMDS requirements and interfaces to achieve the DIHD capability. SE&I will allocate DIHD Near-term performance requirements across BMDS elements. For DIHD Mid-term and Far-term, SE&I will establish performance goals for the technology development phase, and develop functional, performance, and interface requirements to address the DIHD Mid-term and Far-term threat set. SE&I will establish ground and flight test requirements for Near-term, Mid-term, and Far-term phases, and generate threat data to support analysis and testing activities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

The SE&I Major Program Goals are:
- Develop, design, test and integrate a layered BMDS that provides the required Ballistic Missile Defense performance
- Provide system-level support to the Elements, and lead collaborative cross-Element, cross-Component engineering
- Develop the European Phased Adaptive Approach (EPAA) architecture 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 in Europe, and enhance homeland defense
- Develop discrimination improvements for the Homeland Defense mission.
- As technical authority for Integrated Air and Missile Defense (IAMD), provide a consistent, disciplined systems engineering process using a multi-Service systems engineering team to support integration of 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
- Verify and assess Ballistic Missile Defense System (BMDS) performance and capabilities through testing
- Develop BMDS performance assessment requirements, and conduct assessments that form the basis for technical capability declarations in support of system fielding decisions
- Identify the Critical Engagement Conditions and data required to develop the test campaigns that will demonstrate regional defense performance, and verify and assess the capability of each Phased Adaptive Approach
- Define the test objectives necessary to anchor BMDS-level models and simulations, enable independent verification and validation, and identify System issues occurring in ground and flight tests
- 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
- Provide detailed analysis to support MDA leadership and US policy decisions
- Develop anti-tamper approaches to enable international fielding of the BMDS.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Future Concepts and Planning	14.432	12.451	13.285
Articles:	-	-	-

Description: This activity funds the Ballistic Missile Defense System (BMDS) architecture and future concept development, and efforts and studies to address the BMDS emergent threat. The BMDS Architect develops and improves the integrated BMDS architecture by analyzing and proposing architecture alternatives and new technologies. The architecture and concepts team incorporates these alternatives and technologies into the BMDS future capabilities Systems Engineering effort by establishing and documenting initial system-level requirements.

FY 2014 Accomplishments:
- Supported technical evaluation activities for future programs (improvements to Command and Control Battle Management and Communications (C2BMC), Aegis 5.1).
- Conducted BMDS Performance Analysis and Trade Studies to support technical reviews (C2BMC, Aegis 5.1).

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conducted BMDS Program of Record gap assessment and concept alternative assessment in support of the budget development process. - Initiated Development of Capability Planning Specifications to document functional and performance requirements for Future BMDS Programs. - Analyzed architecture alternatives and new technologies, including advanced weapon and sensor concepts (such as airborne infrared (IR) technologies, Directed Energy (laser) concepts, and rail gun applications). - Identified and evaluated architecture alternatives that are complementary to and interoperable with North Atlantic Treaty Organization (NATO) systems and theaters around the world and that improve the systems` performance. - Participated in CAPE-directed Analysis of Alternatives (AoA) for Homeland Defense and Sensors Evaluation of Options. - Assessed and added emerging threats to the Missile Defense Agency (MDA)`s lethality prediction models. - Produced and executed the BMDS Lethality Program Plan to encompass updates to lethality assessments, collateral effects and consequences. - Assessed emerging threats and developed countermeasure mitigation strategies and roadmaps.			
FY 2015 Plans: - Identify architecture alternatives that improve the BMD System's performance and are complementary to and interoperable with NATO systems and theaters around the world. - Analyze architecture alternatives and new technologies, including new radar concepts. - Conduct BMDS Program of Record gap assessment and concept alternatives assessments in support of the budget development process. - Update concept capability documentation based on the results of the Phased Adaptive Approach (PAA) Phase 3 and future architectural trade studies and technology development experiments. - Develop and document integrated requirements for improvements to, or augmentations of, current system capabilities in the form of a Phased Implementation Plan. - Support Warfighter development of the Prioritized Capabilities List (PCL). - Develop the Achievable Capabilities List (ACL) to respond to the PCL. - Develop and refine Capability Planning Specifications for future BMDS Elements/Components. - Support technology development reviews for future/follow-on BMDS Element development efforts.			
FY 2016 Plans: FY 2016 increase is to assess options for integration of future BMD capabilities. - Conduct studies to address Ballistic Missile Defense System capability gaps and keep pace with emergent regional and homeland threats. -- Analyze and document architecture alternatives and new technologies to address the gaps, including directed energy, Electro-Optical/Infrared sensors and multiple object kill vehicles. -- Develop initial functional, performance and integration planning requirements for the next generation weapons and sensors			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-- Identify architecture alternatives that improve the BMD System's performance and are complementary to and interoperable with NATO systems and theaters around the world. - Assess cost and capability implications of integrating existing or planned sensor capabilities such as the Navy's Air and Missile Defense radar (AMDR), and potential allied partner assets. - Update concept capability documentation based on architectural options, trade studies, and technology development experiments. - Develop and document integrated requirements for improvements to, or augmentations of, current system capabilities in the form of a Phased Implementation Plan. - Provide BMD System data to inform Warfighter development of the Prioritized Capabilities List (PCL), and develop the Achievable Capabilities List (ACL) to respond to the Warfighters' needs. - Develop and refine Initial Requirements Documentation and Preliminary Specification Change Notices for future BMDS Elements/Components. - Support technology development reviews for future/follow-on BMDS Element development efforts.			
Title: Requirements and Design	28.042	27.354	28.391
Articles:	-	-	-
Description: The Requirements and Design effort develops the Ballistic Missile Defense (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 optimized capabilities for the Warfighter.			
FY 2014 Accomplishments: - Conducted BMDS Engineering Reviews to address new capabilities: --Conducted BMD System/Subsystem Design Reviews following FY 2014 Element Requirement Reviews to assess maturity of the evolving technical baseline (System and Subsystem levels) and plans for integration, test and verification. -- Determined BMD system implications resulting from the Aegis BMD 5.1 Preliminary Design Review (PDR) and the Standard Missile-3 Block IIA (SM-3 Blk IIA) Critical Design Review (CDR). --Performed technical evaluations of emerging adversary characteristics. - Conducted engineering analyses and performed trade studies for system design and development products. - Updated BMDS Engineering Documentation to capture refinements to integrated system build content approved for design, development and integration, in accordance with BMDS Phased Implementation Plan: --Delivered BMD System Description Document (BMD SDD) and BMD System Specification (BMD SS) updates (e.g. incorporation of Robust IRBM Defense capabilities). --Delivered updated BMDS Interface Control Documents (ICDs).			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Continued to provide updated requirements traceability and certification guidance and conducted detailed System/Element requirements reconciliation to resolve technical disconnects and ensure common requirements interpretation. - Conducted engineering analyses and studies for regional BMD and COCOM-specific requests. ***FY 2015 Plans:*** - Develop functional performance, interface, and design suitability requirements in collaboration with BMDS element engineers to flow-down and allocate requirements to Programs. - Develop updates to the BMD System Description Document, BMD System Specification, and BMD System Interface Control Documents to document integrated system build content, such as discrimination, approved for design, development and integration. - Conduct System/Subsystem Requirements Reviews to ensure correct technical execution and understanding to realize the Phased Adaptive Approach (PAA) and increase the flexibility and capability of the BMDS. - Conduct engineering analyses and perform trade studies for system design and development products. - Complete the engineering work to finalize System Change Notices (SCNs) for PAA Phase 3 requirements changes, to include mitigation strategies to address BMDS Discrepancy Reports. - Develop requirements language for Discrimination Improvements for Homeland Defense (DIHD) Mid Term capabilities to executing elements, in collaboration with BMDS Program Elements. - Develop requirements language for Common Kill Vehicle (CKV) Requests for Proposals (RFP). - Conduct CKV System Requirements Review (SRR). - Provide updated requirements traceability and certification guidance and conduct detailed System/Element requirements reconciliation to resolve technical disconnects and ensure common requirements interpretation. ***FY 2016 Plans:*** FY 2016 increase addresses interceptor lethality requirements. - Develop functional performance, interface, and design suitability requirements in collaboration with BMDS element engineers to flow-down and allocate requirements to Programs. - Develop updates to the BMD System Description Document, BMD System Specification, and BMD System Interface Control Documents to document integrated system build content, such as discrimination, approved for design, development and integration. - Conduct Requirements Reviews to ensure correct technical execution and understanding to realize Enhanced Homeland Defense (EHD) and Phased Adaptive Approach (PAA) and increase the flexibility and capability of the BMDS. - Conduct engineering analyses and perform trade studies for system design and development products. - Develop Specification Change Notices (SCNs) for post- PAA Phase 3 requirements changes, to include mitigation strategies to address BMDS Discrepancy Reports. - Deliver requirements language for Discrimination Improvements for Homeland Defense (DIHD) Mid Term capabilities to executing elements, in collaboration with BMDS Program Elements.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Refine Redesigned Exoatmospheric Kill Vehicle (REKV) requirements for Enhanced Homeland Defense. - Provide updated requirements traceability and certification guidance and conduct detailed System/Element requirements reconciliation to resolve technical disconnects and ensure common requirements interpretation. - Assess and add emerging threats to MDA`s lethality prediction models. - Produce and execute the BMDS Lethality Program Plan to encompass updates to lethality assessments, collateral effects and consequences.			
Title: Systems Engineering, Engineering Analysis and Quick Response Team	8.848	8.851	9.504
Articles:	-	-	-
Description: The Systems Engineering, Engineering Analysis, and Quick Response Team task provides rapid response, high quality systems engineering analysis products and supporting technical data to address external and internal Agency inquiries and decisions; produces complex weapon system performance data; develops responses to Warfighter requests for information and analysis (RFI/RFA); supports Real World Events; and maintains the Effectiveness Metrics Standard to ensure consistent and accurate analyses.			
FY 2014 Accomplishments: - Conducted system level performance analysis to support ongoing BMDS Architecture and Systems Engineering efforts: -- Conducted performance analysis to support the development Homeland Defense system architecture options. -- Developed expected performance for PAA phase 3 and beyond. -- Conducted technical analyses and provided performance predictions for future BMDS components, such as additional radars, interceptor sites, and Redesigned Kill Vehicle (RKV). -- Provided technical assessments in critical areas, such as technical performance measures. - Conducted analyses to support Aegis BMD 5.1 and Standard Missile-3 Block IIA (SM-3 Blk IIA) engineering reviews. - Supported VV&A of primary BMDS performance model. - Responded to 44 Warfighter, COCOM and other requests for analyses and requests for information and provided analytical support for real-world events. - Provided updated Element/Component Characteristics for Analysis (E/CCA) with performance Element data changes to ensure consistent capability predictions and analyses. - Maintained the Effective Metric Standard (EMS) necessary for systematic presentation of alternatives to MDA senior leaders and the Combatant Commanders.			
FY 2015 Plans: - Continue performance analysis to support the development Homeland Defense system architecture options. - Conduct system level performance analyses to support ongoing BMDS Architecture and Systems Engineering efforts: -- Analyze and predict the performance of future BMDS capabilities, such as new sensor concepts. -- Provide technical assessments in critical areas, such as technical performance measures.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Respond to Warfighter, Combatant Command (COCOM) and other requests for analyses and requests for information; provide analytical support for real-world events. - Provide updated Element/Component Characteristics for Analysis (E/CCA) with Element data changes to ensure consistent capability predictions and analyses. - Maintain the Effective Metric Standard (EMS) necessary for systematic presentation of alternatives to MDA senior leaders and the Combatant Commanders. ***FY 2016 Plans:*** FY 2016 increase keeps pace with increased demand for technical performance analyses. - Continue performance analysis to support the development of Homeland Defense system architecture development and employment options. - Conduct system level performance analyses to support ongoing BMDS Architecture and Systems Engineering efforts: -- Analyze and predict the performance of future BMDS capabilities, such as Long Range Discrimination Radar and other advanced sensors. -- Provide technical assessments in critical areas, and collaborate with BMDS Elements to define and track technical performance measures. - Respond to Warfighter, Combatant Command (COCOM) and other requests for analyses and requests for information; provide analytical support for real-world events. - Provide updated Element/Component Characteristics for Analysis (E/CCA) Element data to ensure consistent capability predictions and analyses. - Maintain the Effective Metric Standard (EMS) necessary for systematic presentation of alternatives to MDA senior leaders and the Combatant Commanders.			
Title: Anti-Tamper & Engineering Manufacturing Readiness Level Development ***Articles:*** ***Description:*** Anti-Tamper & Engineering Manufacturing Readiness Level (EMRL) Development develops anti-tamper approaches to enable international fielding of the Ballistic Missile Defense System (BMDS) by providing protection against reverse engineering of critical technologies, supporting coalition warfare, and extending the effective operational life of the BMDS. ***FY 2014 Accomplishments:*** - Assisted BMDS Programs in developing Anti-Tamper strategy, to facilitate horizontal protection of BMDS enabling technologies and obtained concurrence of Department of Defense Anti-Tamper Executive Agent on Anti-Tamper Plans for BMDS Programs. - Continued to develop Anti-Tamper detection and response technologies to mitigate risk. - Applied Engineering and Manufacturing Readiness Levels (EMRLs) to evaluate engineering and manufacturing maturity of BMDS elements, systems, and components.	4.899 -	5.683 -	5.382 -

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Assessed and reported readiness of MDA development efforts for transition to production. ***FY 2015 Plans:*** - Develop anti-tamper approaches to enable international fielding, support coalition warfare, and extend the effective operational life of the BMDS. - Assist BMDS Programs in developing and implementing Anti-Tamper detection and response technologies to mitigate risk. - Apply Engineering and Manufacturing Readiness Levels (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 Plans:*** FY 2016 decrease reflects flow-down of EMRL criteria to Elements. - Develop and implement anti-tamper approaches to enable international fielding, support coalition warfare, and extend the effective operational life of the BMDS. - Assist BMDS Programs in developing and implementing Anti-Tamper detection and response technologies to mitigate risk. - Monitor application of Engineering and Manufacturing Readiness Levels (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.			
Title: System-Level Verification and Assessment	17.185	14.126	14.686
Articles:	-	-	-
Description: The activity determines assessment requirements, identifies opportunities for data collection, and uses data obtained during BMDS ground and flight tests and analysis events to anchor models and simulation, verify performance, and provide technical assessments of Ballistic Missile Defense System (BMDS) capabilities. This effort also provides subject matter expertise to support high priority BMDS studies and reviews. ***FY 2014 Accomplishments:*** - Performed independent analyses and assessments for MDA Leadership, including investment prioritization, system architecture studies, design reviews, and failure investigations. - Conducted non-advocate assessments of the BMDS capabilities and limitations prior to capability delivery decisions to determine fielding readiness, including assessments of Defense of the Homeland, Phased Adaptive Approach (PAA), Defense of Israel and Theater/Regional BMD configurations. - Monitored development and recommended improvements to the digital simulation enterprise based on an evaluation of the validity of Component, Element and System-level models (and frameworks) and participation in digital Modeling and Simulation events.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Defined requirements to assess current planned BMDS capabilities and emerging capabilities, such as new sensors, and map requirements to data collection venues (i.e., ground tests, flight tests, exercises). -- Evaluated current Modeling & Simulation (M&S) capability to address assessment requirements for new capabilities, and provide recommendations for new or improved M&S. ***FY 2015 Plans:*** - Conduct non-advocate assessments of BMDS capabilities and limitations prior to capability delivery decisions to determine fielding readiness (including Defense of the Homeland, Defense of Israel and Theater/Regional BMD) - Conduct extensive analysis of data collected in BMD test events (digital, hardware-in-the-loop, and flight test), instrumental to understanding BMD operations and performance - Identify mitigation approaches for system performance issues uncovered during the course of analysis and assessment - Produce independent assessments of each Capability Delivery for THAAD, PATRIOT, Aegis BMD, AN/TPY-2 and C2BMC in support of fielding readiness for PAA Phases - Perform independent analyses and assessments for MDA Leadership, including investment prioritization, system architecture studies, design reviews, and failure investigations. - Monitor development and recommend improvements to the digital simulation enterprise based on an evaluation of the validity of Component, Element and System-level models (and frameworks) and participation in performance assessment activities and digital Modeling and Simulation events. ***FY 2016 Plans:*** FY 2016 increase supports completion of EPAA Phase 2 assessment. - Define requirements to assess current planned BMDS capabilities and emerging capabilities, such as new sensors, and map requirements to data collection venues (i.e., ground tests, flight tests, exercises). -- Evaluate current Modeling & Simulation (M&S) capability to address assessment requirements for new capabilities, and provide recommendations for new or improved M&S. - Conduct extensive analysis of data collected in BMDS ground and flight test events, instrumental to understanding BMD operations 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 BMDS capabilities and limitations prior to capability delivery decisions to determine fielding readiness (including Homeland Defense improvements and European Phased Adaptive Approach (EPAA) Phases). - Produce independent assessments of each Capability Delivery for THAAD, PATRIOT, Aegis BMD, AN/TPY-2 and C2BMC to support determination of fielding readiness for EPAA capabilities.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Perform non-advocate analyses and assessments for MDA Leadership, including investment prioritization, system architecture studies, design reviews, and failure investigations.			
Title: Knowledge Centers	14.235	13.269	14.452
Articles:	-	-	-
Description: Knowledge Centers serve as independent technical advisors to Ballistic Missile Defense System (BMDS) program offices in the C2BMC, Interceptor, Space, and Sensor areas to support development of technical approaches and improve reliability.			
FY 2014 Accomplishments: -Provided reach-back capability (via Federally Funded Research and Development Centers and University Affiliated Research Centers) for Element program managers in the four key technical areas of C2BMC, Interceptors, Sensors, and Space: -- Supported BMDS and Element Independent Review Teams -- Identified and provided recommendations to mitigate technical risks; incorporated out-of-the-box concepts for Risk Mitigation and Reduction -- Provided independent technical analysis to support Knowledge Point definitions, system and element performance assessments, and risk management -- Provided subject matter expertise for Failure Review Boards and Failure Investigation teams -- Conducted assessments of emerging technologies, including focal plane array development, radiation-hardened components, and improvements to modeling and simulation.			
FY 2015 Plans: -Provide reach-back capability (Federally Funded Research and Development Centers and University Affiliated Research Centers) for Element program managers: -- Support BMDS and Element Independent Review Teams -- Identify and provide recommendations to mitigate technical risks: incorporate out-of-the-box concepts for Risk Mitigation and Reduction -- Provide independent technical analysis to support Knowledge Point definitions, system and element performance assessments, and risk management -- Provide subject matter expertise for Mission Assurance assessments, Failure Review Boards and Failure Investigation teams -- Conduct assessments of emerging technologies, including focal plane array development, radiation-hardened components, and improvements to modeling and simulation			
FY 2016 Plans: FY 2016 increase supports additional demand for interceptor expertise for Homeland Defense improvements.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provide subject matter expertise, to include reach-back capability as needed (Federally Funded Research and Development Centers and University Affiliated Research Centers) for Element program managers: -- Support BMDS and Element Independent Review Teams -- Identify and provide recommendations to mitigate technical risks: incorporate out-of-the-box concepts for Risk Mitigation and Reduction -- Promote knowledge sharing from external technical sources to MDA -- Provide analysis and support for mission assurance assessments, Failure Review Boards and Failure Investigation teams - Provide independent technical analysis: -- Support Knowledge Point definition for new programs (i.e., LRDR, RKV) -- Continue to provide system and element performance assessments for BMDS programs - Conduct assessments of emerging technologies as required.			
Title: Risk Management	5.480	6.701	7.272
Articles:	-	-	-
Description: The Risk Management task identifies Ballistic Missile Defense System (BMDS) Element and Component technical risks, and tracks status and risk mitigation progress. ***FY 2014 Accomplishments:*** - Established, managed, and maintained configuration control the MDA Risk Management process. - Reviewed and approved program element risks, on quarterly basis. - Convened and chaired Risk Management Working Group. ***FY 2015 Plans:*** - Convene and chair Risk Management Working Group. - Execute the risk management and mission readiness working group process. - Establish and maintain a risk database using the Failure Reporting and Corrective Action System (FRACAS). - Review and approve program element risks, on quarterly basis. ***FY 2016 Plans:*** FY 2016 increase supports risk mitigation for EPAA Phase 2 Technical Capability Declaration. - 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 (FRACAS). - Review and approve program element risks, on quarterly basis.			
Title: Manufacturing and Producibility	2.500	4.126	4.441
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
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. ***FY 2014 Accomplishments:*** - Updated MDA reliability standards and procured reliability tools. - Assessed failures of operationally deployed equipment to identify trends and corrective actions. - Established MDA industrial base capability assessments tied to manufacturing technology. - Assessed and identified plans to reduce critical manufacturing materials and technologies in missile production. - Integrated reliability and production improvements with SBIR research and development. - Supported development of a cost-effective and producible Redesigned Kill Vehicle (RKV). ***FY 2015 Plans:*** - Assess the effectiveness of reliability programs for each MDA Product (Radar, Launcher, Missile/Interceptor, etc.) to achieve/ sustain required reliability. - Identify failure trends/modes -- Evaluate impact on the Probability of Mission Success -- Evaluate Return on Investment (ROI) from implementing corrective actions. - Review the Stockpile Reliability Programs for all MDA Missiles/Interceptors for effectiveness, and identify opportunities for efficiencies to be gained by sharing test resources or test results/analysis for common/comparable components. - Implement supply chain risk identification and mitigation tracking system across the BMDS. - Conduct deep dive into critical component supply base. - Utilize tracking system to mitigate manufacturing supply issues with critical components. - Support the development of a cost-effective and producible Common Kill Vehicle (CKV). FY 2015 increase due to increased support for supply chain risk management and CKV efforts. ***FY 2016 Plans:*** FY 2016 increase reflects additional emphasis on standardization and monitoring of Manufacturing and Producibility practices at Primes. Manufacturing and Producibility: - Continue Implementation of supply chain risk identification and mitigation tracking system across the BMDS. - Conduct assessment into critical component supply base. - Conduct technical assessments of critical manufacturing technologies and collaborate investment strategies with national security space components.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Utilize tracking system to mitigate manufacturing supply issues with critical components. Reliability: - Assess the effectiveness of reliability programs for each MDA Product (Radar, Launcher, Missile/Interceptor, etc.) to achieve/ sustain required reliability. - Provide Reliability Analysis In Support Of Risk and Mission Success Assessments For BMDS Flight Test. - Identify failure trends/modes -- Evaluate impact on the Probability of Mission Success -- Evaluate Return on Investment (ROI) from implementing corrective actions. - Work with Logistics Support to develop MDA Reliability and Logistic Policies/Plans that are synergistic and promote an integrated Sustainability effort within the Elements. - Ensure that BMDS products have achieved the required maturity in RAM to support the transition from MDA to the appropriate service organization.			
Title: Discrimination	27.813	31.972	29.038
Articles:	-	-	-
Description: The Discrimination Improvements for Homeland Defense (DIHD) effort will develop and field Near-term, Mid-term, and Far-term integrated Element capabilities to improve BMD System ability to identify lethal and non-lethal objects for fielding in the Near-term, Mid-term, and Far-term. This effort includes BMDS performance analysis and requirements development to specify the BMDS requirements and interfaces to achieve the DIHD capability. SE&I will allocate discrimination performance requirements across BMDS elements and all DIHD phases. For Mid-term and Far-term DIHD, SE&I will establish performance goals for the technology development phase, and develop functional, performance, and interface requirements to address the DIHD Mid-term and Far-term threat set. SE&I will establish ground and flight test target requirements for Near-term, Mid-term, and Far-term phases, and generate threat data to support analysis, design, development, and testing activities.			
FY 2014 Accomplishments: - Completed Near-Term DIHD threat requirements and development of threat data. - Developed specification change notices for Near-Term Discrimination Improvements for Homeland Defense (DIHD) functional and performance requirements. - Completed initial development of Mid-Term DIHD threat data to support technology assessment activities. - Published technical content definition and scoping of the Near-Term and Mid-Term DIHD capabilities and provided it to executing Elements. - Completed performance prediction for Mid-Term DIHD proposed technology. - Assessed feasibility, contribution, and maturity of candidate discrimination technologies to support the Mid-term DIHD capability. - Completed development of ground test campaign requirements for Near-Term DIHD improvements.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Completed development of flight test data collection requirements for risk reduction of Near-Term DIHD, and Mid-Term DIHD improvements. - Conducted studies, analysis, implementation, and test of Ground Based Interceptor (GBI) salvo logic, systems performance to support the BMDS specification change notice, target object map improved acceptance, and advanced qualified re-entry vehicle as well as the associated algorithm design for near term DIHD - Initiated the program management, systems engineering, and special access program (SAP) requirements for mid-term DIHD - Initiated near term and mid-term SAP requirements, and FFRDC efforts - Provided Aegis BMD system engineering support for Near Term DIHD initiative - Conducted threat engineering to assess NT DIHD threat data maturity and availability for BMD 4.0.3 use - Updated models and performed predictive analysis to assess Long Range Surveillance and Track (LRS&T) capability against the emergent threat - Developed engineering solutions and began BMD 4.0.3 baseline upgrade to incorporate LRS&T capability against the emergent threat - Defined concepts for improved Aegis BMD tracking and discrimination capabilities - Developed discrimination algorithms and identified discrimination enhancements to existing Aegis BMD design - Conducted modeling and simulation and performance analysis of proposed discrimination algorithms in preparation for transition into a future Aegis BMD baseline			
FY 2015 Plans: - Complete integration phase for DIHD Near-term ground testing via GTI-06. - Conduct planning, assessment, and specification work to keep pace with emerging threat. - Continue development of software upgrades to C2BMC to aggregate information from multiple sensors to improve identification of lethal targets to fire control. - Continue development of TPY-2 sensor and interface upgrades required to pass sensor generated features to C2BMC needed for improving identification of lethal targets. - Conduct data collection and analysis for final assessment of discrimination technologies candidates planned for DIHD Mid-term. - Down select development ready technologies for the DIHD Mid-term phase content. - Complete BMDS functional and performance requirements for DIHD Mid-term capability. FY 2015 increase due to ramp-up of high priority effort to improve BMD System Discrimination for Homeland Defense.			
FY 2016 Plans: FY 2016 decrease reflects completion of System-level Near-Term DIHD work. - Complete integration phase for Near-Term DIHD ground testing via GTI-06. - Monitor Near-term DIHD ground testing via GTI-06 and GTD-06 and analyze test results. - Assess Near-Term DIHD capability readiness for fielding.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Support Element Mid-Term DIHD requirements definition in support of Element design refinement. - Complete system testing environment Objective Simulation Framework updates for Mid-term DIHD capabilities. - Assist in development of data collection requirements for of Mid-Term DIHD capability flight tests. - Define & develop Far-term DIHD threat models for engineering analysis, requirements development, capabilities development, and test and verification. - Plan, manage, and conduct trades and analysis tasks across the elements for Far-term DIHD technology application to the Far-term DIHD threat.			
Title: Integrated Air and Missile Defense (IAMD)	-	14.100	15.200
Articles:	-	-	-
Description: The Integrated Air and Missile Defense (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 build capability increments, and configuration control across the joint systems. This work will provide improved performance such as improved air picture to enable engagement coordination decision making, increase battlespace, and improve track continuity. This effort was previously funded by the Air Force and transitioned to MDA in FY 2015.			
FY 2014 Accomplishments: N/A			
FY 2015 Plans: - The Integrated Air and Missile Defense (IAMD) effort was previously funded by the Air Force and transitioned to MDA in FY 2015. - Lead IAMD engineering and integration efforts, including interface definition and control and technical requirements allocation across the Joint IAMD Service systems. - Using Modeling and Simulations, analyze technical options under operationally stressing threat conditions to improve air picture of sufficient quality to support coordinated decision making across a joint warfighting environment. - Assess cost, schedule and risk impacts of implementing the options on selected air defense assets across the joint services. - Downselect to the preferred approach for a first increment of capability that will provide the Warfighter an improved air picture for coordinated decision making. - Continue to develop the IAMD joint system architecture to maintain consistency with JIAMDO operational architecture. - With JIAMDO, complete operational benefit assessment using Virtual Warfare Center (VWC).			
FY 2016 Plans: FY 2016 increase supports IAMD system requirements review.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Maintain and deliver updates to an IAMD system of systems level requirement specification documenting the technical requirements for allocation to the affected air defense programs of record. - Conduct Joint IAMD system requirements review with affected service systems. - Expand the IAMD Modeling and Simulation capabilities developed in FY14 and FY15 to support derivation of more detailed Joint Track Management Control (JTMC) requirements and evaluate performance of the selected technical approach for achieving the JROC-approved JTMC operational requirements to include the capability to support advanced engagement coordination across the air domain. - Continue to develop the IAMD joint system architecture which is consistent with the JROC approved IAMD operational architecture. - Define engineering tasks for Increment 2 capability.			
Accomplishments/Planned Programs Subtotals	123.434	138.633	141.651

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	251.899	163.892	228.021	-	228.021	230.306	257.014	218.533	247.707	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	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, 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 possible and practical.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Future Concepts and Planning - Future Concepts - Architecture CSS	C/CPFF	Sparta : AL	0.000	1.249		2.733	Oct 2014	2.994	Oct 2015	-		2.994	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Architecture Support	Various	Various : VA, AL	0.000	1.590		1.505	Oct 2014	1.513	Oct 2015	-		1.513	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - CSS	C/CPAF	CSC : AL	15.958	3.679		0.840	Oct 2014	0.856	Oct 2015	-		0.856	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 1	MIPR	SNL : CA	1.481	0.290		0.370	Oct 2014	0.377	Oct 2015	-		0.377	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 3	MIPR	MIT/LL : MA	0.000	0.328		1.110	Oct 2014	1.132	Oct 2015	-		1.132	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 4	MIPR	JHU/LL : VA	1.400	1.740		0.740	Oct 2014	0.755	Oct 2015	-		0.755	Continuing	Continuing	Continuing
Future Concepts and Planning - Future	MIPR	MITRE : VA	0.700	0.394		0.370	Oct 2014	0.387	Oct 2015	-		0.387	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Concepts - FFRDC / UARC 5															
Future Concepts and Planning - Future Concepts - FFRDC / UARC 6	MIPR	Aerospace : CA	0.833	0.333		0.444	Oct 2014	0.453	Oct 2015	-		0.453	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Industry	C/CPAF	Boeing : AL	20.112	3.693		2.072	Oct 2014	2.114	Oct 2015	-		2.114	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - OGA	MIPR	AMRDEC : AL	1.800	-		-		-		-		-	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Support	Allot	MDA : VA / AL	1.972	1.136		2.267	Oct 2014	2.704	Oct 2015	-		2.704	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - Lethality Spt - FFRDC/ UARC 4	MIPR	SNL : CA	0.000	0.350		0.350	Oct 2014	0.357	Oct 2015	-		0.357	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - Lethality Spt - CSS	C/CPAF	Corvid : NC	0.000	-		0.715	Oct 2014	0.744	Nov 2015	-		0.744	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - CSS 1	C/CPFF	CSC : AL	22.663	6.019		3.730	Oct 2014	3.509	Oct 2015	-		3.509	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - CSS 3	C/CPFF	MEI : AL	0.000	0.275		0.275	Oct 2014	0.281	Oct 2015	-		0.281	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - FFRDC/UARC 1	MIPR	MIT/LL : MA	2.681	-		-		-		-		-	-	2.681	-
Requirements and Design - Reqts & Design - FFRDC/UARC 2	MIPR	LLNL : CA	0.505	0.095		0.384	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - FFRDC/UARC 3	MIPR	MITRE : VA	0.000	-		-		0.555	Oct 2015	-		0.555	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Requirements and Design - Reqts & Design - HAENS Spt	Various	Various : Various	0.000	0.279		0.320	Oct 2014	0.460	Oct 2015	-		0.460	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - Industry	C/CPAF	Boeing : AL	59.841	12.487		11.548	Oct 2014	11.128	Oct 2015	-		11.128	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - MDA	Various	MDA : AL, VA	9.931	8.537		9.016	Oct 2014	9.219	Nov 2015	-		9.219	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - OGA	MIPR	AMRDEC : AL	1.950	-		1.016	Oct 2014	2.138	Oct 2015	-		2.138	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	-		-		0.793	Oct 2015	-		0.793	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - CSS	C/CPFF	CSC : AL	19.593	3.317		4.500	Oct 2014	4.590	Oct 2015	-		4.590	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - CSS 2	C/CPFF	SAIC : VA, AL	1.203	4.040		4.040	Oct 2014	4.121	Oct 2015	-		4.121	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - FFRDC/ UARC 2	MIPR	MITRE : VA	5.611	-		-		-		-		-	-	5.611	-
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - Industry	C/CPAF	Boeing : AL	62.467	-		-		-		-		-	-	62.467	-
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - MDA	Various	MDA : VA, AL	1.193	1.491		0.311	Oct 2014	-		-		-	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - Anti-Tamper Support	MIPR	NSWC Crane : IN	5.154	0.700		0.205	Oct 2014	0.209	Nov 2015	-		0.209	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - CSS 2	C/CPAF	CSC - MiDAESS : AL	1.551	0.450		0.213	Oct 2014	-		-		-	-	2.214	-
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - CSS/Travel	C/CPFF	DRC, Cobham : CA	2.890	-		-		-		-		-	-	2.890	-
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - Commonality and Standards	C/CPFF	DRAPER : MA	6.265	-		-		-		-		-	-	6.265	-
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - MDA	Allot	MDA : AL, VA	3.260	3.749		4.957	Oct 2014	4.859	Oct 2015	-		4.859	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - OGA Support	MIPR	AMRDEC : AL	0.000	-		0.308	Oct 2014	0.314	Nov 2015	-		0.314	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Independ Tech Assess - FFRDC/UARC 4	MIPR	GTRI : GA	7.121	-		-		-		-		-	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - CSS	C/CPFF	CSC - MiDAESS : AL	1.000	1.809		1.396	Oct 2014	1.424	Nov 2015	-		1.424	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 1	MIPR	Aerospace : CA	12.151	1.215		1.500	Oct 2014	1.495	Oct 2015	-		1.495	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 2	MIPR	JHU APL : VA	6.522	1.464		1.480	Oct 2014	0.894	Oct 2015	-		0.894	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 6	MIPR	MIT/LL : MA	13.896	2.033		1.875	Oct 2014	1.860	Oct 2015	-		1.860	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 7	MIPR	MITRE : VA	9.983	1.778		2.200	Oct 2014	2.225	Oct 2015	-		2.225	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	-		0.993	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - MDA	Allot	MDA : VA, AL	2.747	2.969		0.525	Oct 2014	0.547	Oct 2015	-		0.547	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - OGA	MIPR	AMRDEC : AL	1.441	2.680		2.085	Oct 2014	2.130	Oct 2015	-		2.130	Continuing	Continuing	Continuing
System-Level Verification and Assessment - V&A Industry Support	C/CPFF	Boeing : AL	0.000	3.237		3.065	Oct 2014	3.118	Oct 2015	-		3.118	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 1	MIPR	Aerospace : CA	6.436	2.116		1.095	Oct 2014	1.438	Oct 2015	-		1.438	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 2	MIPR	MIT/LL : MA	3.376	1.450		1.114	Oct 2014	1.453	Oct 2015	-		1.453	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 3	FFRDC	MITRE : VA	2.870	1.343		1.099	Oct 2014	1.366	Oct 2015	-		1.366	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 4	FFRDC	JHU/APL : VA	3.305	1.300		1.055	Oct 2014	1.077	Oct 2015	-		1.077	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 5	FFRDC	SDL : MA	0.292	-		-		-		-		-	-	0.292	-
Knowledge Centers - KC - FFRDC/UARC 7	MIPR	GTRI : GA	2.839	1.100		-		-		-		-	-	3.939	-

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Knowledge Centers - KC - FFRDC/UARC 8	MIPR	JPL : CA	1.516	-		-		-		-		-	-	1.516	-
Knowledge Centers - KC - FFRDC/UARC 9	MIPR	ORNL : TN	1.179	-		-		-		-		-	-	1.179	-
Knowledge Centers - KC - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	-		-		0.900	Oct 2015	-		0.900	Continuing	Continuing	Continuing
Knowledge Centers - KC - MDA	Various	MDA : AL, VA	6.602	5.694		7.253	Oct 2014	6.643	Oct 2015	-		6.643	Continuing	Continuing	Continuing
Knowledge Centers - KC - OGA	MIPR	AMRDEC : AL	0.215	-		-		-		-		-	-	0.215	-
Knowledge Centers - KC - Other	MIPR	Northrop Grumman : VA	0.306	-		-		-		-		-	-	0.306	-
Knowledge Centers - KC - Various	MIPR	Various : Various	0.000	1.232		1.653	Oct 2014	1.575	Oct 2015	-		1.575	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - Analysis	Various	MDA : VA, AL	0.275	3.451		5.144	Oct 2014	5.238	Oct 2015	-		5.238	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - Analysis Spt	Various	Various : Various	0.000	1.129		0.978	Oct 2014	0.864	Nov 2015	-		0.864	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - CSS	C/CPFF	MEI : AL	4.146	0.275		-		-		-		-	-	4.421	-
Risk Management - Risk Mgt - FFRDC/UARC	MIPR	MITRE : VA	2.460	0.625		0.579	Oct 2014	0.377	Oct 2015	-		0.377	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	-		-		0.793	Oct 2015	-		0.793	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - Other 1	MIPR	DAU : VA	0.165	-		-		-		-		-	-	0.165	-
Manufacturing and Producibility - Core Standards	C/CPFF	Boeing : AL	0.000	-		1.070	Oct 2014	1.091	Nov 2015	-		1.091	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility	Various	MDA : AL	0.000	0.632		0.894	Nov 2014	0.645	Oct 2015	-		0.645	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / *BMD Enabling Programs*	Project (Number/Name) MD24 / *System Engineering & Integration*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Manufacturing and Producibility - Mfg and Producibility - CSS	C/CPFF	CSC : AL	0.000	0.351		-		-		-		-	-	0.351	-
Manufacturing and Producibility - Mfg and Producibility - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	-		-		0.500	Oct 2015	-		0.500	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility - OGA Support	MIPR	AMRDEC : AL	0.000	1.517		2.162	Nov 2014	2.205	Nov 2015	-		2.205	Continuing	Continuing	Continuing
Discrimination - Aegis BMD Algorithm Development, Modeling & Simulation, Performance Analysis (FFRDC)	MIPR	MIT / LL : MA	0.000	0.650		-		-		-		-	Continuing	Continuing	Continuing
Discrimination - Aegis BMD Algorithm Development, Modeling & Simulation, Performance Analysis (Prime)	SS/CPFF	Lockheed Martin : NJ	0.000	2.415		-		-		-		-	Continuing	Continuing	Continuing
Discrimination - Aegis BMD Algorithm Development, Modeling & Simulation, Performance Analysis (UARC)	SS/CPFF	JHU / APL : MD	0.000	0.735		-		-		-		-	Continuing	Continuing	Continuing
Discrimination - DIHD - BMD 4.0.3 Dev.	MIPR	Various : MD, VA, CA	0.000	0.663		-		-		-		-	Continuing	Continuing	Continuing
Discrimination - DIHD - BMD 4.0.3 Dev. (PRIME)	SS/CPFF	Lockheed Martin : NJ	0.000	2.996		-		-		-		-	Continuing	Continuing	Continuing
Discrimination - Discrimination - CSS	C/CPFF	CSC : AL	0.000	2.600		8.731	Oct 2014	4.860	Nov 2015	-		4.860	Continuing	Continuing	Continuing
Discrimination - Discrimination - Industry	C/CPAF	Boeing : AL, VA	0.000	-		7.004	Oct 2014	11.005	Nov 2015	-		11.005	Continuing	Continuing	Continuing
Discrimination - Discrimination - Support	Various	MDA : AL, VA	0.000	-		10.046	Oct 2014	9.741	Nov 2015	-		9.741	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / *BMD Enabling Programs*	Project (Number/Name) MD24 / *System Engineering & Integration*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Discrimination - Discrimination - Various	Various	Various : AL, VA	0.000	-		6.191	Oct 2014	3.432	Nov 2015	-		3.432	Continuing	Continuing	Continuing
Discrimination - Discrimination Improvement Homeland Defense (DIHD) Engineering	C/CPFF	Boeing : AL	0.000	7.412		-		-		-		-	Continuing	Continuing	Continuing
Discrimination - OGA Discrimination Improvement Homeland Defense (DIHD)	MIPR	SED : AL	0.000	0.690		-		-		-		-	Continuing	Continuing	Continuing
Discrimination - Prime Discrimination Improvement Homeland Defense (DIHD)	C/CPFF	Boeing : AL, AZ	0.000	9.652		-		-		-		-	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - FFRDC	Various	Various : AL, VA, MD	0.000	-		1.410	Nov 2014	1.510	Nov 2015	-		1.510	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - Support	Various	MiDAESS : AL, VA, CO	0.000	-		2.115	Nov 2014	2.282	Nov 2015	-		2.282	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - Various	MIPR	DoD Activities : Various	0.000	-		10.575	Nov 2014	11.408	Nov 2015	-		11.408	Continuing	Continuing	Continuing
		Subtotal	341.857	123.434		138.633		141.651		-		141.651	-	-	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / *BMD Enabling Programs*	Project (Number/Name) MD24 / *System Engineering & Integration*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	341.857	123.434		138.633		141.651		-		141.651	-	-	-

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

Significant Event Complete / Significant Event Planned — Milestone Decision Complete / Milestone Decision Planned — Element Test Complete / Element Test Planned — System Level Test Complete / System Level Test Planned — Complete Activity / Planned Activity

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Ballistic Missile Defense System Description Document (BMD SDD) - FY 2014	▲																											
Adversary Data Package (ADP) - FY 2014	▲																											
Aegis BMD 5.1 Preliminary Design Review (PDR)	▲																											
Element Design Reviews - FY 2014		▲																										
System Engineering Plan (SEP) Update - FY 2014		▲																										
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2014		▲																										
Ballistic Missile Defense System Interface Control Documents (SICD) - FY 2014			▲																									
EPAA Phase 2 Assessment Requirements Review - FY 2014				▲																								
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2014				▲																								
Provide Independent Assessments to MDA - FY 2014				▲																								
System/Subsystem Requirements Review - FY 2015					△																							
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY 2015					▲																							
Adversary Data Package (ADP) - FY 2015					△																							
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2015					△																							
Ballistic Missile Defense System Specification (BMD SS) - FY 2015						△																						
Element Design Reviews - FY 2015						△																						
Ballistic Missile Defense System Engineering Review - FY 2015							△																					
Update to Integrated Master Assessment Plan (IMAP) - 3Q FY 2015							△																					
Provide Independent Assessments to MDA - FY 2015								△																				
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2015								△																				

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Update Master Integration Plan (MIP) - FY 2015								△																				
Adversary Data Package (ADP) - FY 2016									△																			
Ballistic Missile Defense System Description Document (BMD SDD) - FY 2016									△																			
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2016									△																			
Element Design Reviews - FY 2016										△																		
System Engineering Plan (SEP) Update - FY 2016										△																		
Ballistic Missile Defense System Engineering Review - FY 2016											△																	
Ballistic Missile Defense System Interface Control Documents (SICD) - FY 2016											△																	
Update Achievable Capabilities List - FY 2016											△																	
Update to Integrated Master Assessment Plan (IMAP) - 3Q 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 Master Integration Plan (MIP) - FY 2016												△																
Adversary Data Package (ADP) - FY 2017													△															
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY 2017													△															
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2017													△															
Ballistic Missile Defense System Specification (BMD SS) - FY 2017														△														
Element Design Reviews - FY 2017														△														
Ballistic Missile Defense System Engineering Review - FY 2017															△													
Update to Integrated Master Assessment Plan (IMAP) - 3Q FY 2017															△													
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2017																△												

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Provide Independent Assessments to MDA - FY 2017																△												
Update Master Integration Plan (MIP) - FY 2017																△												
Adversary Data Package (ADP) - FY 2018																	△											
Ballistic Missile Defense System Description Document (BMD SDD) - FY 2018																	△											
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2018																	△											
Element Design Reviews - FY 2018																		△										
Ballistic Missile Defense System Engineering Review - FY 2018																			△									
Ballistic Missile Defense System Interface Control Documents (SICD) - FY 2018																			△									
Update Achievable Capabilities List - FY 2018																			△									
Update to Integrated Master Assessment Plan (IMAP) - 3Q FY 2018																			△									
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2018																				△								
Provide Independent Assessments to MDA - FY 2018																				△								
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2018																				△								
Update Master Integration Plan (MIP) - FY 2018																				△								
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2019																					△							
Adversary Data Package (ADP) - FY 2019																					△							
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY 2019																					△							
Deliver Assessment for EPAA Phase 3 – FY 2019																					△							
Ballistic Missile Defense System Specification (BMD SS) - FY 2019																						△						
Element Design Reviews - FY 2019																						△						
System Engineering Plan (SEP) Update - FY 2019																						△						
Update to Integrated Master Assessment Plan (IMAP) - 3Q FY 2019																							△					

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Ballistic Missile Defense System Engineering Review - FY 2019																							△					
Update Master Integration Plan (MIP) - FY 2019																								△				
Provide Independent Assessments to MDA - FY 2019																								△				
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2019																								△				
Adversary Data Package (ADP) - FY 2020																									△			
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2020																									△			
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY 2020																									△			
System Engineering Plan (SEP) Update - FY 2020																										△		
Ballistic Missile Defense System Specification (BMD SS) - FY 2020																										△		
Ballistic Missile Defense System Engineering Review - FY 2020																											△	
Update to Integrated Master Assessment Plan (IMAP) - 3Q FY 2020																											△	
Update Master Integration Plan (MIP) - FY 2020																												△
Provide Independent Assessments to MDA - FY 2020																												△
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2020																												△

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ballistic Missile Defense System Description Document (BMD SDD) - FY 2014	1	2014	1	2014
Adversary Data Package (ADP) - FY 2014	1	2014	1	2014
Aegis BMD 5.1 Preliminary Design Review (PDR)	1	2014	1	2014
Element Design Reviews - FY 2014	2	2014	2	2014
System Engineering Plan (SEP) Update - FY 2014	2	2014	2	2014
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2014	2	2014	2	2014
Ballistic Missile Defense System Interface Control Documents (SICD) - FY 2014	3	2014	3	2014
EPAA Phase 2 Assessment Requirements Review - FY 2014	4	2014	4	2014
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2014	4	2014	4	2014
Provide Independent Assessments to MDA - FY 2014	4	2014	4	2014
System/Subsystem Requirements Review - FY 2015	1	2015	1	2015
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY 2015	1	2015	1	2015
Adversary Data Package (ADP) - FY 2015	1	2015	1	2015
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2015	1	2015	1	2015
Ballistic Missile Defense System Specification (BMD SS) - FY 2015	2	2015	2	2015
Element Design Reviews - FY 2015	2	2015	2	2015
Ballistic Missile Defense System Engineering Review - FY 2015	3	2015	3	2015
Update to Integrated Master Assessment Plan (IMAP) - 3Q FY 2015	3	2015	3	2015
Provide Independent Assessments to MDA - FY 2015	4	2015	4	2015
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2015	4	2015	4	2015
Update Master Integration Plan (MIP) - FY 2015	4	2015	4	2015
Adversary Data Package (ADP) - FY 2016	1	2016	1	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ballistic Missile Defense System Description Document (BMD SDD) - FY 2016	1	2016	1	2016
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2016	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 Engineering Review - FY 2016	3	2016	3	2016
Ballistic Missile Defense System Interface Control Documents (SICD) - FY 2016	3	2016	3	2016
Update Achievable Capabilities List - FY 2016	3	2016	3	2016
Update to Integrated Master Assessment Plan (IMAP) - 3Q 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 Master Integration Plan (MIP) - FY 2016	4	2016	4	2016
Adversary Data Package (ADP) - FY 2017	1	2017	1	2017
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY 2017	1	2017	1	2017
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2017	1	2017	1	2017
Ballistic Missile Defense System Specification (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 Integrated Master Assessment Plan (IMAP) - 3Q 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 Master Integration Plan (MIP) - FY 2017	4	2017	4	2017
Adversary Data Package (ADP) - FY 2018	1	2018	1	2018
Ballistic Missile Defense System Description Document (BMD SDD) - FY 2018	1	2018	1	2018
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2018	1	2018	1	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Element Design Reviews - FY 2018	2	2018	2	2018
Ballistic Missile Defense System Engineering Review - FY 2018	3	2018	3	2018
Ballistic Missile Defense System Interface Control Documents (SICD) - FY 2018	3	2018	3	2018
Update Achievable Capabilities List - FY 2018	3	2018	3	2018
Update to Integrated Master Assessment Plan (IMAP) - 3Q FY 2018	3	2018	3	2018
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2018	4	2018	4	2018
Provide Independent Assessments to MDA - FY 2018	4	2018	4	2018
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2018	4	2018	4	2018
Update Master Integration Plan (MIP) - FY 2018	4	2018	4	2018
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2019	1	2019	1	2019
Adversary Data Package (ADP) - FY 2019	1	2019	1	2019
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY 2019	1	2019	1	2019
Deliver Assessment for EPAA Phase 3 – FY 2019	1	2019	1	2019
Ballistic Missile Defense System Specification (BMD SS) - FY 2019	2	2019	2	2019
Element Design Reviews - FY 2019	2	2019	2	2019
System Engineering Plan (SEP) Update - FY 2019	2	2019	2	2019
Update to Integrated Master Assessment Plan (IMAP) - 3Q FY 2019	3	2019	3	2019
Ballistic Missile Defense System Engineering Review - FY 2019	3	2019	3	2019
Update Master Integration Plan (MIP) - FY 2019	4	2019	4	2019
Provide Independent Assessments to MDA - FY 2019	4	2019	4	2019
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2019	4	2019	4	2019
Adversary Data Package (ADP) - FY 2020	1	2020	1	2020
Update to Integrated Master Assessment Plan (IMAP) - 1Q FY 2020	1	2020	1	2020
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY 2020	1	2020	1	2020
System Engineering Plan (SEP) Update - FY 2020	2	2020	2	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ballistic Missile Defense System Specification (BMD SS) - FY 2020	2	2020	2	2020
Ballistic Missile Defense System Engineering Review - FY 2020	3	2020	3	2020
Update to Integrated Master Assessment Plan (IMAP) - 3Q FY 2020	3	2020	3	2020
Update Master Integration Plan (MIP) - FY 2020	4	2020	4	2020
Provide Independent Assessments to MDA - FY 2020	4	2020	4	2020
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2020	4	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT23: *Enabling - Test*	29.288	30.298	18.961	19.576	-	19.576	23.709	27.677	26.632	24.968	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

FY 2016 increase keeps pace with projected FY 2016-FY 2020 Integrated Master Test Plan (IMTP) events, and reflects increase in pre- and post-mission System-level analyses, Modeling and Simulation (M&S) integration, and supporting validation and assessment activities required to support European Phased Adaptive Approach (EPAA) Phase 3 Technical Capability Declaration.

A. Mission Description and Budget Item Justification

In the Enabling Program's Test project, Systems Engineering and Integration drives Ballistic Missile Defense System (BMDS) planning, execution, and post-test assessment, providing critical data to prove that missile defense works as designed. Modeling and Simulation (M&S) provides the tools and framework required to prepare for and execute ground and flight tests and perform post-test reconstructions.

System Engineering and Integration (SE&I) Major Program Goals for the Integrated Master Test Plan (IMTP):
- Develop BMDS Performance Assessment parameters
- Identify the Critical Engagement Conditions and data required to develop the test campaigns that will demonstrate regional defense performance, and verify and assess the capability of each Phased Adaptive Approach (PAA)
- Define the test objectives and assessment criteria via the Integrated Master Assessment Plan and Flight Test Strategic Plan for all System level test events to anchor M&S and address data collection requirements.
- Develop, manage and use BMDS level Modeling and Simulation (M&S) to verify BMDS performance in system operational regions outside the live fire testing regions.

During test integration and model validation, engineering studies and analyses enable the allocation of test requirements to individual test events, design of test architectures, definition of target requirements, and generation of appropriate scenarios for ground and flight tests, in order to collect the required model validation data. With the support of the Director of Operational Test and Evaluation (DOT&E), SE&I works with the Service Operational Test Agencies (OTA) to incorporate operational test requirements to ensure the incremental capability being transferred to the Warfighter will be operationally effective, suitable, and survivable. SE&I leads test failure review boards, identifies shortfalls in data collection, and reallocates objectives to future test events as needed until all identified model validation data is collected. Reliability, Availability and Maintainability data collected through the Joint Reliability and Maintainability Evaluation Team (JRMET) and quarterly data scoring boards with the Elements is available to Warfighter commanders and increases the confidence levels in the predicted performance of the BMDS. SE&I documents abnormal system behavior observed during System-level tests and alerts MDA to issues with test article reliability. The Failure Reporting, Analysis, and Corrective Action System (FRACAS) provides a framework to investigate System test failures and anomalies and to identify solutions that will ultimately improve BMDS performance and reliability.

SE&I identifies and coordinates test objectives and ensures BMDS requirements are being met by the BMD System under test. Systems Engineering plays a key role in Ballistic Missile Defense test design and development by defining, allocating to test events, and tracking Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs), as documented in the Integrated Master Test Plan (IMTP). The CECs and EMEs include key test points allocated to test events to ensure

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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that the design of the BMDS test includes data collection to show proper system operation; they also provide validation, verification, and assessment data for the digital models and simulations used to predict BMDS performance. These models and simulations, along with the rigorous test and verification process, will be used to demonstrate BMDS performance in areas where no live-fire-testing is performed and will directly support fielding decisions and BMDS deployed operations.

SE&I supports System Pre-Mission predictions for system level flight tests using the test framework set up with the BMDS configuration for a particular flight test. This provides confidence readiness for Flight Test execution by predicting BMDS performance and exercising element interfaces. This work also ensures the flight test will collect the required data and the data management plan will support System and Element Post-Flight Reconstruction (SPFR) objectives. System Post-Flight Reconstruction uses a hardware-in-the-loop (HWIL) and/or Digital Modeling and Simulation Environment to replicate the day of flight for the BMDS configuration, including the actual environmental conditions and target dynamics observed in the test. The results of this process increase confidence in the models and simulations by anchoring the results to the real world event, with emphasis on the CECs and EMEs. System and Element Post-Flight Reconstructions are used for validation (anchoring) of BMDS and Element models and simulations.

The distinct capabilities of MDA`s Modeling and Simulation (M&S) systems and products provide the BMDS, the Warfighter, and the Operational Test Agency (OTA) with an evaluation capability for individual components and for the overall M&S system-of-systems. MDA validates and accredits system-level models and simulations by anchoring them to real-world events to support accurate and comprehensive assessments of the BMDS. Future M&S development activities will focus on the model and simulation frameworks, BMDS Element models, and core truth modeling (e.g., threat, phenomenology, lethality, and environment). The success of the missile defense program is enabled by quality M&S systems and products that help prove BMDS technologies work. In particular, MDA M&S System and Product testing is based on an integrated, comprehensive, and phased test program as outlined in MDA`s IMTP. Within the construct of the IMTP, MDA Element unique M&S systems, subsystems, and components are tested as part of their respective development and integration, a necessary precursor to conducting BMD System-level M&S testing (e.g., integrated ground test, performance/technical assessment venues). 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 2014	FY 2015	FY 2016
Title: Integrated Master Test Plan (IMTP) Engineering, Integration, Verification and Assessment - SE&I	10.728	-	-
Articles:	-	-	-
Description: The SE&I IMTP effort develops Ballistic Missile Defense System (BMDS) test objectives and scenarios, and participates in test planning, execution, and post-test assessment.			
FY 2014 Accomplishments: - Provided engineering support for planning, execution, and analysis of the test events listed in the Integrated Master Test Plan (IMTP) - Designed test architecture, defines target requirements, and generate appropriate scenarios for ground and flight tests. - Defined test objectives and assessment criteria for all System level test events to anchor Modeling and Simulation (M&S) and address data collection requirements-Collected BMDS reliability and maintainability data and document requirements for successful completion of test events.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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 2014	FY 2015	FY 2016
-Provided pre- and post-test support for the Failure Reporting, Analysis, and Corrective Action System (FRACAS), which investigates BMDS test failures and anomalies and identifies solutions that enhance system performance and reliability. -Defined, executed, and documented results of required performance assessments supporting incremental capability deliveries. -Updated the Integrated Master Assessment Plan (IMAP) semi-annually to address changes in planned delivery of Ballistic Missile Defense System content as reflected in the Ballistic Missile Defense System Description Document (BMD SDD), the Ballistic Missile Defense System Specification (BMD SS), Master Integration Plan, and detailed design and development documentation. Update also reflects changes to BMDS deployment and utilization. ***FY 2015 Plans:*** The FY 2015 plans for this activity are realigned within new MT23 Accomplishment/Planned Program: Engineering and Analysis. ***FY 2016 Plans:*** N/A			
Title: Modeling/Simulation (M/S) Verification, Validation and Accreditation (VV/A) and Test Operations	19.570	-	-
Articles:	-	-	-
Description: The M&S Integrated Master Test Plan (IMTP) effort integrates Single Stimulation Framework (SSF) and Objective Simulation Framework (OSF) products with MDA and Non-MDA element models, core truth components and Hardware in the Loop (HWIL) assets to form Ballistic Missile Defense System (BMDS) architectures for the execution of IMTP events. ***FY 2014 Accomplishments:*** -Integrated, tested, functionally qualified, and delivered end-to-end BMDS simulations supporting various uses. -Developed and established Hardware-in-the-loop (HWIL) M&S Integration Test Cases for Ground and Flight Tests (Pre-Post Mission). -Conducted M&S HWIL Integration Bench Mark testing for Ground and Flight Tests (Pre-Post Mission), by integrating the BMDS HWIL M&S framework with MDA and non-MDA Elements into the test event BMDS architecture. -Developed and presented M&S objectives, event requirements, accreditation status and strategic VV&A plans as part of MDA BMDS Integrated Master Test Plan (IMTP) development. FY 2014 activities are consistent with reductions defined in the IMTP. ***FY 2015 Plans:*** The FY 2015 plans for this activity are realigned within new MT23 Accomplishment/Planned Program: Engineering and Analysis. ***FY 2016 Plans:*** N/A			
Title: Engineering and Analysis	-	18.961	19.576

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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 2014	FY 2015	FY 2016
Articles:	-	-	-

Description: Beginning in FY 2015, the Engineering and Analysis effort provides engineering support for planning and execution of BMDS ground and flight test events, including test architectures, objectives, and assessment criteria, and modeling and simulation pre- and post-test analysis support.

FY 2014 Accomplishments:
FY 2014 accomplishments are provided in the above sections. Beginning in FY 2015, these tasks were consolidated into this Engineering & Analysis activity.

FY 2015 Plans:
- Transferred from other accomplishments beginning in FY 2015.

Provide engineering support for planning, execution, and analysis of the test events listed in the Integrated Master Test Plan (IMTP):
- Design test architecture, defines target requirements, and generate appropriate scenarios for ground and flight tests.
- Define test objectives and assessment criteria for all System level test events to anchor Modeling and Simulation (M&S) and address data collection requirements.
- Allocate and track Critical Engagement Condition (CEC) and Empirical Measurement Events (EME) data requirements and sufficiency.
- Perform System-level and interoperability analysis.
- Participate in major test reviews.
- Generate BMDS test observations and coordinate associated BMDS Discrepancy Reports (BDR) within the Failure Reporting, Analysis, and Corrective Action System (FRACAS)
- Produce the threat data required to enable BMDS ground tests, flight tests and performance assessment.
- Utilize models and simulations (M&S) for pre-test assessment and post-test review, as well as M&S updates.
- Provide Systems Engineering and Integration (SE&I) test configuration management; risk assessment; and anomaly/deficiency review, assessment and closure to support data gathering for BMDS hardware/software reliability improvements.
- Analyze test results to identify shortfalls so that objectives can be reassigned to future events to provide required verification and model validation data.
- Develop and document long-range BMDS IMTP planning and integration strategies related to overarching BMDS analysis product integration.
- Develop and provide capability upgrades to test analysis tools in concert with the BMDS evolution (e.g., Modular Analysis and Reporting Suite (MARS), Assessment Parameter EXtraction (APEX) to enhance analysis capability and efficiency.
- Populate the MARS database with data from the most recently completed tests to support as-built analysis and capability assessments.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provide engineering analysis process software to include System Coordination and Observation Reporting Environment (SCORE), Software Change Analysis Review Environment (SCARE), File Manager (FileMan), ManPower Loading (MPL). - Develop and provide infrastructure, software, and associated MDA/IA compliance for the RApid Scenario Prototype (RASP) capability. - Develop and optimize candidate ground test scenarios and produce the associated scenario data packages. - Develop and establish hardware-in-the-loop (HWIL) M&S integration test cases for ground and flight tests (pre-post mission). - Provide modeling and technical analysis support during Combatant Command (COCOM) wargames and exercises. - Develop, deliver, and present the Quick Look Brief (QLB), Executive Quick Look Brief (EQLB), Mission Data Review (MDR), and Executive MDR (EMDR). - Develop and establish Hardware-in-the-loop (HWIL) M&S Integration Test Cases for flight and ground tests. - Conduct M&S HWIL Integration Bench Mark testing for ground tests by integrating the BMDS HWIL M&S framework with MDA and non-MDA Elements into the test event BMDS architecture. - Integrate, test, functionally qualify, and deliver end-to-end BMDS simulations supporting ground test missions.			
FY 2016 Plans: FY 2016 increase keeps pace with projected FY 2016-FY 2020 IMTP events, and reflects increase in pre- and post-mission System-level analyses, M&S integration, and supporting validation and assessment activities. Provide engineering support for planning, execution, and analysis of the test events listed in the Integrated Master Test Plan (IMTP): - Design test architecture, define target requirements, and generate appropriate scenarios for ground and flight tests. - Define test objectives and evaluation criteria via the Integrated Master Assessment Plans and Flight Test Strategic Plan for all System level test events to anchor Modeling and Simulation (M&S) and address data collection requirements. - Perform System-level and interoperability analysis. - Participate in major test reviews, analysis team meetings, and mission planning events. - Generate BMDS test observations and coordinate associated BMDS Discrepancy Reports (BDR) within the Failure Reporting, Analysis, and Corrective Action System (FRACAS). - Produce the threat data required to enable BMDS ground tests, flight tests and performance assessment. - Utilize models and simulations (M&S) for pre-test assessment and post-test review, as well as M&S updates. - Provide Systems Engineering and Integration (SE&I) test configuration management; risk assessment; and anomaly/deficiency review, assessment and closure to support data gathering for BMDS hardware/software reliability improvements. - Analyze test results to identify shortfalls so that objectives can be reassigned to future events to provide required verification and model validation data. - Coordinate with BMDS Operational Test Agency (OTA) to address OTA issue sheets allocated to test events.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Develop and document long-range BMDS IMTP planning and integration strategies related to overarching BMDS analysis product integration. - Develop and provide capability upgrades to test analysis tools in concert with the BMDS evolution (e.g., Modular Analysis and Reporting Suite (MARS)) to enhance analysis capability and efficiency. - Populate the MARS database with data from the most recently completed tests to support as-built analysis and capability assessments. - Provide engineering analysis process software to include System Coordination and Observation Reporting Environment (SCORE), Software Change Analysis Review Environment (SCARE), File Manager (FileMan), and ManPower Loading (MPL). - Develop and provide infrastructure, software, and associated MDA/IA compliance for the RApid Scenario Prototype (RASP) capability. - Develop and optimize candidate ground test scenarios and produce the associated scenario data packages. - Develop and establish hardware-in-the-loop (HWIL) M&S integration test cases for ground and flight tests (pre-post mission). - Provide modeling and technical analysis support during Combatant Command (COCOM) wargames and exercises. - Integrate non-MDA element models and simulations for participation in IMTP events. - Develop, deliver, and present the Quick Look Brief (QLB), Mission Data Review (MDR), and Executive MDR (EMDR). - Conduct M&S HWIL Integration Benchmark testing for ground tests by integrating the BMDS HWIL M&S framework with MDA and non-MDA Elements into the test event BMDS architecture. - Integrate, test, functionally qualify, and deliver end-to-end BMDS simulations supporting ground test missions.			
Accomplishments/Planned Programs Subtotals	30.298	18.961	19.576

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	251.899	163.892	228.021	-	228.021	230.306	257.014	218.533	247.707	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MT23 / *Enabling - Test*

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, 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 possible and practical.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Master Test Plan (IMTP) Engineering, Integration, Verification and Assessment - SE&I - IMTP SE&I - CSS	C/CPFF	Various - CSS : AL	0.654	6.013		-		-		-		-	-	6.667	-
Integrated Master Test Plan (IMTP) Engineering, Integration, Verification and Assessment - SE&I - IMTP SE&I - FFRDC/ UARC 2	MIPR	GTRI : AL, VA	0.555	1.404		-		-		-		-	-	1.959	-
Integrated Master Test Plan (IMTP) Engineering, Integration, Verification and Assessment - SE&I - IMTP SE&I - FFRDC/ UARC 3	MIPR	SNL : CA	0.110	-		-		-		-		-	-	0.110	-
Integrated Master Test Plan (IMTP) Engineering, Integration, Verification and Assessment - SE&I - IMTP SE&I - Industry	C/CPAF	Boeing : AL	8.524	3.311		-		-		-		-	-	11.835	-
Integrated Master Test Plan (IMTP) Engineering, Integration, Verification and Assessment - SE&I - IMTP SE&I - OGA	MIPR	AMRDEC : AL	4.891	-		-		-		-		-	-	4.891	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Master Test Plan (IMTP) Engineering, Integration, Verification and Assessment - SE&I - IMTP SE&I - OGA 2	MIPR	NSWC : VA	0.304	-		-		-		-		-	-	0.304	-
Modeling/Simulation (M/S) Verification, Validation and Accreditation (VV/A) and Test Operations - IMTP M&S - Event operations & Support	C/CPAF	Northrop Grumman : CO	0.000	2.355		-		-		-		-	-	2.355	-
Modeling/Simulation (M/S) Verification, Validation and Accreditation (VV/A) and Test Operations - IMTP M&S - M&S Simulations	C/CPAF	Northrop Grumman : CO	2.394	2.655		-		-		-		-	-	5.049	-
Modeling/Simulation (M/S) Verification, Validation and Accreditation (VV/A) and Test Operations - IMTP M&S - OGA Support	MIPR	AMRDEC : AL	8.510	8.529		-		-		-		-	-	17.039	-
Modeling/Simulation (M/S) Verification, Validation and Accreditation (VV/A) and Test Operations - IMTP M&S - Performance Assessment VV&A	MIPR	AMRDEC : AL, CO	3.346	6.031		-		-		-		-	-	9.377	-
Engineering and Analysis - Engineering & Analysis - CSS Support	C/CPFF	CSC : AL	0.000	-		1.920	Oct 2014	1.276	Oct 2015	-		1.276	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Industry	C/CPAF	Boeing : VA, AL	0.000	-		3.509	Oct 2014	2.243	Oct 2015	-		2.243	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - OGA Support	MIPR	AMRDEC : AL	0.000	-		10.120	Oct 2014	9.758	Oct 2015	-		9.758	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Analysis - Engineering & Analysis - Technical Support	C/CPAF	Northrop Grumman : VA, AL	0.000	-		2.807	Oct 2014	5.670	Oct 2015	-		5.670	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Test Engineering Support	Various	Various : AL, CO, VA	0.000	-		0.605	Oct 2014	0.629	Nov 2015	-		0.629	Continuing	Continuing	Continuing
		Subtotal	29.288	30.298		18.961		19.576		-		19.576	-	-	-

Remarks

Increase in Technical Support and Test Engineering support reflects IMTP re-planning and resultant consolidation of some test engineering and analysis functions from MT09 (Aegis PE 0603892C) and MT04 (BMDS Test PE 0603914C).

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.288	30.298		18.961		19.576		-		19.576	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
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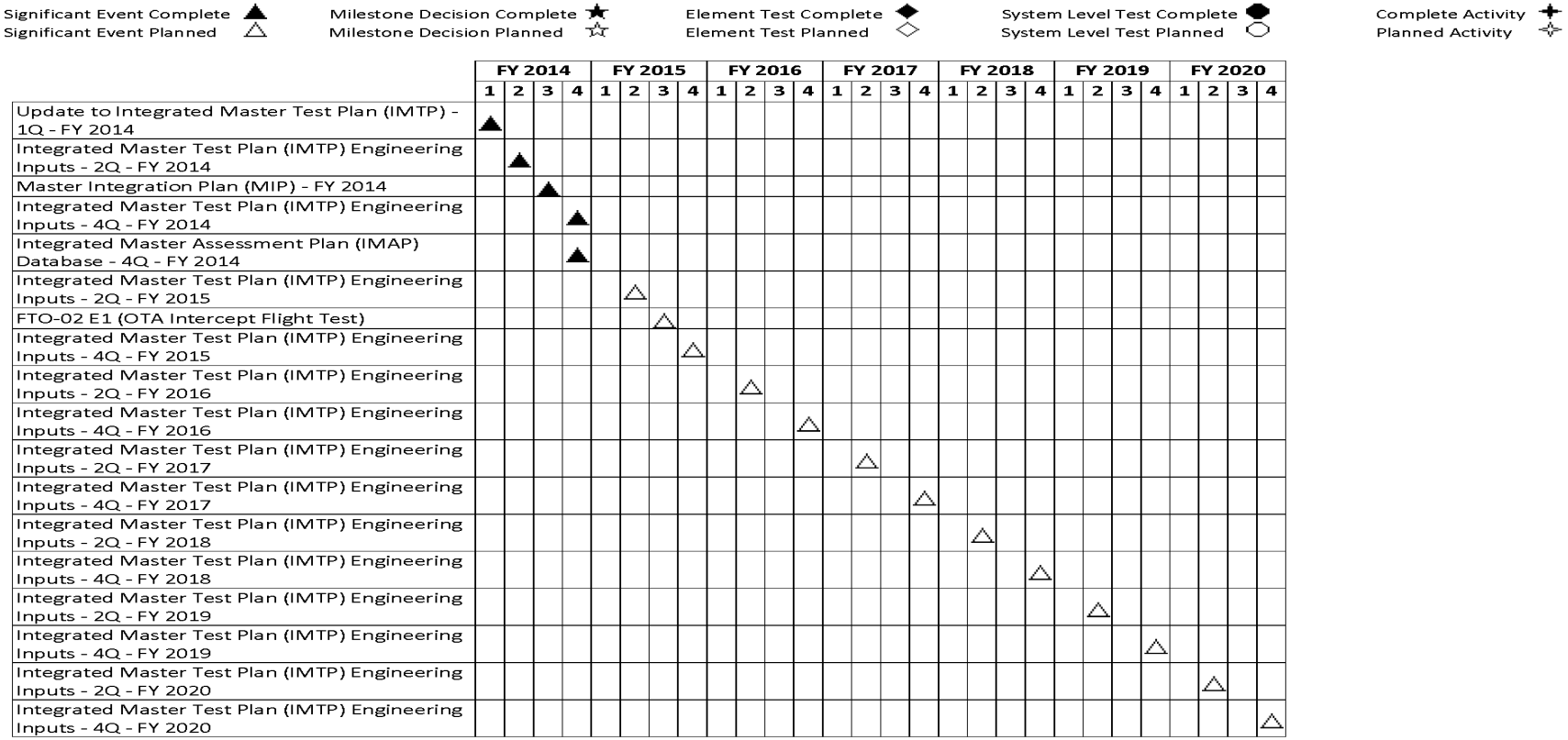

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Update to Integrated Master Test Plan (IMTP) - 1Q - FY 2014	1	2014	1	2014
Integrated Master Test Plan (IMTP) Engineering Inputs - 2Q - FY 2014	2	2014	2	2014
Master Integration Plan (MIP) - FY 2014	3	2014	3	2014
Integrated Master Test Plan (IMTP) Engineering Inputs - 4Q - FY 2014	4	2014	4	2014
Integrated Master Assessment Plan (IMAP) Database - 4Q - FY 2014	4	2014	4	2014
Integrated Master Test Plan (IMTP) Engineering Inputs - 2Q - FY 2015	2	2015	2	2015
FTO-02 E1 (OTA Intercept Flight Test)	3	2015	3	2015
Integrated Master Test Plan (IMTP) Engineering Inputs - 4Q - FY 2015	4	2015	4	2015
Integrated Master Test Plan (IMTP) Engineering Inputs - 2Q - FY 2016	2	2016	2	2016
Integrated Master Test Plan (IMTP) Engineering Inputs - 4Q - FY 2016	4	2016	4	2016
Integrated Master Test Plan (IMTP) Engineering Inputs - 2Q - FY 2017	2	2017	2	2017
Integrated Master Test Plan (IMTP) Engineering Inputs - 4Q - FY 2017	4	2017	4	2017
Integrated Master Test Plan (IMTP) Engineering Inputs - 2Q - FY 2018	2	2018	2	2018
Integrated Master Test Plan (IMTP) Engineering Inputs - 4Q - FY 2018	4	2018	4	2018
Integrated Master Test Plan (IMTP) Engineering Inputs - 2Q - FY 2019	2	2019	2	2019
Integrated Master Test Plan (IMTP) Engineering Inputs - 4Q - FY 2019	4	2019	4	2019
Integrated Master Test Plan (IMTP) Engineering Inputs - 2Q - FY 2020	2	2020	2	2020
Integrated Master Test Plan (IMTP) Engineering Inputs - 4Q - FY 2020	4	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD28: *Intelligence & Security*	62.314	37.969	37.131	40.263	-	40.263	45.182	45.773	46.108	48.378	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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.
Funding for Threat Systems Engineering was initially programmed in Project MD24 for FY 2014, but was executed out of project MD28.
FY 2016 increase reflects implementation of Presidentially-mandated Insider Threat Analysis capability and realignment of Special Projects staff within the Intelligence and Security group.

A. Mission Description and Budget Item Justification

Major program goals for the Intelligence and Security team are:
-- Ensure the Intelligence Community understands and fulfills the Missile Defense Agency's (MDA's) current and future prioritized intelligence requirements in an accurate and timely manner; advocate Ballistic Missile Defense System (BMDS) test support collection requirements with the Intelligence Community; and ensure that MDA`s intelligence needs and finished intelligence requirements are understood while ensuring the Intelligence Community is involved in technical interchange meetings.
-- Continue the federated approach to supporting MDA by leveraging available National and Department of Defense (DoD) Counterintelligence resources. Ensure counterintelligence products and services are fully integrated into all Research, Development, Test & Evaluation (RDT&E) programs and activities to protect classified information and critical technologies and to support and protect MDA and BMDS personnel, facilities, information and activities from criminal, terrorist and Foreign Intelligence and Security Service targeting/threats.
-- Consistently and comprehensively define cybersecurity systems engineering requirements for Continental United States (CONUS) and non-CONUS based BMDS assets. Define cybersecurity systems engineering and cybersecurity infrastructure intelligence requirements to focus Intelligence Community collection, analysis and production to target MDA/BMDS cyber vulnerabilities, and incorporate cybersecurity engineering requirements into the systems engineering process.

The Security and Intelligence Project captures five specific areas:
1) Intelligence
2) Counterintelligence
3) Cybersecurity Engineering
4) Research, Development, and Acquisition (RDA) Security
5) Threat Systems Engineering

Collectively, these efforts provide critical information regarding threat ballistic missile system capabilities (via Intelligence); protection of personnel, activities, and technology from espionage and terrorism through active and passive activities (via Counterintelligence); and BMDS system vulnerabilities (via Cyber Security Engineering).

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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1) The Intelligence Requirements Program furnishes highly classified intelligence on foreign threat ballistic missile systems to the missile defense community. This program provides a clearing house for MDA's requirements to be presented to the Intelligence Community for collection, analysis and production. The Intelligence Requirements Office gains an understanding of all MDA intelligence requirements, registers these requirements with the Intelligence Community, who in turn provides resulting data to be disseminated and archived in the MDA Intelligence Knowledge Base. Resulting intelligence and threat changes are provided to the MDA System Engineer, who uses the threat data to reduce risk and improve BMDS performance against the evolving threat. It enables MDA Program Managers to achieve a sufficiently accurate understanding of the threat environment to respond to relevant capabilities of immediate importance, make informed decisions, and invest limited resources on countering the most significant aspects of potential adversary capabilities. Other aspects of Intelligence are designed to gain access to, and leverage unique Intelligence Community capabilities for the benefit and advocacy of the Missile Defense Community. Numerous Intelligence Community capabilities are highly classified and require both access and expertise to exploit.

2) Counterintelligence undertakes defensive Counterintelligence (CI) activities as part of an integrated DoD/National effort to detect and neutralize foreign intelligence collection efforts, espionage and terrorist activities directed against MDA personnel, information, facilities, and activities, or against U.S. National Security.

Pursuant to DoD Directive O-5240.02 (Counterintelligence) and other DoD CI policy issuances, Counterintelligence:
-- Conducts CI Investigations: Initial inquiries into reported or suspected clandestine relationships between MDA personnel and agents of a foreign power or international terrorist organizations.
-- Performs CI Collection: Systematically collects intelligence information via liaison relationships with U.S. and host-nation intelligence, CI and law enforcement organizations and debriefings of MDA foreign travelers.
-- Performs CI Analysis and Production: Produces assessments, analytical reports, threat advisories and other products to keep MDA program elements and senior leadership informed on foreign intelligence, international terrorism and foreign entity cyber threat.
-- Provides CI Functional Services: Conducts defensive CI activities in support of MDA programs (including Special Access Programs (SAP) and Research, Development, and Acquisition (RDA) programs), test events, and fielding/deployment activities to protect Critical Program Information and sensitive technologies from foreign intelligence collection activities and international terrorism threats.
-- Ensures that MDA's insider threat program is compliant with the minimum standards established by Executive Order 13587 (White House Memorandum on National Insider Threat Policy and Minimum Standards for Executive Branch Insider Threat Programs) and DoD Counterintelligence Policies.

3) The Cybersecurity Engineering Program provides coherent cybersecurity systems engineering policy and guidance to BMDS system design and acquisition, enhancing BMDS resiliency against existing and emerging cyber threats. It develops and coordinates near-term and long-term engineering changes to the BMDS that advance the confidentiality, integrity, and availability and counter cyber threats posed by our adversaries. To fulfill this role, the BMDS Cybersecurity Engineering program works with Intelligence Requirements and Counterintelligence to obtain a comprehensive picture of the overall cyber threat for impacts to the BMDS design; identifies mitigation strategies and maps them to established National Security Systems (NSS) and DoD policies; and then influences the design by:
-- Identifying updates to the Core Standards and Requirements to implement Defense-in-Depth within planned development cycles (Builds);
-- Providing oversight, coordination and management of cybersecurity technical requirements development and policy-mandated responsibilities;
-- Coordinating evaluation of cybersecurity capability during BMDS tests; and
-- Assessing the validated cyber threat intelligence for impact to the BMDS design.

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To fulfill mission requirements, the program interfaces with relevant Cybersecurity Systems Engineering experts to assess requirements, documentation and cybersecurity system design and assessment criteria.

4) Research, Development, and Acquisition (RDA) Security manages the MDA Information, Industrial, Acquisition Operations Security programs to protect acquisition, test, development, and fielding of BMDS capabilities. RDA Security:
-- Conducts security reviews for all Congressional, Government Accountability Office (GAO), budget, Freedom of Information Act (FOIA), and Public Release actions; develops and coordinates Security Classification Guides (SCGs) and resolves questions regarding security classification;
-- Manages the MDA Industrial Security program to develop Contract Security Classification Specifications (DD-254s) for all classified MDA contracts and to resolve Foreign Ownership, Control, and Influence (FOCI) issues; and
-- Conducts Information Security (INFOSEC) staff assistance and program reviews for all MDA offices and security inquiries as required to identify and resolve security deficiencies that would place BMDS information at risk.

RDA Security also supports program offices in assessing acquisition programs to identify critical program information (CPI) and critical components, analyze risk, and recommend security measures to protect CPI and the BMDS supply chain. Systems Protection provides planning support for BMDS deployments by coordinating security requirements for deploying BMDS assets with the Combatant Commanders (COCOMs) and Services and developing and coordinating site security infrastructure designs in accordance with direction from the Deputy Secretary of Defense to protect critical BMDS assets. RDA Security conducts the MDA Declassification Program in compliance with Executive Order 13526 (Classified National Security Information), which requires mandatory review of 25 year-old missile defense documents to ensure classified and sensitive but unclassified information is not inadvertently released into the public domain.

5) The Threat Systems Engineering effort provides consistent definitions of adversary capabilities required for BMDS development and design, and maintains and updates the Agency-wide threat documentation to ensure the threat parameters used for BMD System performance predictions, analyses, design, verification, and assessment are correct and consistent. Threat Systems Engineering also provides, develops, coordinates, and baselines targets and countermeasures requirements to define target capabilities that support BMDS flight test objectives. Threat Systems Engineering:
-- Defines the BMDS threat space and support threat space allocation to specific BMDS capability increments.
-- Guides missile requirements development, planning, and accreditation for BMDS ground and digital simulation tests
-- Supports development of target system specifications; and guide targets requirements development, planning, and certification for BMDS flight tests
-- Analyzes flight test target performance relative to threat intelligence assessments to support target system verification and certification
-- Conducts threat model verification and validation to verify missile model meets specifications and is consistent with intelligence assessments at established Intel-Cut-Off Dates (ICOD).
-- Produces threat models and scenario data for BMDS development events and establishes threat consistency across the BMDS and Elements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Intelligence	7.740	8.165	8.767
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016

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.

FY 2014 Accomplishments:
-Served as designated intelligence broker between MDA and the Intelligence Community:
-- Maintained and communicated prioritized, specific BMDS intelligence requirements to the Intelligence Community.
-- Maintained a focused dialog with members of the Intelligence Community to ensure understanding, urgency and context of MDA intelligence requirements.
-- Managed intelligence collection requirements, including specific requirements supporting individual ground and flight test events.
-- Maintained production requirements on advances in foreign ballistic missile technology.
-Provided up-to-date, accurate Intelligence Community reporting of interest to the Missile Defense community.
-Maintained and updated knowledge base of foreign ballistic missile threats. Developed, enhanced, and populated the Missile Threat Portals and the new Missile Intelligence Secure Link (which replaced the MTPs in 4Q FY14) with Intelligence Community produced documents at the appropriate security classification levels.
-Fully characterized all ballistic missile threat systems from high priority countries for use by the MDA Systems Engineer, Program Managers, and Director for Test to perform modeling, simulation, and testing of the BMDS in FY 2014.

FY 2015 Plans:
-Serve as designated intelligence broker between MDA and the Intelligence Community:
-- 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 up-to-date and accurate intelligence to Missile Defense community.
-Maintain and update MDA's encyclopedic, all-source, and all-encompassing 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.
-Fully characterize all ballistic missile threat systems from high priority countries for use by the MDA Systems Engineer, Program Managers, and Director for Test to perform modeling, simulation, and testing of the BMDS in FY 2015.

FY 2016 Plans:
The FY 2016 increase is attributed to activities required to keep pace with evolving threat.
- Serve as designated intelligence broker between MDA and the Intelligence Community:

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-- 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 up-to-date and accurate intelligence to Missile Defense community. - Maintain and update MDA's encyclopedic, all-source, and all-encompassing 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. - Fully characterize all ballistic missile threat systems from high priority countries for use by the MDA Systems Engineer, Program Managers, and Director for Test to perform modeling, simulation, and testing of the BMDS.			
Title: Counterintelligence	5.010	5.253	6.105
Articles:	-	-	-
Description: The Counterintelligence effort protects personnel, activities, information and technologies from espionage and terrorism through defensive operations and activities. ***FY 2014 Accomplishments:*** - Served as MDA Office of Primary Responsibility with Federal, State and Local Counterintelligence (CI) and Law Enforcement agencies for reporting and resolution of reported incidents or matters involving MDA personnel or threats to BMDS information or technologies. - Engaged National, Combatant Command and DoD CI components to share and obtain CI and AT/FP threat information impacting MDA personnel, facilities, information, technologies, programs and activities, worldwide. - Deployed organic CI and technical teams in support of worldwide BMDS fielding and deployment activities. - Conducted CI research and analysis to produce timely, relevant and accurate threat products that kept MDA program elements and senior leadership informed of criminal, terrorist and foreign intelligence threats to MDA personnel, facilities, programs, information, and activities worldwide. - Executed life cycle replacement of outdated technical surveillance countermeasures (TSCM) and cyber forensics gear to ensure the latest technologies were employed during BMD conferences, flight tests and other classified activities to prevent the loss or compromise of classified or sensitive but unclassified information targeted by foreign intelligence-directed collection activities. - Provided on-site CI, TSCM and cyber support during MDA flight tests to detect, deter, or neutralize potential criminal, terrorist and foreign intelligence collection activities directed against MDA personnel, facilities, information, technologies and sensitive activities. - Conducted CI in Cyberspace activities to detect potential foreign intelligence entity-directed malicious and insider threat activities targeting MDA administrative and fire control networks.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conducted CI Inquiries and supported Title 10 CI Investigations relative to workforce involvement in potential espionage, insider threat and international terrorism activities.			
FY 2015 Plans: - Serve as MDA Office of Primary Responsibility with Federal, State and Local Law Enforcement and Counterintelligence (CI) Organizations for reporting and resolution of matters or 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. -- Deploy organic CI and technical teams to support of BMDS fielding and deployment activities under the Phased Adaptive Approach and other initiatives under Foreign Military Sales Programs. - Conduct CI research and provide timely, relevant and accurate threat products to keep MDA program elements and senior leadership informed of criminal, terrorist and foreign intelligence threats to MDA personnel, facilities, programs, information, and activities. - Execute lifecycle 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 but unclassified information to sophisticated foreign adversary collection activities. - Provide on-site CI and technical support for all MDA flight tests to detect, deter, or neutralize criminal, terrorist and foreign intelligence collection threats targeting MDA and BMDS technologies, personnel, facilities and activities. - Conduct CI in Cyberspace activities to detect malicious and insider threat activities targeting MDA administrative and fire control networks.			
FY 2016 Plans: The FY 2016 increase is due to the additional mission requirement to establish an Insider Threat Detection capability, per Executive Order 13587 (White House Memorandum on National Insider Threat Policy and Minimum Standards for Executive Branch Insider Threat Programs). - Serve as MDA Office of Primary Responsibility with Federal, State and Local Law Enforcement and Counterintelligence (CI) Organizations for reporting and resolution of matters or 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. -- Deploy organic CI and technical teams to support BMDS fielding and deployment activities in all regions and other initiatives under Foreign Military Sales Programs. - Conduct CI research and provide timely, relevant and accurate threat products to keep MDA program elements and senior leadership informed of criminal, terrorist and foreign intelligence threats to MDA personnel, facilities, programs, information, and activities.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- 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 but unclassified information to sophisticated foreign adversary collection activities. - Provide on-site CI and technical support for all MDA flight tests to detect, deter, or neutralize criminal, terrorist and foreign intelligence collection threats targeting MDA and BMDS technologies, personnel, facilities and activities. - Conduct CI in Cyberspace activities to detect malicious and insider threat activities targeting MDA administrative and fire control networks. - Develop MDA Insider Threat Program Standard Operating Procedures (SOPs) and Tactics, Techniques, and Procedures (TTPs) for the collection and analysis of information required to identify, deter and mitigate potential insider threats, and establish capability to execute analysis of determined data feeds.			
Title: Cybersecurity Engineering Program	4.987	4.384	4.687
Articles:	-	-	-
Description: The Cybersecurity Engineering Program is focused on developing designs and solutions to protect the BMD System-of-Systems from cybersecurity threats through coherent cybersecurity systems engineering.			
FY 2014 Accomplishments: - Convened the Cybersecurity Engineering and Test Working Group, (CETWG), which developed test requirements to drive data collection to verify BMDS Cybersecurity specifications during Ground Test Integrated (GTI)-06, and specified Critical Assessment Conditions for test data collection and allocated Key Test Points to specific ground test venues. - Ensured cybersecurity was integrated into the Acquisition Process in accordance with DoD Instruction 8580.1. - Defined Cybersecurity Engineering requirements for the BMD System Specification for continental U.S. (CONUS) and non-CONUS based BMDS assets. -Started “Mission to Cyber Dependency Modeling” initiative which informs cybersecurity impact analysis and prioritization of cyber threat intelligence gathering and systems engineering efforts which supports identification of the BMDS Cyber-Key Terrain (C-KT). - Supported the BMDS Inter-Element Communications Cybersecurity (BIECC) Study, which investigated cybersecurity risks associated with mission critical communications between BMDS Elements - Provided cybersecurity systems engineering subject matter expertise to the Agency and influenced BMDS requirements to ensure cybersecurity systems engineering was adequately represented in future system development and upgrades. - Recommended updates to the BMDS Core Standards to include new Cyber-related requirements specified by the Agency, the Combatant Commanders (COCOMS), the DOD, and the Federal Government. - Ensured Interface Control Documents (ICDs), Interface Specifications (IFSs), and Specification Change Notices (SCN) introduce cybersecurity concerns for the BMDS, to increase cybersecurity resiliency early in the systems engineering life cycle to protect against known and unknown threats.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Supported the Agency's Risk Management Framework (RMF) implementation; participated in RMF transition working groups and engineering requirements development. ***FY 2015 Plans:*** - Implement the Deputy Assistant Secretary of Defense (DASD) for Cyber, Identity, and Information Assurance (CIIA) Strategy by achieving Cyberspace resiliency (being flexible, adaptable, and successful in the face of cyber degradation, loss or attack) by understanding the battle space; and engineering for survivability. - Ensure Cybersecurity is integrated into the Acquisition Process in accordance with DoD Instruction 8580.1. - Develop and coordinate near-term and long-term engineering changes to the BMDS that advance the resilience to cyber threats. - Define cybersecurity engineering requirements for the BMD System Specification for continental U.S. (CONUS) and non-CONUS based BMDS assets. Develop requirements for building cybersecurity into incremental BMDS Hardware and Software builds, up front. Monitor allocation of these requirements to the Elements. Recommend updates to the BMDS Core Standards to include new Cyber-related specifications specified by the Agency, the COCOMS, the DOD, and the Federal Government. - 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 support technical assessments and cybersecurity design solutions and implementation recommendations impacted by the change in requirements. Recommend updates to the BMDS System Description Document, System Security Concept (SSC), and other planning documents to ensure cybersecurity issues are fully considered through the BMDS and element programs. - Develop technical requirements and interface documentation to execute an Integrated Cybersecurity Engineering Net-centric Architectural Concept. - Implement the National Security Agency (NSA) Community Gold Standard to enhance the cybersecurity posture of the BMDS by delivering expert, responsive, Cybersecurity Systems Engineering products and services supporting the Program Managers to meet BMDS and Cybersecurity Systems Engineering needs and requirements for Enhanced Homeland Defense and Enhanced Medium Range Ballistic Missile (MRBM) Defense. - Implement mitigations to cyber threats as system requirements and specifications to the BMDS design and architecture, ensuring mitigations trace to necessary components and interfaces supporting the BMDS mission. - Coordinate evaluation of cybersecurity capability during BMDS tests; develop verification and assessment strategies for system requirements. ***FY 2016 Plans:*** The FY 2016 increase reflects activities in support of a greater focus on cyber security DoD-wide. - Implement the Deputy Assistant Secretary of Defense (DASD) for Cyber, Identity, and Information Assurance (CIIA) Strategy by achieving Cyberspace flexibility, adaptability, and resilience in the face of cyber degradation, loss or attack, through understanding of the battle space. - Ensure Cybersecurity is integrated into the Acquisition Process in accordance with DoD Instruction 8580.1. - Develop and coordinate near-term and long-term engineering changes to the BMDS that advance the resilience to cyber threats.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Define cybersecurity engineering requirements for the BMD System Specification for continental U.S. (CONUS) and non-CONUS based BMDS assets. Develop requirements for building cybersecurity into incremental BMDS Hardware and Software builds, up front. Monitor allocation of these requirements to the Elements. Recommend updates to the BMDS Core Standards to include new Cyber-related specifications specified by the Agency, the Combatant Commanders (COCOMs), the DOD, and the Federal Government. - 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 support technical assessments and cybersecurity design solutions and implementation recommendations impacted by the change in requirements. Recommend updates to the BMDS System Description Document, System Security Concept (SSC), and other planning documents to ensure cybersecurity issues are fully considered through the BMDS and Element programs. - Develop technical requirements and interface documentation to execute an Integrated Cybersecurity Engineering Net-centric Architectural Concept. - Implement the National Security Agency (NSA) Community Gold Standard to enhance BMDS cybersecurity posture by delivering expert and responsive cybersecurity systems engineering products and services, supporting Program Managers to meet BMDS and cybersecurity systems engineering needs and requirements for Enhanced Homeland Defense and Enhanced Medium Range Ballistic Missile (MRBM) Defense. - Implement cyber threat mitigation strategies within BMDS architecture, design, system requirements, and specifications documentation to ensure traceability to necessary components and interfaces supporting the BMDS mission. - Coordinate evaluation of cybersecurity capability during BMDS tests. - Develop verification and assessment strategies for system cybersecurity requirements.			
Title: Research, Development, and Acquisition (RDA) Security	9.587	9.742	10.434
Articles:	-	-	-
Description: Research, Development, and Acquisition (RDA) Security protects Ballistic Missile Defense System (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. Also, coordinates MDA intelligence, counterintelligence and security support to BMDS test activities.			
FY 2014 Accomplishments: - Performed public release reviews of 287 documents and/or videos, and Freedom of Information Act (FOIA) reviews of 12 additional documents to ensure classified or controlled unclassified information was not inadvertently released into the public domain. - Performed 32 Mandatory Declassification Reviews (MDR) of requested documents to ensure properly classified information was not inadvertently declassified.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provided development support, policy review, and Agency coordination on one Joint U.S.-Israeli Security Classification Guide (SCG) for the David's Sling Weapon System and 13 non-MDA SCGs supporting Air Force, Navy, NORTHCOM, STRATCOM, CYBERCOM, various Office of the Secretary of Defense organizations, and several International partners. - Provided security support to all Agency flight tests. - Performed 90 Information Security Program reviews and staff assistance visits of MDA programs and coordinated required security incident reviews to identify and fix security deficiencies impacting Agency operations; supported continuing awareness, training, and emphasis on Information Security measures to protect critical BMDS technological information. - Provided security oversight for the Agency`s classified contracts by drafting and coordinating DD254 ``Contract Security Classification Specification`` documents to support contracting efforts and ensured that appropriate protections for BMDS sensitive information are applied within the supporting industrial base. - Provided security support to Phased Adaptive Approach (PAA) and other directed BMDS systems deployments, to ensure effective physical protection is provided to extremely low density/high demand emerging warfighter capability. Developed the Physical Security Engineering Process to ensure the most cost effective security infrastructures are emplaced at the deployed sites. - Conducted program protection planning for the continuing assessment of candidate critical program information (CPI) for Advanced Technology programs and reassessment of other BMDS programs affected by technical baseline changes; ensured critical technologies embedded in Missile Defense systems are not vulnerable to compromise. - Executed an effective Supply Chain Risk Management (SCRM) program to prevent unmitigated risks from degrading the performance of components and systems across the BMDS supply chain. - Provided dedicated on-site security and protection of BMDS resources and personnel at operational sites in Alaska, California and Colorado to ensure 100% security protection coverage of the BMDS mission operations and test assets based in those regions. - Provided digitized material, automated search tools, and Declassification Specialists to identify sensitive BMDS material that qualifies for exemption from automatic declassification based on age. Reviewed over 10 million pages to identify equities that warrant continued protection to preserve the technological advantage of the BMDS. - Deployed Security Specialists to Reagan Test Site to provide on-site security support for execution of Flight Test FTG-06b. - Provided MDA Advanced Technology Sensors and Targets (DVL) guidance and assistance in developing an Operations Security program to protect sensitive unclassified information not covered by Security Classification Guides or the Program Protection Plan.			
FY 2015 Plans: - Perform all reviews supporting Agency public release, security classification, and required Freedom of Information Act (FOIA) and Mandatory Declassification Reviews (MDR) to ensure sensitive BMDS information is not inadvertently released into the public domain.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Perform Information Security staff assistance reviews and assessments of 90 MDA programs and coordinate required security incident reviews to identify and fix security deficiencies impacting Agency operations; support continuing awareness and emphasis of security measures to protect critical BMDS technological information. - Provide security oversight for the Agency's classified contracts by drafting and coordinating DD254 "Contract Security Classification Specification" documents to support contracting efforts and ensure that appropriate protections for BMDS sensitive information are applied within the supporting industrial base. - Provide security support to Phased Adaptive Approach (PAA) and deployments of AN-TPY-2 radars to the CENTCOM and PACOM areas of responsibility to ensure effective physical protection is provided to extremely low density/high demand emerging warfighter capability. - Conduct program protection planning for the continuing assessment of candidate critical program information (CPI) 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. - Execute an effective Supply Chain Risk Management (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 100% security protection coverage of the BMDS mission operations and test assets based in those regions. - Per Executive Order 13525, Classified National Security Program, provide a combination of digitized material, automated search tools, and Declassification specialists to identify sensitive BMDS material that qualifies for exemption from automatic declassification based on age. Declassification reviews identify equities that warrant continued protection to preserve the technological advantage of the BMDS.			
FY 2016 Plans: FY 2016 increase supports growing demand for declassification reviews. - Perform all reviews supporting Agency public release, security classification, and required Freedom of Information Act (FOIA) and Mandatory Declassification Reviews (MDR) to ensure sensitive BMDS information is not inadvertently released into the public domain. - Perform Information Security staff assistance reviews and assessments of MDA programs and coordinate required security incident reviews to identify and fix security deficiencies impacting Agency operations; support continuing awareness and emphasis of security measures to protect critical BMDS technological information. - Provide security oversight for the Agency's classified contracts by drafting and coordinating DD254 "Contract Security Classification Specification" documents to support contracting efforts and ensure that appropriate protections for BMDS sensitive information are applied within the supporting industrial base. - Provide security support to deployed assets to ensure effective physical protection is provided to extremely low density/high demand emerging warfighter capability.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conduct program protection planning for the continuing assessment of candidate critical program information (CPI) 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. - Execute an effective Supply Chain Risk Management (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 100% security protection coverage of the BMDS mission operations and test assets based in those regions. - Per Executive Order 13525, Classified National Security Program, provide a combination of digitized material, automated search tools, and Declassification specialists to identify sensitive BMDS material that qualifies for exemption from automatic declassification based on age.			
Title: Threat Systems Engineering	10.645	9.587	10.270
Articles:	-	-	-
Description: Threat Systems Engineering will define the BMDS Threat Space and directly support a collaborative MDA engineering effort to develop, test, and field BMDS capabilities. Threat Engineering provides representations of adversary missile capabilities based on best available intelligence information, and develops, coordinates, and baselines BMDS-level targets and countermeasures requirements to define target capabilities that support BMDS flight test objectives. Note: Content was planned in PB15 in project MD24, but transferred to this project for execution.			
FY 2014 Accomplishments: Developed and maintained the BMDS threat set to support BMDS design, verification, and assessment efforts. -- Updated, verified, and validated threat models to include new threat representations with countermeasures, based on current intelligence reports. -- Provided high fidelity digital BMD threat descriptions, threat models, and scenarios data for Element ballistic missile defense capability development related to Near-Term Discrimination Improvement for Homeland Defense Near-Term (NT DIHD NT), Redesigned Exo-Atmospheric Kill Vehicle (R-EKV), and Long Range Discrimination Radar (LRDR). -- Produced new or /updated existing threat specifications and directly supported test objectives identified in the Integrated Master Test Plan (IMTP). Supported development of threat scenario data, including systems with countermeasures, for use in ground test, war games, and exercises. -- Guided targets requirements development, planning, and certification for several BMDS flight tests. -- Ensured targets were threat representative and developed mission specific target requirements. -- Produced new Target System Performance Specifications (TSPS) for a new Intercontinental Ballistic Missile (ICBM) and updated the TSPS for a Medium Range Ballistic Missile (MRBM). -- Published FY 2014 Addendum to the Adversary Data Package.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-- Continued to develop a threat library, including new ICBM and updates to MRBM systems with countermeasures. ***FY 2015 Plans:*** - Define, develop, and maintain the Ballistic Missile Defense System (BMDS) threat. - Produce flight test targets and countermeasures requirements to support BMDS flight test testing. - Produce or update threat specifications, models, and scenario data to support BMDS development & testing. - Support verification and validation of threat models. - Certify flight test targets meet the established requirements. - Analyze threat representation of flight test targets and ensure target requirements are based on intelligence assessments and the threat. ***FY 2016 Plans:*** FY 2016 increase is due to additional threat modeling required to support system verification and target certification. - Ensure flight test targets meet operationally realistic conditions. - Define threat representative target requirements early in the development of Integrated Master Test Plan. - Define the BMDS threat space and support threat space allocation to specific BMDS capability increments. - Guide threat missile requirements development, planning, and accreditation for BMDS ground and digital simulation tests - 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. - Conduct threat model verification and validation to verify missile models meet specifications and are consistent with intelligence assessments at established Intel-Cut-Off dates. - Produce threat / scenario data for BMDS development events and establish threat consistency across the BMDS and Elements.			
Accomplishments/Planned Programs Subtotals	37.969	37.131	40.263

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0305103C: *Cyber Security Initiative*	0.912	0.961	0.963	-	0.963	0.976	0.992	1.003	1.038	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD28 / *Intelligence & Security*

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.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Intelligence - Analysis and Support	C/FFP	Lockheed Martin : Gaithersburg, VA	25.917	-		-		-		-		-	-	25.917	-
Intelligence - Intelligence Analysis & Support	Various	MDA : VA, AL, CO	5.920	3.180		3.734	Nov 2014	4.251	Nov 2015	-		4.251	Continuing	Continuing	Continuing
Intelligence - Intelligence Applications	MIPR	SMDC : Huntsville, AL	6.470	-		-		-		-		-	-	6.470	-
Intelligence - Intelligence Collections	MIPR	NASIC : Wright-Patterson AFB, OH	1.300	-		-		-		-		-	-	1.300	-
Intelligence - Intelligence Support	C/CPFF	Booz Allen Hamilton : AL, VA, CO	4.051	4.216		3.861	Nov 2014	3.809	Nov 2015	-		3.809	Continuing	Continuing	Continuing
Intelligence - Intelligence Support (2)	C/CPFF	Northrop Grumman : AL, CO	0.512	0.344		0.570	Nov 2014	0.707	Nov 2015	-		0.707	Continuing	Continuing	Continuing
Counterintelligence - CI Analysis & Support	Various	MDA : AL, CO, VA	1.887	1.679		2.069	Nov 2014	2.138	Nov 2015	-		2.138	Continuing	Continuing	Continuing
Counterintelligence - CI Analysis and Support 2	C/CPFF	Booz Allen Hamilton : McLean, VA	2.927	-		-		-		-		-	-	2.927	-
Counterintelligence - CI Analysis and Support 3	C/CPFF	ManTech : AL, CO, VA	0.000	3.331		3.184		3.105	Nov 2015	-		3.105	Continuing	Continuing	Continuing
Counterintelligence - CI Insider Threat Analysis	C/CPFF	ManTech : AL, CO, VA	0.000	-		-		0.862	Nov 2015	-		0.862	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cyber Threat 1	C/CPFF	Mantech : VA	1.052	0.918		-		-		-		-	-	1.970	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Cybersecurity Engineering Program - Cybersecurity - FFRDC	FFRDC	Aerospace : CA	1.050	0.600		0.540	Nov 2014	0.755	Nov 2015	-		0.755	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity - FFRDC (2)	FFRDC	MITRE : VA	0.446	0.540		0.538	Nov 2014	0.755	Nov 2015	-		0.755	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity Engineering	Various	MDA : VA, AL	0.712	2.929		2.406	Nov 2014	2.259	Nov 2015	-		2.259	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity Engineering CSS	C/CPFF	Booz Allen Hamilton : McLean, VA	0.000	-		0.900	Nov 2014	0.918	Nov 2015	-		0.918	Continuing	Continuing	Continuing
Research, Development, and Acquisition (RDA) Security - RDA Analysis & Support	C/CPFF	Mantech : Falls Church, VA	3.101	3.859		4.473	Nov 2014	4.508	Nov 2015	-		4.508	Continuing	Continuing	Continuing
Research, Development, and Acquisition (RDA) Security - RDA Declass Analysis	C/CPFF	Booz-Allen Hamilton : McLean, VA	1.146	1.384		1.591	Nov 2014	1.623	Nov 2015	-		1.623	Continuing	Continuing	Continuing
Research, Development, and Acquisition (RDA) Security - RDA Security Analysis	Various	MDA : VA, AL	5.823	3.179		3.266	Nov 2014	3.592	Nov 2015	-		3.592	Continuing	Continuing	Continuing
Research, Development, and Acquisition (RDA) Security - RDA Security Support	Various	Various : VA, AL, CO	0.000	1.165		0.412	Nov 2014	0.711	Nov 2015	-		0.711	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering	Various	MDA : VA, AL, CO	0.000	2.268		2.674	Nov 2014	3.153	Nov 2015	-		3.153	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - CSS	C/CPFF	MEI : AL	0.000	3.811		3.993	Nov 2014	4.139	Nov 2015	-		4.139	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Threat Systems Engineering - Threat Systems Engineering - CSS (2)	C/CPFF	CSC : AL, VA	0.000	0.974		1.920	Nov 2014	1.958	Nov 2015	-		1.958	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - FFRDC	FFRDC	MIT/LL : MA	0.000	0.643		-		-		-		-	-	0.643	-
Threat Systems Engineering - Threat Systems Engineering - UARC	FFRDC	JHU/APL : MD	0.000	1.961		-		-		-		-	-	1.961	-
Threat Systems Engineering - Unique RCS	FFRDC	NSWC : Corona, CA	0.000	0.988		1.000	Nov 2014	1.020	Nov 2015	-		1.020	Continuing	Continuing	Continuing
		Subtotal	62.314	37.969		37.131		40.263		-		40.263	-	-	-

Remarks

MDIOC - Missile Defense Integration & Operations Center; SMDC - Space & Missiles Development Center; NASIC - National Air and Space Intelligence Center

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks N/A															

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	62.314	37.969		37.131		40.263		-		40.263	-	-	-

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD28 / *Intelligence & Security*

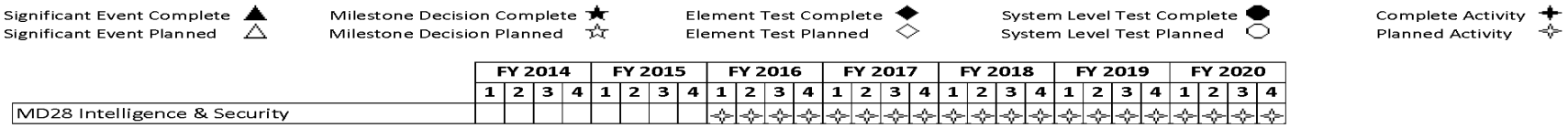

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD28 Intelligence & Security	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / *BMD Enabling Programs*	Project (Number/Name) MD30 / *BMD Information Management Systems*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD30: *BMD Information Management Systems*	82.677	79.572	95.197	95.710	-	95.710	97.050	83.201	82.506	87.440	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2014, Information Assurance/Computer Network Defense content in Budget Project MD30 of Enabling Programs Element 0603890C moved to a new Cyber Operations Budget Project MC30 in Program Element 0603890C.

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.

MDA must comply with National Command Authority Directives for rapid deployment of the BMDS while complying with DoD initiatives of the Joint Information Environment (JIE) and the Unified Capabilities Framework to ensure MDA remains compatible with the DoD Information Network (DODIN). Over the last 5 years, MDA funding in this Budget Project has been used to concentrate on meeting National Security Presidential Directive (NSPD-23) and DoD Directive 5134.09 to expand the global mission of MDA to the Global Information Grid (GIG) End-to-End Communications Architecture. The global expansion established classified and unclassified MDA communication and collaboration services to over 203 global locations. This enables a near real-time capability to execute BMD RDT&E mission and share missile threat data with the North Atlantic Treaty Organization (NATO) members, Combatant Commands (COCOMS), foreign governments, and industry partners.

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense (BMD) Information Management Systems Project funds the Information Technology (IT), Cybersecurity, Information Assurance (IA), and telecommunications infrastructure of the Agency. Information management systems are 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 Commanders, North Atlantic Treaty Organization (NATO) partners, and other industry partners. Communication among these organizations facilitates the MDA mission of developing and fielding an integrated Ballistic Missile Defense System (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 testing and facilitates. The development of technologies to guard against future missile threat growth. 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 management systems consist of MDA secure communication networks, 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.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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This project funds IT, mission critical functions, providing for the efficient operation and safeguarding of Agency information in compliance with Department of Defense (DoD) policies and in keeping with the President's declaration on 29 May 2009, that "cyber threat is one of the most serious economic and national security challenges we face as a nation".

Project MD30 was realigned into the following seven inter-agency mission critical IT services and the associated plans to align with the Federal Information Technology Shared Services Strategy.

1. End User Support
This service strategy supports end user office productivity needs and covers the licensing and sustainment of desktops, laptops, and associated hardware and software. The support also covers printing and copy services, file and directory services, user authentication, and help desk support for break-fix actions.

2. Unified Communications
This service strategy supports leased communications (classified and unclassified wide area networks, metropolitan area networks, and local area networks), telecommunications (local and long distance telephone services and secure and non-secure mobile and desktop telephony devices), management, engineering, systems integration, operations, maintenance, and technical support services. Unified Communications also includes sustainment of Video Teleconferencing (VTC) hardware/software, VTC and conference room scheduler application, BlackBerrys and wireless services, instant messaging and collaboration, secure and non-secure telephone equipment, private branch exchange switches maintenance, unclassified desktop/laptop integrated audio/video collaboration services, secure Telepresence suites and secure mobile cell phones.

3. Information Assurance/Computer Network Defense (IA/CND)
This service strategy provides protection of classified and unclassified infrastructure necessary for planning and coordination of the Director's RDT&E, operations and maintenance, and upgrade initiatives for the BMDS. This service strategy provides compliance with Federal Information Security Management Act (FISMA) and includes implementation of the DoD Information Assurance Certification and Accreditation Process (DIACAP) to manage risk, conduct security assessments, and monitor compliance with applicable security controls. This vital program of the BMDS and MDA Enterprise consists of cybersecurity, information assurance, computer network defense, network situational awareness, and certification and accreditation activities to comply with the Global Information Grid Information Assurance Strategic Plan and Goals, DoD information assurance directives, instructions and guidelines.

4. Business Automation Services
In accordance with the Clinger Cohen Act and Defense Business Systems Investment Management Process, the Business Automation Services strategy provides for the licensing and sustainment of DoD business enterprise architecture approved applications. This function ensures that MDA business applications meet the interoperable defense business solutions requirements for federal accounting, financial management, and reporting requirements

5. Portal and Data Services

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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The Portal and Data Services strategy enables knowledge and information sharing across MDA. This service includes operations and maintenance of the Unclassified and Classified MDA Knowledge Online portals and associated storage. This function is also responsible for records management solutions, and privacy and civil liberties compliance and reporting.

6. Network and Infrastructure Services
This strategy includes operations and sustainment of MDA classified and unclassified networks and data centers. This service ensures DoD compliant delivery, oversight and performance monitoring of IT systems that enable, secures IT systems access, server and storage capacity management, and communications security (COMSEC) status. This service also supports Disaster Recovery and Continuity of Operations (DR/COOP) rehearsals and network hardware break/fix and end-of-life replacement.

7. Information Technology (IT) Planning and Solutions
This service strategy provides IT project planning and management, life-cycle asset management, enterprise architecture planning and documentation, architecture change and configuration management, Office of Management and Budget (OMB) and DoD IT compliance tracking and reporting.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: End User Support	20.551	19.757	20.277
Articles:	-	-	-

Description: Provides for operations, maintenance and helpdesk support to each MDA IT user desktop capability.

FY 2014 Accomplishments:
-Sustained End User core service support 18 hours a day, 6 days a week for administrative and business information systems for approximately 8,000 MDA unclassified users and approximately 3,500 classified users.
-Monitored networks for user compliance and DoD policies, and report incidents.
-Maintained Printing and Copy Services (386 multi-functional device printer s and 12 print servers).
-Sustained email services (24 Exchange servers, 4 BlackBerry Enterprise Services servers and 2 archiving storage area networks).
-Sustained file services (8 file servers and 4 storage area networks) -Maintain Directory Services (24 Active Directory and domain controller servers).
-Maintained Authentication services (Public Key Infrastructure/Common Area Card) -Maintain current hardware and software licenses for IT operational systems.
-Maintained an Integrated Service Desk supporting 8,000 MDA users across all locations, resolving over 45,000 help desk tickets per quarter.
-Maintained IT life-cycle asset management of over 15,000 end user devices (desktops, laptops, monitors, printers, thin clients, and BlackBerrys).
-Funded MDA Chief Information Office (CIO) civilian salaries.

FY 2015 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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 2014	FY 2015	FY 2016
-Sustain End User core service support 18 hours a day, 6 days a week for administrative and business information systems for approximately 8,000 MDA unclassified users and approximately 3,500 classified users. -Monitor networks for user compliance and DoD policies, and report incidents. -Maintain Printing and Copy Services (386 multi-functional device printer s and 12 print servers). -Sustain email services (24 Exchange servers, 4 BlackBerry Enterprise Services servers and 2 archiving storage area networks). -Sustain file services (8 file servers and 4 storage area networks) -Maintain Directory Services (24 Active Directory and domain controller servers). -Maintain Authentication services (Public Key Infrastructure/Common Area Card) -Maintain current hardware and software licenses for IT operational systems. -Maintain an Integrated Service Desk supporting 8,000 MDA users across all locations, resolving over 45,000 help desk tickets per quarter. -Maintain IT life-cycle asset management of over 15,000 end user devices (desktops, laptops, monitors, printers, thin clients, and BlackBerrys). -Fund MDA Chief Information Office (CIO) civilian salaries.			
FY 2016 Plans: -Perform IT receiving; warehousing; shipping; transportation and movement; and excess property management functions for over 103,000 IT assets at MDA warehouses in Huntsville, Alabama; Fort Belvoir, VA; Colorado Springs, CO. -Maintain Defense Property Accountability System (DPAS) property accountability artifacts to support DoD Audit Readiness activities. -Sustain End User support (IT Help Desk and Client Support Services) 18 hours a day, 6 days a week for administrative and business information systems for approximately 8,350 MDA unclassified users and approximately 4,300 classified users. -Address approximately 50,000 Client Support tickets per year. -Respond to approximately 77,000 IT Help Desk tickets per year. -Monitor networks for user compliance and DoD policies, and report incidents. -Maintain Printing and Copy Services (872 multi-functional device printers and 51 classified/unclassified print servers). -Sustain email services (103 Exchange servers, 12 Smart Phone Enterprise servers, 14 Lync communication servers and 12 archive servers). -Sustain file services (33 classified/unclassified file servers and 4 storage area networks). -Maintain Directory Services (70 classified/unclassified domain controller servers). -Maintain Authentication services (Public Key Infrastructure/Common Area Card). -Maintain current hardware and software licenses for IT operational systems. -Maintain an Integrated Service Desk supporting 8,350 MDA users across all locations, resolving over 45,000 help desk tickets per quarter.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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 2014	FY 2015	FY 2016
-Maintain IT life-cycle asset management of over 15,000 end user devices (desktops, laptops, monitors, printers, thin clients, and BlackBerrys). -Fund MDA Chief Information Office (CIO) civilian salaries.			
Title: Unified Communications	13.106	14.189	14.314
Articles:	-	-	-
Description: Provides for implementation, operations and maintenance of VTC, wireless and telephony services. ***FY 2014 Accomplishments:*** -Funded recurring leased circuits (wide area, local area and metropolitan area networks), maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment (classified and unclassified mobile and telephony devices). -Operated, monitored, and sustained recurring classified and unclassified telecommunications equipment to comply with DoD policies and Global Information Grid architecture plan. -Operated, monitored, and sustained recurring classified and unclassified wireless services. -Operated, monitored, and sustained recurring operations for agency wide video teleconference rooms and equipment. -Provided and implemented engineering solutions for all unified communication services. -Sustained unclassified desktop instant messaging and collaboration capabilities to MDA users. -Funded Chief Information Office (CIO) civilian salaries. ***FY 2015 Plans:*** -Fund recurring leased circuits (wide area, local area and metropolitan area networks), maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment (classified and unclassified mobile and telephony devices). -Operate, monitor, and sustain recurring classified and unclassified telecommunications equipment to comply with DoD policies and Global Information Grid architecture plan. -Operate, monitor, and sustain recurring classified and unclassified wireless services. -Operate, monitor, and sustain recurring operations for agency wide video teleconference rooms and equipment. -Provide and implement engineering solutions for all unified communication services. -Sustain unclassified desktop instant messaging and collaboration capabilities to MDA users. -Fund Chief Information Office (CIO) civilian salaries. ***FY 2016 Plans:*** -Develop and maintain artifacts to obtain authority to operate VTC systems. -Fund recurring leased circuits (wide area, local area and metropolitan area networks), maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment (classified and unclassified mobile and telephony devices).			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Operate, monitor, and sustain recurring classified and unclassified telecommunications equipment to comply with DoD policies and Global Information Grid (GIG) architecture plan. -Operate, monitor, and sustain recurring classified and unclassified wireless services, 2,401 unclassified users. -Operate, monitor, and sustain recurring operations for agency wide video teleconference rooms and equipment. 10,000+ sessions per month increasing 11% per year. -Provide and implement engineering solutions for all unified communication services. -Sustain unclassified desktop instant messaging and collaboration capabilities to MDA users. -Fund Chief Information Office (CIO) civilian salaries.			
Title: Business Automation Services	5.319	8.148	7.976
Articles:	-	-	-
Description: Provides for the implementation, operations and maintenance of business specific applications. ***FY 2014 Accomplishments:*** -Sustained an MDA community cloud to host and sustain business applications, storage administration, hosting and operations and maintenance of the virtual environment. -Sustained portal-based Learning Management System -Hosted and provided business applications support for Program Resource Internet Database Environment (PRIDE), Information Management Program Activity control Tool (IMPACT), Standard Procurement System (SPS), Personnel Tracking System (PTS), Human Resource Tracking System (HRTS), Computer-aided Facilities Management(CAFM). -Provided server administration hosting licensing and management. -Maintained Integrated Access Control System and Diamond II badge system. -Maintained hardware and licenses for Defense Enrollment Eligibility Reporting System (DEERS)/Real-time Automated Personnel Identification System (RAPIDS) stations for issuing DoD identification smart cards to MDA employees. -Funded MDA Chief Information Office (CIO) civilian salaries. ***FY 2015 Plans:*** -Sustain an MDA community cloud to host and sustain business applications, storage administration, hosting and operations and maintenance of the virtual environment. -Sustain portal-based Learning Management System -Host and provide business applications support for Program Resource Internet Database Environment (PRIDE), Information Management Program Activity control Tool (IMPACT), Standard Procurement System (SPS), Personnel Tracking System (PTS), Human Resource Tracking System (HRTS),Computer-aided Facilities Management(CAFM). -Provide server administration hosting licensing and management. -Maintain Integrated Access Control System and Diamond II badge system.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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 2014	FY 2015	FY 2016
-Maintain hardware and licenses for Defense Enrollment Eligibility Reporting System (DEERS)/Real-time Automated Personnel Identification System (RAPIDS) stations for issuing DoD identification smart cards to MDA employees. -Replace End-of-Life hardware platform to support Microsoft SharePoint software migration (version 2007 to version 2013). -Fund MDA Chief Information Office (CIO) civilian salaries. ***FY 2016 Plans:*** -Operate MDA Enterprise Applications/Systems at a minimum availability of 98%. -Operate and maintain 9 Defense Business Systems that meet the reporting requirements of Title 10 United States Code section 2222. -Conduct annual reviews of Defense Business Systems to ensure compliance with current Business Enterprise Architecture (BEA). -Design a solution and procure IT products that comply with Section 508 of the Rehabilitation Act of 1973 (29 U.S.C. 794d). -Sustain an MDA community cloud to host and sustain business applications, storage administration, hosting and operations and maintenance of the virtual environment. -Sustain portal-based Learning Management System. -Host and provide business applications support for Microsoft SharePoint, Program Resource Internet Database Environment (PRIDE), Information Management Program Activity control Tool (IMPACT), Standard Procurement System (SPS), Personnel Tracking System (PTS), Human Resource Tracking System (HRTS), Computer-aided Facilities Management (CAFM). -Provide server administration hosting licensing and management. -Maintain Integrated Access Control System and Diamond II badge system. -Maintain hardware and licenses for Defense Enrollment Eligibility Reporting System (DEERS)/Real-time Automated Personnel Identification System (RAPIDS) stations for issuing DoD identification smart cards to MDA employees. -Fund MDA Chief Information Office (CIO) civilian salaries.			
Title: Portal and Data Services	5.132	7.070	6.783
Articles:	-	-	-
Description: Provides for the implementation, operations and maintenance of Portal, digital records and data archiving functions. ***FY 2014 Accomplishments:*** -Sustained the classified and unclassified MDA Knowledge On-line portal environment including data management, data storage, and data mining services providing access to over four hundred terabytes of Ballistic Missile Defense data available to 8,000 users. -Maintained a MDA Privacy Office, conducted privacy impact surveys and completed Civil Liberties compliance reporting. -Maintained compliance with Section 508 of the Rehabilitation Act to ensure electronic information technology is accessible to persons with disabilities.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Sustained the Ballistic Missile Defense System (BMDS) Integrated Master Schedule and the Ballistic Missile Defense (BMD) Asset Management Tool. -Managed a software assessment program and conducted reviews of proposed software applications for DoD compliance. -Sustained a DoD mandated Electronics Records Management system. -Provided MDA web-based training programs for information assurance, business applications, workforce certification, security, and ethics. -Funded MDA Chief Information Office (CIO) civilian salaries.			
FY 2015 Plans: -Sustain the classified and unclassified MDA Knowledge On-line portal environment including data management, data storage, and data mining services providing access to over four hundred terabytes of Ballistic Missile Defense data available to 8,000 users. -Maintain a MDA Privacy Office, conducted privacy impact surveys and completed Civil Liberties compliance reporting. -Maintain compliance with Section 508 of the Rehabilitation Act to ensure electronic information technology is accessible to persons with disabilities. -Sustain the Ballistic Missile Defense System (BMDS) Integrated Master Schedule and the Ballistic Missile Defense (BMD) Asset Management Tool. -Manage a software assessment program and conducted reviews of proposed software applications for DoD compliance. -Sustain a DoD mandated Electronics Records Management system. -Provide MDA web-based training programs for information assurance, business applications, workforce certification, security, and ethics. -Provide for the engineering and sequenced migration of one billion software objects and knowledge files from the Microsoft SharePoint 2007 to the 2013 platform. -Fund MDA Chief Information Office (CIO) civilian salaries.			
FY 2016 Plans: -Manage demands on data storage capacity to accommodate the current and increasing number of users in the MDA RDT&E community. -Provide twenty four hours a day, seven days a week, 365 days a year access to MDA test and administrative data and information to support the increasing demands on the MDA workforce around the world in the classified and unclassified environment. -Develop and maintain executive digital dashboards. -Sustain a DoD compliant Electronics Records Management system. -Digitize official records for more efficient storage and retrieval.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Sustain the classified and unclassified MDA Knowledge On-line portal environment including data management, data storage, and data mining services providing access to over four hundred terabytes of Ballistic Missile Defense data available to 8,000 users. -Maintain a MDA Privacy Office, conducted privacy impact surveys and completed Civil Liberties compliance reporting. -Maintain compliance with Section 508 of the Rehabilitation Act to ensure electronic information technology is accessible to persons with disabilities. -Sustain the Ballistic Missile Defense System (BMDS) Integrated Master Schedule and the Ballistic Missile Defense (BMD) Asset Management Tool. -Manage a software assessment program and conducted reviews of proposed software applications for DoD compliance. -Provide MDA web-based training programs for information assurance, business applications, workforce certification, security, and ethics. -Fund MDA Chief Information Office (CIO) civilian salaries.			
Title: Network and Infrastructure Services (Retitled: MDA Special Purpose Processing Node - PBR16)	26.326	31.613	31.669
Articles:	-	-	-
Description: Provides for the implementation, operations, maintenance and Communications Security (COMSEC) for the MDA UNET/CNET. Real-world issues and the global demand for the Missile Defense Agency (MDA) BMDS capabilities are increasing the demand for more complex information technology products and highly specialized IT services.			
FY 2014 Accomplishments: -Sustained core communications distribution services across the MDA Enterprise consisting of two wide area networks, three metropolitan area networks, fourteen local area networks, one hundred eighty sub-networks and over five thousand network devices -Sustained two computing and data centers (Huntsville, Alabama and Colorado Springs, Colorado) across the MDA Enterprise including network operations and performance monitoring; Disaster Recovery and Continuity of Operations rehearsals; internet access management; and web filtering -Architected and developed plans to repair general IT service and business systems -Performed network tracking and analysis and reported metrics on equipment lifecycle and average time to repair -Planned, engineered and implemented sustainment projects for general IT service and business systems -Procured, received, inventoried, and managed IT equipment to include network devices and desktop and laptop computers -Provided Communications Security (COMSEC) operations and maintenance services for over 4,000 COMSEC items -Funded MDA Chief Information Office (CIO) civilian salaries			
FY 2015 Plans: The increase of $5.287 million is due to the following investments required to comply with DoD directives and JIE initiatives:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
$1.200 million increase due to servers and storage management activities to comply with Defense Information Security Agency (DISA) Security Technical Implementation Guide (STIG) requirements and to analyze for tuning and performance optimization due to MDA mission growth. $1.750 million increase for additional server capacity for the MDA RDT&E specific data processing requirements in the MDA SPPNs. $1.195 million increase in Network Management & Infrastructure Services required to update network switches to comply with DoD standards for remote management. $1.050 million increase in Core Application services for managing development and continual updates of the network management tool set that is critical for maintaining continuity of operations for the MDA SPPNs. -Sustain core communications distribution services across the MDA Enterprise consisting of two wide area networks, three metropolitan area networks, fourteen local area networks, one hundred eighty sub-networks and over five thousand network devices -Sustain two computing and data centers (Huntsville, Alabama and Colorado Springs, Colorado) across the MDA Enterprise including network operations and performance monitoring; Disaster Recovery and Continuity of Operations rehearsals; internet access management; and web filtering -Architect and develop plans to repair general IT service and business systems -Perform network tracking and analysis and reported metrics on equipment lifecycle and average time to repair -Plan, engineer and implement sustainment projects for general IT service and business systems -Procure, receive, inventory, and manage IT equipment to include network devices and desktop and laptop computers -Provide Communications Security (COMSEC) operations and maintenance services for over 4,000 COMSEC items -Fund MDA Chief Information Office (CIO) civilian salaries. ***FY 2016 Plans:*** -Sustain core communications distribution services across the MDA Enterprise consisting of six wide area networks, 16 metropolitan area networks, 288 local area networks, two principle sites, 11 major sites, 205 remote sites -Sustain two SPPNs (Huntsville, Alabama and Colorado Springs, Colorado) across the MDA Enterprise including network operations and performance monitoring; Disaster Recovery and Continuity of Operations rehearsals; internet access management; and web filtering -Maintain MDA IT Infrastructure Services at a 99.99% availability level. -Operate and maintain the MDA SPPNs consisting of 1202 servers both classified and unclassified, 500 equipment racks, 148 network devices (routers, switches, Wide Area Network (WAN) accelerators, firewalls, intrusion detection systems (IDS)) and back office IT infrastructure associated with 10,000 Voice-over-Internet Protocol (VoIP) telephones, 2400 wireless devices, 50 secure wireless devices			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continue server virtualization to meet DoD mandates and Federal green standards, 22% still require virtualization. -Develop solutions, provide designs and execute transition plans, consistent with the architecture roadmap -Provide Detailed Designs, Implementation Plans, Interface Control Document (ICD) updates, Information Assurance assessments, Change Management, and DR COOP implementation engineering services. -Assist in performing configuration tests and assisting the O&M RBA crews with execution of operational readiness tests. -Manage MDA increasing need of data storage capacity, over 5 Petabytes. -Support constant modifications and reconfigurations of network infrastructure for mission and event unique configurations. -Architect and develop plans to repair general IT service and business systems -Perform network tracking and analysis and reported metrics on equipment lifecycle and average time to repair -Plan, engineer and implement sustainment projects for general IT service and business systems -Procure, receive, inventory, and manage IT equipment to include network devices and desktop and laptop computers -Fund MDA Chief Information Office (CIO) civilian salaries.			
Title: Information Technology (IT) Planning and Solutions	9.138	14.420	14.691
Articles:	-	-	-
Description: Provides IT engineering support for new requirements analysis, design, planning and implementation of IT solutions. Real-world issues and the global demand for the Missile Defense Agency (MDA) BMDS capabilities is increasing the demand for more complex information technology products and highly specialized IT services.			
FY 2014 Accomplishments: -Supported the MDA CIO Enterprise Architecture Board, Program Management Integration Board, and Change Control Board. -Updated and maintained current Enterprise architecture documentation. -Provided engineering support for change management, configuration management, validation testing and quality assurance. -Managed MDA customer IT requirements planning, engineering and project management. -Supported MDA Command Group IT project planning and documentation. -Maintained asset management of IT equipment in accordance with DoD policies. -Provided planning, budgeting, and management oversight of IT projects. -Ensured compliance with Federal Laws and DoD policies, directives and regulations, including: Clinger-Cohen Act, the Federal Information Security Management Act, and Office of Management and Budget (OMB) IT budget reporting policies. -Funded MDA Chief Information Office (CIO) civilian and matrix civilian salaries.			
FY 2015 Plans: The increase of $5.282 million is due to the following: $3.884 million increase due to the realignment of Advisory and Assistance Services to the IT Planning and Solutions accomplishment.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
$1.398 million increase due to the expanding requirements for specialized IT engineering skillsets to address the following: DoD directed Joint Information Environment (JIE) projects, DoD Architecture Roadmap and DoD Architecture Framework (DODAF) to ensure continued use of the Global Information Grid (GIG). In addition, the increase is for project planning and engineering to ensure compliance with Federal Laws such as the Federal Information Security Management Act (FISMA), DoD directed JIE projects and DoD Directives and Policies. -Support the MDA CIO Enterprise Architecture Board, Program Management Integration Board, and Change Control Board. -Update and maintain current Enterprise architecture documentation. -Provide engineering support for change management, configuration management, validation testing and quality assurance. -Manage MDA customer IT requirements planning, engineering and project management. -Support MDA Command Group IT project planning and documentation. -Maintain asset management of IT equipment in accordance with DoD policies. -Provide planning, budgeting, and management oversight of IT projects. -Ensure compliance with Federal Laws and DoD policies, directives and regulations, including: Clinger-Cohen Act, the Federal Information Security Management Act, and Office of Management and Budget (OMB) IT budget reporting policies. -Fund MDA Chief Information Office (CIO) civilian and matrix civilian salaries. ***FY 2016 Plans:*** -Design and engineer IT solutions for DoD directed JIE projects. -Provide DoD Architecture Framework compliant engineering designs and solutions. -Provide project planning and oversight for approximately 150 IT projects per year. -Process over 800 Agency-wide IT commodity requests per year. -Support the MDA CIO Enterprise Architecture Board, Program Management Integration Board, and Change Control Board. -Update and maintain current Enterprise architecture documentation. -Provide engineering support for change management, configuration management, validation testing and quality assurance. -Manage MDA customer IT requirements planning, engineering and project management. -Support MDA Command Group IT project planning and documentation. -Provide planning, budgeting, and management oversight of the Agency-wide IT program. -Ensure compliance with Federal Laws and DoD policies, directives and regulations, including: Clinger-Cohen Act, the Federal Information Security Management Act, and Office of Management and Budget (OMB) IT budget reporting policies. -Fund MDA Chief Information Office (CIO) civilian and matrix civilian salaries.			
Accomplishments/Planned Programs Subtotals	79.572	95.197	95.710

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing
• 0603294C: *Common Kill Vehicle Technology*	67.796	25.639	46.753	-	46.753	75.262	71.476	86.814	99.701	Continuing	Continuing
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	251.899	163.892	228.021	-	228.021	230.306	257.014	218.533	247.707	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing
• 0603893C: *Space Tracking and Surveillance System*	41.618	31.331	31.632	-	31.632	17.917	23.937	28.789	30.344	Continuing	Continuing
• 0603895C: *Ballistic Missile Defense System Space Programs*	6.412	6.389	23.289	-	23.289	21.433	16.108	11.933	11.952	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	41.051	46.387	49.570	-	49.570	50.533	51.363	52.217	54.247	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603913C: *Israeli Cooperative Programs*	283.782	268.842	102.795	-	102.795	104.923	106.913	109.599	111.370	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	501.170	455.068	513.256	-	513.256	585.727	484.242	442.202	460.945	Continuing	Continuing
• 0604880C: *Land Based SM-3 (LBSM3)*	124.568	123.444	34.970	-	34.970	40.787	30.486	20.193	22.079	Continuing	Continuing
• 0604881C: *AEGIS SM-3 Block IIA Co-Development*	297.169	263.695	172.645	-	172.645	66.828	-	-	-	-	800.337
• 0901598C: *Management HQ - MDA*	34.712	35.598	35.871	-	35.871	35.187	34.509	33.466	33.992	Continuing	Continuing

Remarks

D. Acquisition Strategy

In FY 2012, the Missile Defense Agency awarded a competitive contract to Network Management Resources Incorporated (NMR) for MDA Information Collaboration Services to be performed at all MDA locations.

In 2016, the MDA Joint National Integration Center Research and Development (JRDC) contract is scheduled to be recompeted and will be called the Integrated Research and Development for Enterprise Solutions (IRES).

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
End User Support - End User Assistance and Advisory Services	C/CPFF	Colsa : AL, AK, CA, CO, HI, NM, VA	1.650	1.143		-		-		-		-	Continuing	Continuing	Continuing
End User Support - End User Civilian Pay/Travel/ PCS	Allot	MDA Civilian Pay : AL, CO, NM, VA	2.392	3.056		3.116	Oct 2014	3.121	Oct 2015	-		3.121	Continuing	Continuing	Continuing
End User Support - End User Civilian Travel	Allot	MDA Civilian Travel : AL, AK, CA, CO, HI, NM, VA	0.240	0.206		0.206	Oct 2014	0.223	Oct 2015	-		0.223	Continuing	Continuing	Continuing
End User Support - End User IT Hardware/ Software Support	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	5.405	3.394		7.778	Oct 2014	8.590	Oct 2015	-		8.590	Continuing	Continuing	Continuing
End User Support - End User IT Licenses	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	5.195	3.236		1.107	Oct 2014	1.138	Oct 2015	-		1.138	Continuing	Continuing	Continuing
End User Support - End User Operational Support	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	14.921	9.516		7.550	Oct 2014	7.205	Oct 2015	-		7.205	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Advisory and Assistance Services	C/CPFF	Colsa : AL, CO, VA	0.299	0.207		-		-		-		-	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Unified Communications - Unified Communications Civilian Pay/Travel/PCS	Allot	MDA Civilian Pay : Al, CO, VA	0.963	1.681		1.081	Oct 2014	1.092	Oct 2015	-		1.092	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Leased Communications/ Licenses	MIPR	DISA/DREN/IT2S : AL, AK, CA, CO, HI, NM, VA	4.259	4.648		4.869	Oct 2014	5.973	Oct 2015	-		5.973	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Operational Support	Allot	Northrop Grumman : AL, CO, VA	0.895	1.881		2.623	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Unified Communications - Unified Communications VTC Operations Support	C/CPIF	NMR : AL, AK, CO, NM, VA	5.101	4.689		5.616	Oct 2014	7.249	Oct 2015	-		7.249	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Advisory and Assistance Services	C/CPFF	Colsa : AL, CO, VA	0.149	0.104		-		-		-		-	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Civilian Pay/ Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	0.711	0.764		0.772	Oct 2014	0.780	Oct 2015	-		0.780	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Licenses	C/CPAF	Northrop Grumman : AL, CO, VA	0.867	0.882		0.897	Oct 2014	0.916	Oct 2015	-		0.916	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Operational Support	C/CPAF	Northrop Grumman : AL, CO, VA	3.759	3.549		6.459	Oct 2014	6.259	Oct 2015	-		6.259	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Services Support	MIPR	CACI : AL, CO, VA	0.000	0.020		0.020	Oct 2014	0.021	Oct 2015	-		0.021	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services	C/CPFF	Colsa : AL, CO, VA	0.454	0.207		-		-		-		-	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Advisory and Assistance Services															
Portal and Data Services - Portal and Data Services Civilian Pay/Travel/PCS	Allot	MDS Civilian Pay : AL, CO, VA	0.853	0.917		0.926	Oct 2014	0.936	Oct 2015	-		0.936	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Licenses and Maintenance	C/CPAF	Northrop Grumman : AL, CO, VA	2.410	1.334		1.472	Oct 2014	1.573	Oct 2015	-		1.573	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Operational	C/CPAF	Online Subscriptions Services : AL, CO, VA	0.231	0.392		0.399	Oct 2014	0.408	Oct 2015	-		0.408	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Operational Support	C/FFP	NMR : AL, CO, VA	4.207	2.282		4.273	Oct 2014	3.866	Oct 2015	-		3.866	Continuing	Continuing	Continuing
Network and Infrastructure Services (Retitled: MDA Special Purpose Processing Node - PBR16) - Network and Infrastructure Services Advisory and Assistance Services	C/CPFF	Colsa : AL, CO, VA	0.897	0.621		-		-		-		-	Continuing	Continuing	Continuing
Network and Infrastructure Services (Retitled: MDA Special Purpose Processing Node - PBR16) - Network and Infrastructure Services Civilian Pay/Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	0.987	1.223		1.235	Oct 2014	1.271	Oct 2015	-		1.271	Continuing	Continuing	Continuing
Network and Infrastructure Services (Retitled: MDA Special Purpose Processing Node - PBR16) - Network and	C/CPAF	Northrop Grumman : AL, CO, VA	8.732	15.858		13.485	Oct 2014	13.275	Oct 2015	-		13.275	Continuing	Continuing	Continuing

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Support ($ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Infrastructure Services Licenses															
Network and Infrastructure Services (Retitled: MDA Special Purpose Processing Node - PBR16) - Network and Infrastructure Services Operational Support	C/CPAF	Northrop Grumman : AL, CO, VA	8.413	8.624		16.893	Oct 2014	17.123	Oct 2015	-		17.123	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Advisory and Assistance Services	C/CPFF	Colsa : AL, CO, VA	0.905	0.621		4.544	Oct 2014	4.628	Oct 2015	-		4.628	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Civilian Pay/Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	0.853	0.917		0.926	Oct 2014	0.815	Oct 2015	-		0.815	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions IT Asset Management	C/CPAF	Northrop Grumman : AL, CO, VA	2.551	2.552		-		-		-		-	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	0.261	0.249		0.293	Oct 2014	0.164	Oct 2015	-		0.164	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Operational Support	C/CPAF	Northrop Grumman : AL, CO, VA	4.117	3.890		7.366	Oct 2014	7.514	Oct 2015	-		7.514	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions	Allot	MDA Business Operations : AL, CO, VA	0.000	0.909		1.291	Oct 2014	1.570	Oct 2015	-		1.570	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / *BMD Enabling Programs*	Project (Number/Name) MD30 / *BMD Information Management Systems*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
- MDA Agency Business Operations															
		Subtotal	82.677	79.572		95.197		95.710		-		95.710	-	-	-

Remarks
N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks
N/A

Management Services ($ in Millions)

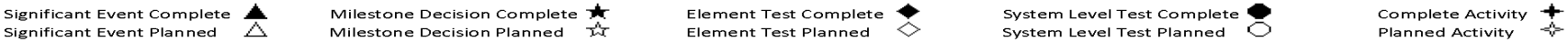
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks
N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	82.677	79.572		95.197		95.710		-		95.710	-	-	-

Remarks
N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD30 / *BMD Information Management Systems*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications	✦	✦	✦	✦	✦																							
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems	✦	✦	✦	✦	✦																							
Operate and Maintain General Information Technology Services 18 hours per day, 6 days per week	✦	✦	✦	✦	✦																							
Revise and Test Contingency Plans for Information Technology Systems	✦	✦	✦	✦	✦																							
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services	✦	✦	✦	✦	✦																							
Procure, Implement, and Asset Control for Information Technology Operational Systems	✦	✦	✦	✦	✦																							
Provide 18 hours per day, 6 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce	✦	✦	✦	✦	✦																							
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise	✦	✦	✦	✦	✦																							
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications	✦	✦	✦	✦	✦																							
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool	✦	✦	✦	✦	✦																							
Sustain the Information Technology Infrastructure Across the MDA Enterprise	✦	✦	✦	✦	✦																							
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle	✦	✦	✦	✦	✦																							
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications Follow-On						✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD30 / *BMD Information Management Systems*

Significant Event Complete / Significant Event Planned — Milestone Decision Complete / Milestone Decision Planned — Element Test Complete / Element Test Planned — System Level Test Complete / System Level Test Planned — Complete Activity / Planned Activity

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
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						✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications	1	2014	1	2015
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems	1	2014	1	2015
Operate and Maintain General Information Technology Services 18 hours per day, 6 days per week	1	2014	1	2015
Revise and Test Contingency Plans for Information Technology Systems	1	2014	1	2015
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services	1	2014	1	2015
Procure, Implement, and Asset Control for Information Technology Operational Systems	1	2014	1	2015
Provide 18 hours per day, 6 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce	1	2014	1	2015
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise	1	2014	1	2015
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications	1	2014	1	2015
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool	1	2014	1	2015
Sustain the Information Technology Infrastructure Across the MDA Enterprise	1	2014	1	2015
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle	1	2014	1	2015
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications Follow-On	2	2015	4	2020
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - Follow-On	2	2015	4	2020
Operate and Maintain General Information Technology Services 18 hours per day, 6 days per week - Follow-On	2	2015	4	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD30 / *BMD Information Management Systems*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Revise and Test Contingency Plans for Information Technology Systems - Follow-On	2	2015	4	2020
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - Follow-On	2	2015	4	2020
Procure, Implement, and Asset Control for Information Technology Operational Systems -Follow-On	2	2015	4	2020
Provide 18 hours per day, 6 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - Follow-On	2	2015	4	2020
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - Follow-On	2	2015	4	2020
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - Follow-On	2	2015	4	2020
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - Follow-On	2	2015	4	2020
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - Follow-On	2	2015	4	2020
Sustain the Information Technology Infrastructure Across the MDA Enterprise - Follow-On	2	2015	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MC30: *Cyber Operations*	-	12.389	15.452	20.017	-	20.017	23.044	21.164	21.330	24.088	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2014, Information Assurance/Computer Network Defense content in Budget Project MD30 of Enabling Programs Element 0603890C moved to a new Cyber Operations Budget Project MC30 in Program Element 0603890C.

The increase from FY 2015 to FY 2016 is required to comply with expanding Presidential, Secretary of Defense, and U.S. Cyber Command DoD-wide Cybersecurity Initiatives, and the Federal Information Security Management Act (FISMA).

A. Mission Description and Budget Item Justification

Project MC30 Cyber Operations increased by $4.565 million between FY 2015 to FY 2016 to comply with expanding White House, Secretary of Defense, and U.S. Cyber Command DoD-wide Cybersecurity Initiatives, and the Federal Information Security Management Act (FISMA). White House Memorandum, “Near-Term Measures to Reduce the Risk of High-Impact Unauthorized Disclosures,” issued February11, 2014, requires DoD to implement an insider threat program, complete the issuance and use of Public Key Infrastructure credentials and Public Key enabling on the SIPRNET to enhance security enforcement of asset controls for sensitive information and reduce the risks associated with “privileged” users.

A number of key IT strategies were also 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 is the Agency Designated Approving Authority (DAA) for MDA Administrative information technology systems. The project provides funds to sustain MDA DoD Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MC30 / *Cyber Operations*

Manager/Information Assurance Manager (PM/IAM) Plan of Action and Milestones (POA&Ms) for the MDA mission, test and administrative systems. It maintains the Certification & Accreditation (C&A) data repository, capturing the DIACAP documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) 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 documentation and accreditation recommendations to the MDA Senior Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation (IV&V) 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 (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 Ballistic Missile Defense System (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 report 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 IA governance management and administrative management support, annual Agency-wide computer-based IA training and metrics reporting, implementation of Public Key Infrastructure and Enabling and Communications Security (COMSEC) related activities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Information Assurance/Computer Network Defense (IA/CND)	12.389	15.452	20.017
Articles:	-	-	-
Description: Provides for the certification of Information Technology networks and systems, monitoring and computer emergency response services.			
FY 2014 Accomplishments: -Monitored and defended MDA mission, test, and administrative information systems 24 hours a day, 7 days a week, 365 days a year. -Collected, analyzed and reported vulnerability and cyber warfare attack metrics to the MDA Chief Information Officer (CIO), MDA leadership, and U.S. Cyber Command. -Ensured MDA mission, test, and administrative systems are operated securely in accordance with DoD Information Assurance Certification and Accreditation policies. -Implemented Information Assurance Vulnerability Assessments and Communication Tasking Orders remediation and patches. -Prepared and maintain current certification and accreditation documentation for general service networks reported to DoD and Office of Management and Budget. -Managed data-at-rest encryption to ensure compliance with Global Information Grid mandated policies.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MC30 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Revised and updated Information Assurance certification and accreditation packages for system level Ballistic Missile Defense Systems reported to DoD and Office of Management and Budget. -Managed the Information Assurance Workforce Improvement Program to certify Information Assurance 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. -Completed DoD mandated annual Information Assurance user training for the MDA workforce. -Provided Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs. -Funded MDA Chief Information Office (CIO) civilian salaries.			
FY 2015 Plans: -Monitor and defend MDA mission, test, and administrative information systems 24 hours a day, 7 days a week, 365 days a year. -Collect, analyze, and report vulnerability and cyber warfare attack metrics to the MDA Chief Information Officer (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. -Implement Information Assurance Vulnerability Assessments and Communication Tasking Orders remediation and patches. -Prepare and maintain current certification and accreditation documentation for general service networks reported to DoD and Office of Management and Budget. -Manage data-at-rest encryption to ensure compliance with Global Information Grid mandated policies. -Revise and updated Information Assurance certification and accreditation packages for system level Ballistic Missile Defense Systems reported to DoD and Office of Management and Budget. -Manage the Information Assurance Workforce Improvement Program to certify Information Assurance 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. -Complete DoD mandated annual Information Assurance user training for the MDA workforce. -Provide Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs. -Fund MDA Chief Information Office (CIO) civilian salaries.			
FY 2016 Plans: The increase of $4.565M between FY 2015 to FY 2016 to comply with expanding White House, Secretary of Defense, and U.S. Cyber Command DoD-wide Cybersecurity Initiatives, and the Federal Information Security Management Act (FISMA). The most significant includes: $2.500 million increase for the MDA Computer Emergency Response Team (MDA CERT) Tier II to monitor all MDA classified and unclassified networks			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MC30 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
$1.616 million increase to implement DoDI 8510.01 Risk Management Framework (RMF) controls $449 thousand increase to conduct quarterly audits of the Privileged User Management Program -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. -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 a current Information Assurance risk and residual risk assessment of the BMDS. -Provide coordination on all IT projects and remote sites for Cybersecurity compliance. -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/GENSER, MDA Mission and test networks and enclaves 24 hours per day, seven days a week. -Conduct penetration and application testing that looks for vulnerabilities and issues using a number of tactics, technical and procedures. -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. -Conduct vulnerability scanning of MDA network to assess risks to MDA data from inside and outside sources. -Conduct monthly information assurance vulnerability audits. -Issue and track implementation of Information Assurance Vulnerability Alerts (IAVA), Bulletins (IAVB) and Technical Advisories (IAVT). -Track ports, protocols, and services. -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 8510.01 and provide an analysis of changes in IA posture.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MC30 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Manage the Information Assurance Workforce Improvement Program to certify Information Assurance 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. -Complete DoD mandated annual Information Assurance user training for the MDA workforce. -Manage data-at-rest encryption to ensure compliance with Global Information Grid mandated policies. -Collect, analyze, and report vulnerability and cyber warfare attack metrics to the MDA Chief Information Officer (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. -Implement Information Assurance Vulnerability Assessments and Communication Tasking Orders remediation and patches. -Prepare and maintain current certification and accreditation documentation for general service networks reported to DoD and Office of Management and Budget. -Provide Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs. -Fund MDA Chief Information Office (CIO) civilian salaries.			
Accomplishments/Planned Programs Subtotals	12.389	15.452	20.017

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: PB 2016 Missile Defense Agency			Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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	0.000	0.630		0.641	Oct 2014	1.308	Oct 2015	-		1.308	Continuing	Continuing	Continuing
Information Assurance/ Computer Network Defense (IA/CND) - CND/IA Advisory and Assistance Services	C/CPFF	Torch Technologies : AL, CO, VA	0.000	2.737		2.783	Oct 2014	2.529	Oct 2015	-		2.529	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	0.000	0.088		0.105	Oct 2014	0.104	Oct 2015	-		0.104	Continuing	Continuing	Continuing
Information Assurance/ Computer Network Defense (IA/CND) - CND/ IA Civilian pay/Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	0.000	2.064		2.778	Oct 2014	2.809	Oct 2015	-		2.809	Continuing	Continuing	Continuing
Information Assurance/ Computer Network Defense (IA/CND) - CND/ IA Comsec	MIPR	NSA : AL, CO, VA	0.000	0.104		0.105	Oct 2014	0.108	Oct 2015	-		0.108	Continuing	Continuing	Continuing
Information Assurance/ Computer Network Defense (IA/CND) - CND/ IA Licenses	C/CPAF	Northrop Grumman : AL, CO, VA	0.000	-		-		2.516	Oct 2015	-		2.516	Continuing	Continuing	Continuing
Information Assurance/ Computer Network Defense (IA/CND) - CND/ IA Operational Support	C/FFP	Northrop Grumman : AL, CO, VA	0.000	6.691		9.040	Oct 2014	10.643	Oct 2015	-		10.643	Continuing	Continuing	Continuing
Information Assurance/ Computer Network Defense (IA/CND) - CND/ IA WCF	MIPR	DISA : AL, CO, VA	0.000	0.075		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	0.000	12.389		15.452		20.017		-		20.017	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks N/A															

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	12.389		15.452		20.017		-		20.017	-	-	-

Remarks
N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
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Significant Event Complete / Significant Event Planned — Milestone Decision Complete / Milestone Decision Planned — Element Test Complete / Element Test Planned — System Level Test Complete / System Level Test Planned — Complete Activity / Planned Activity

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command	✦	✦	✦	✦	✦																							
Procure, Implement, and Asset Control of Hardware maintenance and Software Licenses for Monitoring Systems of Information Assurance	✦	✦	✦	✦	✦																							
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	✦	✦	✦	✦	✦																							
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs	✦	✦	✦	✦	✦																							
Complete Annual Information Assurance user Training for MDA Workforce	✦	✦	✦	✦	✦																							
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services	✦	✦	✦	✦	✦																							
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems	✦	✦	✦	✦	✦																							
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						✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MC30 / *Cyber Operations*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - 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						✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧
Procure, Implement, and Asset Control of Hardware maintenance and Software Licenses for Monitoring Systems of Information Assurance - Follow-On						✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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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	1	2014	1	2015
Procure, Implement, and Asset Control of Hardware maintenance and Software Licenses for Monitoring Systems of Information Assurance	1	2014	1	2015
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	1	2014	1	2015
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs	1	2014	1	2015
Complete Annual Information Assurance user Training for MDA Workforce	1	2014	1	2015
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services	1	2014	1	2015
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems	1	2014	1	2015
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - Follow-On	2	2015	4	2020
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	2	2015	4	2020
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - Follow-On	2	2015	4	2020
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - Follow-On	2	2015	4	2020
Complete Annual Information Assurance user Training for MDA Workforce - Follow-On	2	2015	4	2020
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - Follow-On	2	2015	4	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Procure, Implement, and Asset Control of Hardware maintenance and Software Licenses for Monitoring Systems of Information Assurance - Follow-On	2	2015	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD31: *Modeling & Simulation*	245.823	36.388	41.957	43.668	-	43.668	45.989	48.495	48.953	50.782	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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.

A. Mission Description and Budget Item Justification

The mission of MDA's Modeling and Simulation (M&S) Program is 1) to execute a single, integrated, and synchronized program to manage M&S development in support of MDA's Ballistic Missile Defense (BMDS) acquisition, 2) to support BMDS Flight and Ground Test execution, 3) to drive MDA test activities to collect data for use in anchoring M&S, and 4) to support warfighter training and tactics validation.

M&S develops, sustains and delivers system-level models, frameworks, and simulations which are used to examine and evaluate BMDS performance and behaviors of the associated components and elements within a virtual and constructive simulation environment. MDA's M&S Program assists the development and acquisition of the BMDS by providing: M&S system and product planning, development, integration, and operation; threat model development, verification, and analysis; and integration and deployment of the Agency's Distributed BMDS real-time Hardware-in-the-Loop (HWIL) and digital M&S simulation capabilities as a single, integrated, and synchronized program.
MDA's M&S program is essential to ensuring missile defense capabilities are affordable and effective. Through the use of verified and validated models and accredited simulation systems, MDA's M&S program provides a cost effective means to assess and explore the performance space of the BMDS beyond what can be physically tested under current test range conditions and within the Agency's fiscal constraints. Through conceptual simulation activities, M&S provides the capability to design and develop technologies to hedge against future missile threats. These efforts require close coordination with the DoD, Joint Staff, Military Services, Combatant Commands (COCOMs), Operational Test Agencies (OTAs), MDA Program Elements, and the Intelligence Community.

In response to a Director of Operational Test and Evaluation (DOT&E) BMDS Assessment Report, M&S has developed and is executing Corrective Action Plans. Key tasks include:

- 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 (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 Operational Test Agency (OTA).

The M&S objective is to evolve the various systems and products to incrementally improve the fidelity of the Agency's M&S representations to match, as appropriate, the real world performance of the BMDS and meet Warfighter and Agency needs. In particular, MDA's M&S systems and products provide analysis and decision-making and planning capabilities for Real-World Operations in support of the National Command Authority, Joint Staff, Military Services, North Atlantic Treaty Organization (NATO),

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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COCOMs, OTAs, Director of Operational Test & Evaluation (DOT&E), and Allies. 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's M&S mission has relied on the use of two simulation frameworks to execute requirements to support various stakeholder applications such as Ground Tests, Flights Tests and Digital performance assessments. The Single Stimulation Framework (SSF) has supported all Hardware-in-the-Loop (HWIL) stakeholder applications, while the Digital Simulation Architecture (DSA) was used to support all Digital stakeholder applications. MDA established the requirements for the Objective Simulation Framework (OSF) to move towards a single simulation framework that can execute requirements to support all MDA M&S stakeholder applications: HWIL, Digital and hybrid configurations. OSF is being developed to allow seamless integration of Live, Virtual and Constructive simulations. It provides consistent truth stimuli in execution of all intended stakeholder applications. OSF will provide a composable simulation framework that promotes significant reuse of authoritative and community validated truth models and is extensible to facilitate integration of new models as they evolve. OSF provides threat scenarios and simulates all environments within which the BMDS operates to allow for assessment of the BMDS capabilities to support various agency objectives and decisions. In addition to supporting BMDS system assessments, OSF will support COCOMs by delivering a framework that provides the BMDS operational crews and command staffs with the capability to work together to exercise a spectrum of offensive and defensive operations, as well as a venue for the operational community to experiment with new Concepts of Operations and Tactics, Techniques and Procedures (TTPs).

The Core Truth Modeling program provides consistent and common Phenomenology, Lethality, and Environment models, and Threat capabilities for Agency M&S venues. Phenomenology models address missile hard body visible and infrared signatures, as well as the plume produced by the missile engines. Lethality models represent the impact of the BMDS missile kill vehicle (KV) (i.e. Ground-Based Interceptor, Standard Missile-3 (SM-3), Terminal High Altitude Area Defense (THAAD)) on reentry vehicles (RVs). Lethality results include percentage of destruction and direction and speed of debris fragments. Environment modeling provides a representation of natural and man-made endo and exo-atmospheric conditions (e.g., rain, wind, sea state) for simulations.

The Threat Modeling Center (TMC) uses all-source intelligence products to produce credible, high resolution threat models and simulation media to support analysis, development, test, and assessment of the defense of the United States, deployed forces, and allies against ballistic missile attacks. The threat models are used to produce accurate kinematic threat trajectories and signature data (radar cross-section (RCS), hardbody infrared (IR), and IR plume) of both ballistic missiles and air breathing threats to drive the M&S tools of the missile defense community, and enable design, verification, and assessment of the BMDS and associated Components' concepts and requirements. Common threat data is used in various BMDS simulation events to prove the performance of the BMDS. These threat representations are derived from information provided by the Intelligence Community, as well as MDA's Adversary Capability Documents (ACDs) and Adversary Data Packages (ADPs).

MDA's M&S capabilities, systems and products are in use throughout the BMDS and provide the Warfighter and Operational Test Agencies (OTAs) the capability to evaluate both the BMDS and individual components. MDA works to validate and accredit system-level models and simulations by anchoring them to ground and flight test events to support accurate and comprehensive assessments of the BMDS. The success of the missile defense program is enabled by quality M&S systems and products that help to demonstrate how BMDS technologies work. In particular, MDA M&S system and product testing is based on an integrated, comprehensive, and phased test program as outlined in MDA's Integrated Master Test Plan (IMTP). Within the construct of the IMTP, MDA Element-unique M&S systems, subsystems, and components are tested as part of their respective development and integration, a necessary precursor to conducting BMD System-level M&S testing (e.g., integrated

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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ground test, performance/technical assessment venues). 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.

MDA's M&S program also supports Allied/Coalition Partner cooperative activities, real-world pre- and post-flight launch analyses, and the Israeli Cooperative Programs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Modeling and Simulation (M&S) Requirements, Design Spt, Scenario Optimization	7.017	7.893	8.028
Articles:	-	-	-

Description: Modeling and Simulation (M&S) capability development executes an integrated, synchronized program to manage M&S development in support Ballistic Missile Defense System (BMDS) development, testing, and assessment.

FY 2014 Accomplishments:
- Produced capability documents and specifications for M&S product development to enable BMDS Hardware in the Loop (HWIL) Tests, Training events, Exercises, Wargames, performance assessments, and Element Integration.
- Implemented the Transition Plan to replace the Single Stimulation Framework (SSF) with an Objective Simulation Framework (OSF) to support M&S Intended Uses.
- Supported requests to export M&S software and technical data to nations or international organizations.
- Supported Technical Interchange Meetings (TIMs) and bilateral agreements with allies and partners.
- Supported continued M&S technical interchange with the Department of Defense of Australia under the Ballistic Missile Defense Modeling, Simulation and Analysis Project Arrangement.
- Supported system engineering capability trades which are essential in the assessment of all BMDS capability deliveries (including BMDS capability deliveries for Phased Adaptive Approach (PAA) Phase 2, Homeland Defense and Regional Phased Adaptive Approach).
- Updated and expanded the 170+ model capability descriptions in MDA`s M&S catalog.
- Maintained traceability between the M&S requirements database and M&S product development.

FY 2015 Plans:
- Maintain and update MDA's M&S model capability descriptions catalog.
- Maintain traceability between the M&S requirements database and M&S product development.
- Produce capability documents and specifications for M&S product development to enable BMDS Ground Tests, Training events, Exercises, Wargames, Digital simulations, and Element Integration.
- Support requests to export M&S software to nations or international organizations.
- Support Technical Interchange Meetings (TIMs) and the Bilateral Activities via Secure Interactive Link (BASIL) Project Arrangement with the United Kingdom.
- Support continued M&S technical interchange with the Department of Defense of Australia under the Ballistic Missile Defense Modeling, Simulation and Analysis Project Arrangement.

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Support system engineering capability trades which are essential in the assessment of all BMDS capability deliveries (including BMDS capability deliveries for Phased Adaptive Approach (PAA) and Homeland Defense). - Continue the transition to replace the Digital Simulation Architecture (DSA) and Single Stimulation Framework (SSF) with an Objective Simulation Framework (OSF) to support M&S Intended Uses. ***FY 2016 Plans:*** FY 2016 increase maintains program at revised labor rates. - Maintain and update MDA's M&S model capability descriptions catalog. - Maintain traceability between the M&S requirements database and M&S product development. - Produce capability documents and specifications for M&S product development to enable BMDS Flight and Hardware in the Loop (HWIL) Tests, Training events, Exercises, Wargames, Digital simulations, and Element Integration. - Support requests to export M&S software and technical data to nations or international organizations. - Support Technical Interchange Meetings and bilateral agreements with allies and partners. - Support system engineering capability trades which are essential for the assessment of all BMDS capability deliveries (including BMDS capability deliveries for Phased Adaptive Approach (PAA) 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.			
Title: M&S Digital Framework, Simulation, Models	10.390	10.943	11.716
Articles:	-	-	-
Description: The Modeling and Simulation (M&S) Digital Framework, simulation, and models effort includes: development and sustainment of digital products and the architecture framework, and delivery/maintenance of infrastructure for Ballistic Missile Defense System (BMDS) performance assessments, Warfighter events, and BMD International Simulation events. ***FY 2014 Accomplishments:*** Development and Sustainment: - Developed and sustained MDA's BMD International Simulation (I-SIM) in support of Combatant Commander (COCOM) and International Wargames, conceptual planning, BMD visualizations, BMD training/orientation, and M&S demonstrations. - Developed and sustained the Missile Defense Space Warning Tool (MDST) to keep pace with fielded BMDS OPIR architectures in support of Warfighter events. - Provided software development/sustainment support to the Extended Air Defense Simulation (EADSIM) code base for use in Warfighter exercises, training venues, and COCOM planning tools. - Provided software development/sustainment for BMDS component models of PATRIOT weapons system for use in MDA test and validation events. Maintenance: - Maintained Discrete Event Simulation (DESIM) in support of COCOM events.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Event Integration/Support Operations: - Integrated, tested, functionally qualified and delivered legacy M&S tools for use in MDA test events and exercises, to include models for PATRIOT, SBIRS, JTAGS, communications. - Began the transition of real-time digital simulation capability to the Objective Simulation Framework (OSF) to support M&S Intended Uses. - Controlled and maintained simulations for Element M&S development laboratory use in the Digital M&S Integration Center (DMIC). - Provided digital representations for use during international simulations/wargames, demonstrations, and Missile Defense Space Warning Tool operations. - Provided threat representations (kinematic trajectories, RCS, and IR signature data) for use in real world events, simulations, exercises, wargames, and test and evaluation activities across the DoD.			
FY 2015 Plans: Development and Sustainment: - Initiate the re-architecting of MDA's BMD International Simulation (I-SIM) to adapt to growing distributed event requirements in support of Combatant Command (COCOM) and International Wargames, conceptual planning, BMD visualizations, BMD training/ orientation, and M&S demonstrations. - Develop and sustain the Missile Defense Space Warning Tool (MDST) to keep pace with fielded BMDS OPIR Architectures in support of Warfighter events. - Provide software operations/maintenance support to the Extended Air Defense Simulation (EADSIM) code base for use in Warfighter exercises, training venues, and COCOM planning tools. - Provide Software development/sustainment for BMDS component models of PATRIOT weapon system for use in MDA test and validation events. Maintenance: - Replace Discrete Event Simulation (DESIM) with existing modernized M&S tools in support of COCOM events. Event Integration/Support Operations: - Integrate, test, functionally qualify, and deliver legacy M&S tools for use in MDA test events, Wargames, and exercises (includes models for PATRIOT, SBIRS, JTAGS, communications). - Continue the transition of real-time digital simulation capability to the Objective Simulation Framework (OSF) to support Intended Uses. - Control and maintain simulations for Element M&S development laboratory use in the Digital M&S Integration Center (DMIC) in Huntsville, AL.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provide digital representations for use during International Simulations/Wargames and demonstrations as well as Missile Defense Space Warning Tool operations - Provide threat representations (kinematic trajectories, RCS, and IR signature data) for use in real-world events, simulations, exercises, wargames, and test and evaluation activities across the DoD. - Perform operational planning for the FY 2016 BMDS assessment events. ***FY 2016 Plans:*** FY 2016 increase is due to additional demand for digital representations supporting simulations and real world events. Development and Sustainment: - Continue re-architecting of MDA's BMD International Simulation (I-SIM) to adapt to growing distributed event requirements in support of COCOM and International Wargames, conceptual planning, BMD visualizations, BMD training/orientation, M&S demonstrations, and the Warfighter's Modification & Fielding Requirements List (MFRL). - Maintain the Missile Defense Space Warning Tool (MDST) to keep pace with fielded BMDS Overhead Persistent Infrared (OPIR) Architectures in support of Warfighter events. - Provide software operations/maintenance support to the Extended Air Defense Simulation (EADSIM) code base for use in Warfighter exercises, training venues, and COCOM planning tools. - Provide Software development/sustainment for BMDS component models of PATRIOT weapon system for use in MDA test and validation events. Event Integration/Support Operations: - Integrate, test, functionally qualify, and deliver M&S tools for use in MDA test events, Wargames, and exercises. - Continue the transition of real-time digital simulation capability to the Objective Simulation Framework (OSF) to support Intended Uses. - Control and maintain simulations for Element M&S development laboratory use in the Digital M&S Integration Center (DMIC) in Huntsville, AL. - Provide digital representations for use during International Simulations/Wargames and demonstrations, and exercise/training events. - Provide threat representations (kinematic trajectories, radar cross sections, and infrared signature data) for use in real-world events, simulations, exercises, wargames, and test and evaluation activities across the DoD. - Perform operational planning for the FY 2017 BMDS assessment events.			
Title: M&S HWIL Framework, Simulations, Models	9.231	12.633	13.341
Articles:	-	-	-
Description: The M&S Hardware-in-the-Loop (HWIL) Framework, Models and Simulations effort develops, maintains and deploys the HWIL framework hardware and software for use at element laboratories and Combatant Command (COCOM) locations			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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 2014	FY 2015	FY 2016
to support IMTP test events, Ballistic Missile Defense System (BMDS) capability delivery assessments, Warfighter training, exercises, and wargames. ***FY 2014 Accomplishments:*** - Provided support for scheduled Integrated Master Test Plan (IMTP) events Global Lightning 14, Terminal Fury 14, Vigilant Shield 14, Global Defender (GDEx06 Part 1), FTG-06b Countdown Exercise, FTG-06b HWIL System Pre-Mission Test (SPMT), GTI-04e Part 1a, and GTI-04e Part 2. - Delivered the Objective Simulation Framework (OSF) Version 1.0 to begin the transition of Hardware-in-the-loop (HWIL) capabilities. - Delivered improved debris and phenomenology modeling capabilities to support BMDS Phased Adaptive Approach (PAA) Phase 3 and beyond needs. - Incorporated advanced M&S capabilities into OSF and SSF for tracking, discrimination, engagement and associated upper tier debris mitigation, launch/engage on remote, as well as lower tier engagement coordination to satisfy PAA Phase 3 and beyond needs. - Controlled and maintained the HWIL BMDS Integration and Development (BID) Laboratory for Element M&S. ***FY 2015 Plans:*** - Deliver the Objective Simulation Framework (OSF) to complete the transition of Hardware-in-the-loop (HWIL) capabilities. - Incorporate advanced M&S capabilities into the next version of the OSF for tracking, discrimination, engagement and associated upper tier debris mitigation, launch/engage on remote, as well as lower tier engagement coordination to satisfy PAA needs. - Control and maintain the HWIL Integration Laboratory for Element M&S in Huntsville, AL. - Provide support for scheduled events including Wargames and COCOM Exercises and the Distributed, Focused and Integrated Ground Test Events as presented in the Integrated Master Test Plan (IMTP). - Develop, maintain, test, field, and operate model representations for use in Ground Tests. FY 2015 increase reflects reprioritization of M&S efforts to achieve M&S Hardware-in-the-Loop (HWIL) requirements. ***FY 2016 Plans:*** FY 2016 increase supports implementation of additional digital requirements into HWIL framework. - Develop Objective Simulation Framework 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 Modeling and Simulation Enterprise needs. - Begin implementation of new capabilities needed to support MDA's Tier 2 Digital requirements, including hardware and software, data storage and transmission, and verification tools.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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 2014	FY 2015	FY 2016
- Control and maintain the Modeling and Simulation (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. - Develop plans, procedures and documentation for scheduled events including Wargames and COCOM Exercises and the Distributed, Focused and Integrated Hardware-In-the-Loop Events as presented in the Integrated Master Test Plan (IMTP). Provide event architecture integration and checkout of Wargames for these same scheduled events. - 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 Continental U.S. (CONUS) and Outside CONUS (OCONUS) distributed sites. Perform regular maintenance and critical repairs of hardware and software.			
Title: M&S Core Truth Modeling	9.750	10.488	10.583
Articles:	-	-	-
Description: The Core Truth Model program provides consistent and common Phenomenology, Lethality, Environment, Communications, and Threat models for Ballistic Missile Defense Systems (BMDS) M&S venues and supports all Digital and Ground Test Events and Wargaming Exercises. The Core Truth Model efforts are critical in the assessment of all BMDS capability deliveries.			
FY 2014 Accomplishments: -Implemented next generation truth representations for phenomenology and lethality to meet advanced BMDS capability needs for tracking, discrimination and engagement in support of Phased Adaptive Approach (PAA) Phase 3 and beyond. -Maintained legacy truth representations (e.g., Parametric Endoatmospheric-Exoatmospheric Lethality Simulation (PEELS), Kinetic Intercept Debris Distribution (KIDD), Optical Signatures Code/Optical Signature Inline Generator (OSC/OPTISIG)). -Provided M&S software for the Threat Modeling Simulation System (TMSS) threat production architecture (e.g. integration of new/updated missile models and threat system capabilities) to enable threat production for real-world events; BMDS development, system-level events, and exercises; and Wargames. -Provided M&S software for the Threat Generator External (TGx) analyst/planner tool (e.g. integration of new/updated missile models and threat system capabilities) for threat studies throughout the DoD. -Continued efforts to support integration of all applicable Core Truth Model functions into Objective Simulation Framework (OSF) framework. -Provided support for scheduled events Global Lightning 14, Terminal Fury 14, Vigilant Shield 14, Global Defender (GDEx06 Part 1), and the Distributed, Focused and Integrated Ground Test Events as presented in the IMTP.			
FY 2015 Plans: -Implement next generation truth representations for phenomenology and lethality to meet advanced BMDS capability needs for tracking, discrimination and engagement in support of Phased Adaptive Approach (PAA).			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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 2014	FY 2015	FY 2016
-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. -Provide M&S software for the Threat Modeling Simulation System (TMSS) threat production architecture (e.g. integration of new/ updated missile models and threat system capabilities) to enable threat production for real-world events; BMDS development, system-level events, and exercises; and Wargames. -Provide M&S software for the Threat Generator External (TGx) analyst/planner tool (e.g. integration of new/updated missile models and threat system capabilities) for threat studies throughout the DoD. -Continue efforts to support integration of all applicable Core Truth Model functions into Objective Simulation Framework (OSF) framework. -Provide support for scheduled events including Wargames, Exercises, and the Distributed, Focused and Integrated Ground Test Events as presented in the IMTP. - Deliver Core Truth Models (CTM) Toolkit for integrated truth representations across the M&S enterprise.			
FY 2016 Plans: FY 2016 increase maintains program at revised labor rates. - Continue implementation of next generation truth representations for signatures and lethality to address advanced BMDS capability needs for tracking, discrimination and engagement in support of European Phased Adaptive Approach (EPAA) Phase 3. - 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. - Provide M&S software for the Threat Modeling Simulation System (TMSS) threat production architecture (e.g. integration of new/ updated missile models and threat system capabilities) to enable threat production for real-world events, BMDS development, BMD system-level events, training, exercises, and Wargames. - Provide M&S software for the Threat Generator External (TGx) analyst/planner tool (e.g. integration of new/updated missile models and threat system capabilities) for threat studies throughout the DoD. - Continue efforts to support integration of all applicable Core Truth Model functions into Objective Simulation Framework (OSF) framework. - Provide support for scheduled events including training, exercises, Wargames, and the Distributed, Focused and Integrated HWIL Events as presented in the IMTP. - Deliver Core Truth Models (CTM) Toolkit for integrated truth representations across the M&S enterprise. - Continue efforts to develop radar cross section (RCS) prediction tool that provides consistent RCS data for system and element simulations. - Continue the re-establishment of the Environments Program that will provide consistent environment models for system and element level simulations.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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 2014	FY 2015	FY 2016
- Continue development of Truth Interaction which includes infrared (IR) propagation, radio frequency (RF) propagation, and aerodynamic propagation. This will provide consistent models and truth to system and element level simulations. - Continue generating CTM Sensitivity analysis to identify the sensitivity within system simulation of CTM models and boundary. - Continue development of CTM design to support system and element level simulations.			
Accomplishments/Planned Programs Subtotals	36.388	41.957	43.668

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	251.899	163.892	228.021	-	228.021	230.306	257.014	218.533	247.707	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Modeling & Simulation (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 Hardware-in-the-Loop (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 Federally Funded Research and Development Centers (FFRDCs) and University Affiliated Research Centers (UARCs).

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Modeling and Simulation (M&S) Requirements, Design Spt, Scenario Optimization - FFRDC & UARC	MIPR	Various : CO, AL	0.000	-		1.690	Oct 2014	1.724	Nov 2015	-		1.724	Continuing	Continuing	Continuing
Modeling and Simulation (M&S) Requirements, Design Spt, Scenario Optimization - M&S Reqts & Design- Configuration & Risk Management	C/FFP	ManTech : CO	6.009	-		-		-		-		-	-	6.009	-
Modeling and Simulation (M&S) Requirements, Design Spt, Scenario Optimization - M&S Reqts & Design- Integrated Master Plan	C/FFP	ManTech : CO	3.879	-		-		-		-		-	-	3.879	-
Modeling and Simulation (M&S) Requirements, Design Spt, Scenario Optimization - M&S Reqts & Design- Product Capability Documents	C/FFP	Boeing : AL	17.471	-		-		-		-		-	-	17.471	-
Modeling and Simulation (M&S) Requirements, Design Spt, Scenario Optimization - Requirements & Design - CSS	C/CPAF	Northrop Grumman : CO	3.274	3.158		-		-		-		-	Continuing	Continuing	Continuing
Modeling and Simulation (M&S) Requirements, Design Spt, Scenario Optimization - Requirements & Design - CSS 2	C/CPFF	Sparta : CO	0.000	-		5.135	Oct 2014	5.294	Nov 2015	-		5.294	Continuing	Continuing	Continuing
Modeling and Simulation (M&S) Requirements,	MIPR	SMDC : AL	0.000	-		0.476	Oct 2014	0.486	Nov 2015	-		0.486	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Design Spt, Scenario Optimization - Requirements & Design - OGA															
Modeling and Simulation (M&S) Requirements, Design Spt, Scenario Optimization - Requirements & Design Support	Various	MDA : CO, AL	1.802	1.926		0.592	Oct 2014	0.524	Oct 2015	-		0.524	Continuing	Continuing	Continuing
Modeling and Simulation (M&S) Requirements, Design Spt, Scenario Optimization - Requirements & Scenario Design Support - OGA	MIPR	AMRDEC : AL	0.000	1.933		-		-		-		-	Continuing	Continuing	Continuing
M&S Digital Framework, Simulation, Models - Digital Framework Development	C/CPAF	Northrop Grumman : CO	0.000	5.744		4.957	Oct 2014	5.167	Oct 2015	-		5.167	Continuing	Continuing	Continuing
M&S Digital Framework, Simulation, Models - Digital Simulation Development / Support	MIPR	SMDC : AL	0.000	1.750		1.200	Oct 2014	1.024	Oct 2015	-		1.024	Continuing	Continuing	Continuing
M&S Digital Framework, Simulation, Models - M&S / Digital Framework Support	Various	MDA : CO, AL	0.000	0.506		0.525	Oct 2014	0.551	Oct 2015	-		0.551	Continuing	Continuing	Continuing
M&S Digital Framework, Simulation, Models - M&S / Digital Framework Support - OGA	MIPR	AMRDEC : AL	0.000	2.390		4.261	Oct 2014	4.974	Oct 2015	-		4.974	Continuing	Continuing	Continuing
M&S Digital Framework, Simulation, Models - M&S Digital Framework - Integrated Capability for International Programs	C/CPAF	Northrop Grumman : CO	40.919	-		-		-		-		-	-	40.919	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
M&S Digital Framework, Simulation, Models - M&S Digital Framework - Integrated Capability for Performance Assessment	C/CPAF	Northrop Grumman : CO	52.964	-		-		-		-		-	-	52.964	-
M&S HWIL Framework, Simulations, Models - M&S HWIL - Industry	C/CPAF	Northrop : CO	2.608	-		-		3.162	Oct 2015	-		3.162	Continuing	Continuing	Continuing
M&S HWIL Framework, Simulations, Models - M&S HWIL - Single Stimulation Framework & Objective Simulation Framework Product Development & Deployment	C/CPAF	Boeing : AL	53.419	-		-		-		-		-	Continuing	Continuing	Continuing
M&S HWIL Framework, Simulations, Models - M&S HWIL Framework Development and Support	C/CPFF	Teledyne Brown Engineering : AL, CO	0.000	6.315		4.742	Oct 2014	3.928	Oct 2015	-		3.928	Continuing	Continuing	Continuing
M&S HWIL Framework, Simulations, Models - M&S HWIL Simulations / Models Development	MIPR	AMRDEC : AL	6.733	2.316		6.754	Oct 2014	5.090	Oct 2015	-		5.090	Continuing	Continuing	Continuing
M&S HWIL Framework, Simulations, Models - M&S HWIL Support	Various	MDA : AL, CO	0.000	0.600		1.137	Oct 2014	1.161	Oct 2015	-		1.161	Continuing	Continuing	Continuing
M&S Core Truth Modeling - Core Truth Models Validation	Various	MDA : CO, AL	2.635	1.154		1.281	Oct 2014	1.310	Oct 2015	-		1.310	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling - Communication Network Model Development	C/CPAF	Northrop Grumman : CO	2.725	-		-		-		-		-	-	2.725	-
M&S Core Truth Modeling - M&S Core Truth	MIPR	AMRDEC : AL	24.497	1.559		2.504	Oct 2014	2.537	Oct 2015	-		2.537	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Modeling - Lethality/ Phenomenology Modeling															
M&S Core Truth Modeling - M&S Core Truth Modeling - PLET-C Integration, Assembly, Test & Checkout	C/CPAF	Northrop Grumman : CO	3.808	-		-		-		-		-	-	3.808	-
M&S Core Truth Modeling - M&S Core Truth Modeling - Trajectory Generator External	C/CPAF	Northrop Grumman : CO	8.742	-		-		-		-		-	-	8.742	-
M&S Core Truth Modeling - M&S Core Truth Modeling Simulation System	C/CPAF	Northrop Grumman : CO	14.338	7.037		6.703	Oct 2014	6.736	Oct 2015	-		6.736	Continuing	Continuing	Continuing
		Subtotal	245.823	36.388		41.957		43.668		-		43.668	-	-	-

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

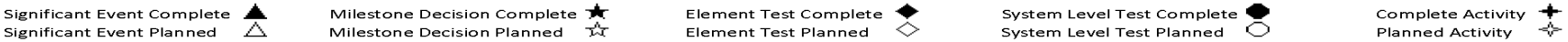
N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	245.823	36.388		41.957		43.668		-		43.668	-	-	-

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD31 / *Modeling & Simulation*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Combatant Command Exercise (Vigilant Shield 14) 1Q-FY 2014	▲																											
International Simulation v8.1 1Q-FY 2014	▲																											
Ground Test, Integrated 04e Part 1a 1Q-FY 2014	▲																											
Combatant Command Exercise (Global Thunder 14) 1Q-FY 2014	▲																											
Missile Defense Space warning Tool (MDST) v15 System Reqts Review 1Q-FY 2014	▲																											
Ronald Reagan Forum Wargame 2Q-FY 2014		▲																										
Congressional Wargame 2Q-FY 2014		▲																										
Warfighter Trial Period -04e (WFTP-04e) 2Q-FY 2014		▲																										
Combatant Command Exercise (Global Lightning 14) 3Q-FY 2014			▲																									
Combatant Command Exercise (Terminal Fury 14) 3Q-FY 2014			▲																									
Ground Test, Integrated 04e Part 2			▲																									
FTG-06b Countdown Exercise			▲																									
FTG-06b HWIL System Pre-Mission Test (SPMT)			▲																									
Objective Simulation Framework (OSF) v1.0.2 4Q-FY 2014				▲																								
Single Stimulation Framework (SSF) v1.1.7 4Q-FY 2014				▲																								
Combatant Command Exercise (Vigilant Shield / Global Thunder 15) 1Q-FY 2015					▲																							
International Simulation v.8.2 – 1Q-FY 2015					▲																							
Multi-National Missile Defense Conference Seminar 1Q-FY 2015					▲																							
Missile Defense Space warning Tool (MDST) v16 - 1Q-FY 2015					▲																							
GTD-04e Part 2 (BMDS Ground Test) M&S Test Integration					▲																							
BMDS Wargame 2015 2Q-FY 2015						△																						

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD31 / *Modeling & Simulation*

Significant Event Complete ▲ Significant Event Planned △ Milestone Decision Complete ★ Milestone Decision Planned ☆ Element Test Complete ◆ Element Test Planned ◇ System Level Test Complete ⬢ System Level Test Planned ⬡ Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Objective Simulation Framework (OSF) v1.0.3 - 2Q-FY 2015						△																						
Ronald Reagan Forum Wargame 2Q-FY 2015						△																						
FTO-02 Event 1 - HWIL SPMT						△																						
FTO-02 Event 2 - HWIL SPMT						△																						
FTO-02 E1 (OTA Intercept Flight Test)							△																					
Global Response (GREx06 Part 2) 3Q-FY 2015							△																					
Key Resolve 15 Combatant Command Exercise							△																					
Combatant Command Exercise (Global Lightning 15) 3Q-FY 2015							△																					
CTV-02 HWIL System Pre-Mission Test (SPMT)							△																					
GTI-06 Part 1 (BMDS Ground Test)							✧																					
FTO-02 Event 2 Countdown Exercise								△																				
Objective Simulation Framework (OSF) v1.0.4 - 1Q-FY 2016									△																			
International Simulation v.8.3 – 1Q-FY 2016									△																			
Ground Test, Distributed 06 Part 3 (GTD-06 Part 3) Operational Test 1Q-FY 2016									△																			
Missile Defense Space warning Tool (MDST) v16.1 - 1Q-FY 2016									△																			
VIGILANT SHIELD 16 Exercise Event - 2016									△																			
GLOBAL THUNDER 16 Exercise Event - 2016									△																			
GM CTV-02+ (GM Intercept Flight Test) Countdown Exercise									△																			
GM CTV-02+ (GM Flight Test)									△																			
Flight Test, Operational (FTO) 02 E1 HWIL System Post Flight Reconstruction (SPFR)									△																			
Flight Test, Operational (FTO) 02 E2 HWIL System Post Flight Reconstruction (SPFR)										△																		
Combatant Command Exercise (Keen Edge 16)										△																		
GM CTV-02+ (GM Intercept Flight Test) HWIL System Post Flight Reconstruction (SPFR)										△																		
FTG-15 (GM Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)										△																		
GLOBAL LIGHTNING 16 Exercise Event - 2016										✧	✧																	

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD31 / *Modeling & Simulation*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TERMINAL FURY 16 Exercise - 2016										✧	✧																	
Objective Simulation Framework (OSF) v1.5 - 3Q-FY 2016											△																	
FTM-DST-1 (Flight Test) HWIL System Pre-Mission Test (SPMT)											△																	
FTG-15 Countdown Event												△																
VIGILANT SHIELD 17 Exercise Event - 2017													△															
GLOBAL THUNDER 17 Exercise Event - 2017													△															
International Simulation v 8.4 – 1Q-FY 2017													△															
Missile Defense Space warning Tool (MDST) v16.2 - 1Q-FY 2017													△															
Multinational Conference													△															
FTX-22 HWIL System Pre-Mission Test (SPMT)													△															
Objective Simulation Framework (OSF) 1.0.6													△															
FTG-15 (GM Intercept Flight Test) Digital System Post Flight Reconstruction (SPFR)														△														
FTG-15 (GM Intercept Flight Test) HWIL System Post Flight Reconstruction (SPFR)														△														
FTG-13 (OT) HWIL System Pre-Mission Test (SPMT)														△														
GLOBAL LIGHTNING 17 Exercise Event - 2017														✧	✧													
TERMINAL FURY 17 Exercise - 2017														✧	✧													
Global Responder GREx 07b Part 1 3Q-FY 2017															△													
FTG-13 (OT) Digital System Pre-Mission Test (SPMT)															△													
FTM-29 (AEGIS 5.1 Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)															△													
KEEN SWORD 17 Exercise - 2017															✧	✧	✧											
FTG-13 (OT) Countdown Event (CDE)																△												
FTM-29 (AEGIS 5.1 Intercept Flight Test) Digital System Pre-Mission Test (SPMT)																△												
VIGILANT SHIELD 18 Exercise Event - 2018																	△											
GLOBAL THUNDER 18 Exercise Event - 2018																	△											
Missile Defense Space warning Tool (MDST) v16.3																	△											

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD31 / *Modeling & Simulation*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
International Simulation v8.5																	△											
Flight Test, Operational (FTO) 03 E1 HWIL System Pre-Mission Test (SPMT)																	△											
FTM-DST-2 (Flight Test) HWIL System Pre-Mission Test (SPMT)																	△											
FTG-13 (OT) Digital System Post Flight Reconstruction (SPFR)																		△										
FTG-13 (OT) HWIL System Post Flight Reconstruction (SPFR)																		△										
Flight Test, Operational (FTO) 03 E1 Digital System Pre-Mission Test (SPMT)																		△										
Flight Test, Operational (FTO) 03 E2 HWIL System Pre-Mission Test (SPMT)																		△										
GLOBAL LIGHTNING 18 Exercise Event - 2018																		✧	✧									
TERMINAL FURY 18 Exercise - 2018																		✧	✧									
FTM-29 (AEGIS 5.1 Intercept Flight Test) Digital System Post Flight Reconstruction (SPFR)																			△									
FTM-29 (AEGIS 5.1 Intercept Flight Test) HWIL System Post Flight Reconstruction (SPFR)																			△									
Flight Test, Operational (FTO) 03 E2 Digital System Pre-Mission Test (SPMT)																			△									
Objective Simulation Framework v1.x																			△									
Performance Assessment (PA07b OT) 4Q-FY 2018																				△								
VIGILANT SHIELD 19 Exercise Event - 2019																					△							
GLOBAL THUNDER 19 Exercise Event - 2019																					△							
International Simulation v8.6																					△							
Objective Simulation Framework v1.x (2019 update 1)																					△							
Flight Test, Operational (FTO) 03 E1 Digital System Post Flight Reconstruction (SPFR)																					△							
Flight Test, Operational (FTO) 03 E1 HWIL System Post Flight Reconstruction (SPFR)																					△							
FTG-17 (GM Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)																					△							

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD31 / *Modeling & Simulation*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Flight Test, Operational (FTO) 03 E2 HWIL System Post Flight Reconstruction (SPFR)																						△						
Flight Test, Operational (FTO) 03 E2 Digital System Post Flight Reconstruction (SPFR)																						△						
FTG-17 (GM Intercept Flight Test) Digital System Pre-Mission Test (SPMT)																						△						
FTM-35 (AEGIS 5.1 Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)																						△						
FTT-19 (TH Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)																						△						
Global Responder GREx 08 Part 1 3Q-FY 2019																							△					
GLOBAL LIGHTNING 19 Exercise Event - 2019																						✧	✧					
TERMINAL FURY 19 Exercise - 2019																						✧	✧					
FTM-35 (AEGIS 5.1 Intercept Flight Test) Digital System Pre-Mission Test (SPMT)																							△					
FTT-19 (TH Intercept Flight Test) Digital System Pre-Mission Test (SPMT)																							△					
Objective Simulation Framework v1.x (FY 2019 update 2)																							△					
Objective Simulation Framework v1.x (FY 2020 update 1)																									△			
International Simulation v8.7																									△			
FTG-17 (GM Intercept Flight Test) Digital System Post Flight Reconstruction (SPFR)																									△			
FTG-17 (GM Intercept Flight Test) HWIL System Post Flight Reconstruction (SPFR)																									△			
FTG-11 (GM Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)																									△			
FTX-26 (SN Target Only Flight Test) HWIL System Pre-Mission Test (SPMT)																									△			
VIGILANT SHIELD 20 Exercise Event - 2020																									△			
GLOBAL THUNDER 20 Exercise Event - 2020																									△			
FTT-19 (TH Intercept Flight Test) Digital System Post Flight Reconstruction (SPFR)																										△		
FTG-11 (GM Intercept Flight Test) Digital System Pre-Mission Test (SPMT)																										△		

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD31 / *Modeling & Simulation*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
FTX-26 (SN Target Only Flight Test) Digital System Pre-Mission Test (SPMT)																										△		
FTT-19 (TH Intercept Flight Test) HWIL System Post Flight Reconstruction (SPFR)																										△		
FTG-11 (GM Intercept Flight Test) Countdown Exercise																											△	
GLOBAL LIGHTNING 20 Exercise Event - 2020																										✧	✧	
TERMINAL FURY 20 Exercise - 2020																										✧	✧	

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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**
Combatant Command Exercise (Vigilant Shield 14) 1Q-FY 2014	1	2014	1	2014
International Simulation v8.1 1Q-FY 2014	1	2014	1	2014
Ground Test, Integrated 04e Part 1a 1Q-FY 2014	1	2014	1	2014
Combatant Command Exercise (Global Thunder 14) 1Q-FY 2014	1	2014	1	2014
Missile Defense Space warning Tool (MDST) v15 System Reqts Review 1Q-FY 2014	1	2014	1	2014
Ronald Reagan Forum Wargame 2Q-FY 2014	2	2014	2	2014
Congressional Wargame 2Q-FY 2014	2	2014	2	2014
Warfighter Trial Period -04e (WFTP-04e) 2Q-FY 2014	2	2014	2	2014
Combatant Command Exercise (Global Lightning 14) 3Q-FY 2014	3	2014	3	2014
Combatant Command Exercise (Terminal Fury 14) 3Q-FY 2014	3	2014	3	2014
Ground Test, Integrated 04e Part 2	3	2014	3	2014
FTG-06b Countdown Exercise	3	2014	3	2014
FTG-06b HWIL System Pre-Mission Test (SPMT)	3	2014	3	2014
Objective Simulation Framework (OSF) v1.0.2 4Q-FY 2014	4	2014	4	2014
Single Stimulation Framework (SSF) v1.1.7 4Q-FY 2014	4	2014	4	2014
Combatant Command Exercise (Vigilant Shield / Global Thunder 15) 1Q-FY 2015	1	2015	1	2015
International Simulation v.8.2 – 1Q-FY 2015	1	2015	1	2015
Multi-National Missile Defense Conference Seminar 1Q-FY 2015	1	2015	1	2015
Missile Defense Space warning Tool (MDST) v16 - 1Q-FY 2015	1	2015	1	2015
GTD-04e Part 2 (BMDS Ground Test) M&S Test Integration	1	2015	1	2015
BMDS Wargame 2015 2Q-FY 2015	2	2015	2	2015
Objective Simulation Framework (OSF) v1.0.3 - 2Q-FY 2015	2	2015	2	2015
Ronald Reagan Forum Wargame 2Q-FY 2015	2	2015	2	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD31 / *Modeling & Simulation*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTO-02 Event 1 - HWIL SPMT	2	2015	2	2015
FTO-02 Event 2 - HWIL SPMT	2	2015	2	2015
FTO-02 E1 (OTA Intercept Flight Test)	3	2015	3	2015
Global Response (GREx06 Part 2) 3Q-FY 2015	3	2015	3	2015
Key Resolve 15 Combatant Command Exercise	3	2015	3	2015
Combatant Command Exercise (Global Lightning 15) 3Q-FY 2015	3	2015	3	2015
CTV-02 HWIL System Pre-Mission Test (SPMT)	3	2015	3	2015
GTI-06 Part 1 (BMDS Ground Test)	3	2015	3	2015
FTO-02 Event 2 Countdown Exercise	4	2015	4	2015
Objective Simulation Framework (OSF) v1.0.4 - 1Q-FY 2016	1	2016	1	2016
International Simulation v.8.3 – 1Q-FY 2016	1	2016	1	2016
Ground Test, Distributed 06 Part 3 (GTD-06 Part 3) Operational Test 1Q-FY 2016	1	2016	1	2016
Missile Defense Space warning Tool (MDST) v16.1 - 1Q-FY 2016	1	2016	1	2016
VIGILANT SHIELD 16 Exercise Event - 2016	1	2016	1	2016
GLOBAL THUNDER 16 Exercise Event - 2016	1	2016	1	2016
GM CTV-02+ (GM Intercept Flight Test) Countdown Exercise	1	2016	1	2016
GM CTV-02+ (GM Flight Test)	1	2016	1	2016
Flight Test, Operational (FTO) 02 E1 HWIL System Post Flight Reconstruction (SPFR)	1	2016	1	2016
Flight Test, Operational (FTO) 02 E2 HWIL System Post Flight Reconstruction (SPFR)	2	2016	2	2016
Combatant Command Exercise (Keen Edge 16)	2	2016	2	2016
GM CTV-02+ (GM Intercept Flight Test) HWIL System Post Flight Reconstruction (SPFR)	2	2016	2	2016
FTG-15 (GM Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)	2	2016	2	2016
GLOBAL LIGHTNING 16 Exercise Event - 2016	2	2016	3	2016
TERMINAL FURY 16 Exercise - 2016	2	2016	3	2016
Objective Simulation Framework (OSF) v1.5 - 3Q-FY 2016	3	2016	3	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD31 / *Modeling & Simulation*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTM-DST-1 (Flight Test) HWIL System Pre-Mission Test (SPMT)	3	2016	3	2016
FTG-15 Countdown Event	4	2016	4	2016
VIGILANT SHIELD 17 Exercise Event - 2017	1	2017	1	2017
GLOBAL THUNDER 17 Exercise Event - 2017	1	2017	1	2017
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
Multinational Conference	1	2017	1	2017
FTX-22 HWIL System Pre-Mission Test (SPMT)	1	2017	1	2017
Objective Simulation Framework (OSF) 1.0.6	1	2017	1	2017
FTG-15 (GM Intercept Flight Test) Digital System Post Flight Reconstruction (SPFR)	2	2017	2	2017
FTG-15 (GM Intercept Flight Test) HWIL System Post Flight Reconstruction (SPFR)	2	2017	2	2017
FTG-13 (OT) HWIL System Pre-Mission Test (SPMT)	2	2017	2	2017
GLOBAL LIGHTNING 17 Exercise Event - 2017	2	2017	3	2017
TERMINAL FURY 17 Exercise - 2017	2	2017	3	2017
Global Responder GREx 07b Part 1 3Q-FY 2017	3	2017	3	2017
FTG-13 (OT) Digital System Pre-Mission Test (SPMT)	3	2017	3	2017
FTM-29 (AEGIS 5.1 Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)	3	2017	3	2017
KEEN SWORD 17 Exercise - 2017	3	2017	1	2018
FTG-13 (OT) Countdown Event (CDE)	4	2017	4	2017
FTM-29 (AEGIS 5.1 Intercept Flight Test) Digital System Pre-Mission Test (SPMT)	4	2017	4	2017
VIGILANT SHIELD 18 Exercise Event - 2018	1	2018	1	2018
GLOBAL THUNDER 18 Exercise Event - 2018	1	2018	1	2018
Missile Defense Space warning Tool (MDST) v16.3	1	2018	1	2018
International Simulation v8.5	1	2018	1	2018
Flight Test, Operational (FTO) 03 E1 HWIL System Pre-Mission Test (SPMT)	1	2018	1	2018
FTM-DST-2 (Flight Test) HWIL System Pre-Mission Test (SPMT)	1	2018	1	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD31 / *Modeling & Simulation*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTG-13 (OT) Digital System Post Flight Reconstruction (SPFR)	2	2018	2	2018
FTG-13 (OT) HWIL System Post Flight Reconstruction (SPFR)	2	2018	2	2018
Flight Test, Operational (FTO) 03 E1 Digital System Pre-Mission Test (SPMT)	2	2018	2	2018
Flight Test, Operational (FTO) 03 E2 HWIL System Pre-Mission Test (SPMT)	2	2018	2	2018
GLOBAL LIGHTNING 18 Exercise Event - 2018	2	2018	3	2018
TERMINAL FURY 18 Exercise - 2018	2	2018	3	2018
FTM-29 (AEGIS 5.1 Intercept Flight Test) Digital System Post Flight Reconstruction (SPFR)	3	2018	3	2018
FTM-29 (AEGIS 5.1 Intercept Flight Test) HWIL System Post Flight Reconstruction (SPFR)	3	2018	3	2018
Flight Test, Operational (FTO) 03 E2 Digital System Pre-Mission Test (SPMT)	3	2018	3	2018
Objective Simulation Framework v1.x	3	2018	3	2018
Performance Assessment (PA07b OT) 4Q-FY 2018	4	2018	4	2018
VIGILANT SHIELD 19 Exercise Event - 2019	1	2019	1	2019
GLOBAL THUNDER 19 Exercise Event - 2019	1	2019	1	2019
International Simulation v8.6	1	2019	1	2019
Objective Simulation Framework v1.x (2019 update 1)	1	2019	1	2019
Flight Test, Operational (FTO) 03 E1 Digital System Post Flight Reconstruction (SPFR)	1	2019	1	2019
Flight Test, Operational (FTO) 03 E1 HWIL System Post Flight Reconstruction (SPFR)	1	2019	1	2019
FTG-17 (GM Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)	1	2019	1	2019
Flight Test, Operational (FTO) 03 E2 HWIL System Post Flight Reconstruction (SPFR)	2	2019	2	2019
Flight Test, Operational (FTO) 03 E2 Digital System Post Flight Reconstruction (SPFR)	2	2019	2	2019
FTG-17 (GM Intercept Flight Test) Digital System Pre-Mission Test (SPMT)	2	2019	2	2019
FTM-35 (AEGIS 5.1 Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)	2	2019	2	2019
FTT-19 (TH Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)	2	2019	2	2019
Global Responder GREx 08 Part 1 3Q-FY 2019	3	2019	3	2019
GLOBAL LIGHTNING 19 Exercise Event - 2019	2	2019	3	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
TERMINAL FURY 19 Exercise - 2019	2	2019	3	2019
FTM-35 (AEGIS 5.1 Intercept Flight Test) Digital System Pre-Mission Test (SPMT)	3	2019	3	2019
FTT-19 (TH Intercept Flight Test) Digital System Pre-Mission Test (SPMT)	3	2019	3	2019
Objective Simulation Framework v1.x (FY 2019 update 2)	3	2019	3	2019
Objective Simulation Framework v1.x (FY 2020 update 1)	1	2020	1	2020
International Simulation v8.7	1	2020	1	2020
FTG-17 (GM Intercept Flight Test) Digital System Post Flight Reconstruction (SPFR)	1	2020	1	2020
FTG-17 (GM Intercept Flight Test) HWIL System Post Flight Reconstruction (SPFR)	1	2020	1	2020
FTG-11 (GM Intercept Flight Test) HWIL System Pre-Mission Test (SPMT)	1	2020	1	2020
FTX-26 (SN Target Only Flight Test) HWIL System Pre-Mission Test (SPMT)	1	2020	1	2020
VIGILANT SHIELD 20 Exercise Event - 2020	1	2020	1	2020
GLOBAL THUNDER 20 Exercise Event - 2020	1	2020	1	2020
FTT-19 (TH Intercept Flight Test) Digital System Post Flight Reconstruction (SPFR)	2	2020	2	2020
FTG-11 (GM Intercept Flight Test) Digital System Pre-Mission Test (SPMT)	2	2020	2	2020
FTX-26 (SN Target Only Flight Test) Digital System Pre-Mission Test (SPMT)	2	2020	2	2020
FTT-19 (TH Intercept Flight Test) HWIL System Post Flight Reconstruction (SPFR)	2	2020	2	2020
FTG-11 (GM Intercept Flight Test) Countdown Exercise	3	2020	3	2020
GLOBAL LIGHTNING 20 Exercise Event - 2020	2	2020	3	2020
TERMINAL FURY 20 Exercise - 2020	2	2020	3	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
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COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MC31: *M&S Cyber Operations*	-	-	0.223	0.225	-	0.225	0.227	0.233	0.235	0.244	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project MC31 is the Defensive Cyber Operations Project established in this Program Element (PE) for PB 2015. Funds were previously reported in Project MD31 of this PE.

A. Mission Description and Budget Item Justification

The funds in this project sustain Missile Defense Agency (MDA) DoD Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for Enabling M&S mission systems. This project maintains the Certification and Accreditation (C&A) data repository, capturing the DIACAP documentation (artifacts, validation results, Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&M on all M&S information systems.

This project supports the monitoring and tracking of Cybersecurity mitigations detailed in Information Technology security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA Senior Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation (IV&V) 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 (FISMA).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Network / System Certification and Accreditation (C&A) for Modeling & Simulation (M&S)	-	0.223	0.225
Articles:	-	-	-
Description: See Mission Description Above.			
FY 2014 Accomplishments: N/A			
FY 2015 Plans: - Conduct Cybersecurity/information assurance engineering and architecture planning for Enabling M&S information technology systems. - Plan and test the information assurance controls for Enabling M&S systems.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Develop Enabling M&S DoD Information Assurance Certification and Accreditation Program (DIACAP) certification and accreditation packages. - Conduct Controls Validation Testing (CVT) of Enabling M&S systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies. - Conduct annual information assurance reviews to assess compliance in implementing and maintaining information assurance controls. ***FY 2016 Plans:*** - Conduct Cybersecurity/information assurance engineering and architecture planning for M&S information technology systems. - Plan and test the information assurance controls for M&S systems. - Develop M&S DoD Information Assurance Certification and Accreditation Program (DIACAP) certification and accreditation packages. - Conduct Controls Validation Testing (CVT) of M&S systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies. - Conduct annual information assurance reviews to assess compliance in implementing and maintaining information assurance controls.			
Accomplishments/Planned Programs Subtotals	-	0.223	0.225

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: PB 2016 Missile Defense Agency			Date: February 2015
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C&A) for Modeling & Simulation (M&S) - CSS	C/CPFF	Torch Technologies : CO, AL	0.000	-		0.223	Nov 2014	0.225	Nov 2015	-		0.225	Continuing	Continuing	Continuing
		Subtotal	0.000	-		0.223		0.225		-		0.225	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		0.223		0.225		-		0.225	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
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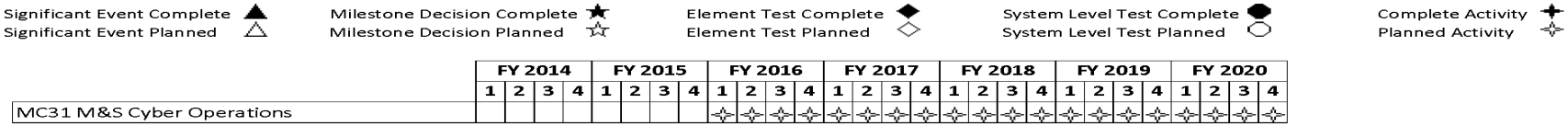

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MC31 / *M&S Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MC31 M&S Cyber Operations	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD32: *Quality, Safety, and Mission Assurance*	122.042	25.982	30.637	29.986	-	29.986	30.294	30.291	30.607	31.756	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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.

A. Mission Description and Budget Item Justification

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. Provide quality on-site formal inspection and resolution when troubled suppliers are identified. Initiate and lead on-site Joint Government and Industry Team field support and expertise to assist when critical sole source suppliers are failing. Team 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. Maintains MDA Assurance Provisions for the Agency.

Safety:
Responsible for system safety of the Ballistic Missile Defense System (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. Also responsible for ensuring the overall safety of the civilian, contractor and military workforce. BMDS Safety Officers (BSO) provides on-site support 24 hours a day, 7 days a week, 365 days a year to ensure operational safety of systems. 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.

Mission Assurance:
Provides in-plant MDA Assurance Representatives (MARs) for the Missile Defense Agency (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

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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*

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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Quality, Safety & Mission Assurance	25.982	30.637	29.986
Articles:	-	-	-

Description: N/A

FY 2014 Accomplishments:
Quality:

Provided Government inspection and process control for flight test operations
Performed non-conformance reporting, tracking, and mitigation for all major flight and ground tests Provide non-advocate independent quality oversight/support to Agency operations such as configuration control boards, engineering forums, and material release activities
Performed configuration management verification and reconciliation for all major flight and ground test assets

Safety:

Maintained on-site safety oversight at key suppliers and Government facilities
Conducted safety risk assessments per Department of Defense Standards on all test and operational systems to ensure catastrophic risks remained improbable
Conducted system analysis/assessments such as safety risk assessments, failure modes and effects criticality analysis, safety hazards analysis etc., to minimize flight and operational system risks

Mission Assurance:

Provided the Missile Defense Agency Director non-advocate, independent technical assessments on system, subsystem and component design, manufacturing and test activities in support of operational deployment and flight test activities Provide non-advocate technical support to Missile Defense Agency and Program risk boards, configuration control boards, technical interchange meetings and failure review boards
Conducted Mission Assurance audits throughout the Missile Defense Agency's supply chain
Provided in-plant Mission Assurance and Quality Representatives at 23 Mission Critical Suppliers

BMDS Safety Officers (BSOs):

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD32 / *Quality, Safety, and Mission Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Provided 24 hours a day, 7 days a week, 365 days a year safety monitoring of operational and test systems to ensure safe transition between test and operations Monitored and tracked non-conformance behavior of the operational and flight test systems Performed software and hardware configuration verification along with supporting the Warfighter to asset management Provided safety support for Eastern, Western and Pacific Range activities such as safety training and certification MDA Parts and Materials Program: Enhanced BMDS reliability through the following activities: Enforced Program compliance to the Missile Defense Agency Part, Material and Processes Assurance Provisions (PMAP) Provided a Part and Material knowledge center to address Program and Supplier part and material issues arising from development or fielded systems Updated the Agency's preferred parts and materials list database to facilitate new system design and to identify part obsolescence issues Pursued remedies against counterfeit parts Acquisition Support: Ensured all new acquisitions are in compliance with the MDA Assurance Provisions (MAP), the MDA Parts, Materials and Processes Assurance Provisions and all applicable Defense Federal Acquisition Regulation (DFAR), Federal Acquisition Regulation (FAR), and clauses regarding quality, safety and mission assurance Update the Missile Defense Agency Assurance Provisions (MAP) and the MDA Parts Materials and Processes Mission Assurance Plan (PMAP) to incorporate design, test, manufacturing, quality, safety, and mission assurance methods to further improve future product reliability Improved MDA's acquisition strategy through participation in the definition and determination of all award fees Technical Assistance to MDA Elements: Performed independent/non-advocate reviews, such as design certification, pedigree, failure, preliminary design, critical design and technical interchange reviews to ensure compliance with industry best practices			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD32 / *Quality, Safety, and Mission Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Provided mission assurance support to major failure review boards to ensure comprehensive mitigation strategies for operational assets are employed Provided propulsion, solid rocket motor, avionics, mechanical structures, guidance, navigation and control, and parts, materials, and processes expertise to enhance reliability Intra-Agency & Industry Activities: Performed major stakeholder quality initiatives to improve quality of products, improve onsite processes, and internal requirements at critical sole source suppliers Participated in the Defense Standardization Board to ensure that MDA has an equal voice in the specification and standard requirements used across the DoD Initiated and led quality, safety, and mission assurance forums to obtain lessons learned and understand/promote new requirements or methods Safety and Occupational Health: Ensured compliance with DoD Safety and Occupational Health regulations and requirements Performed all required Occupational Safety and Health inspections of MDA facilities including those in the National Capital Region, Huntsville, AL, Colorado, Vandenberg Air Force Base and Dahlgren, VA. Monitored/responded to reports of incidents affecting the health and safety of MDA employees .			
FY 2015 Plans: Quality: Provide Government inspection and process control for flight test operations Perform non-conformance reporting, tracking, and mitigation for all major flight and ground tests Provide non-advocate independent quality oversight/support to Agency operations such as configuration control boards, engineering forums, and material release activities Perform configuration management verification and reconciliation for all major flight and ground test assets Safety: Maintain on-site safety oversight at key suppliers and Government facilities			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD32 / *Quality, Safety, and Mission Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Conduct safety risk assessments per Department of Defense Standards on all test and operational systems to ensure catastrophic risks remain improbable Conduct system analysis/assessments such as safety risk assessments, failure modes and effects criticality analysis, safety hazards analysis etc., to minimize flight and operational system risks Mission Assurance: Provide the Missile Defense Agency Director non-advocate, independent technical assessments on system, subsystem and component design, manufacturing and test activities in support of operational deployment and flight test activities Provide non-advocate technical support to Missile Defense Agency and Program risk boards, configuration control boards, technical interchange meetings and failure review boards Conduct Mission Assurance audits throughout the Missile Defense Agency's supply chain Provide in-plant Mission Assurance and Quality Representatives at 23 Mission Critical Suppliers BMDS Safety Officers (BSOs): Provide 24 hours a day, 7 days a week, 365 days a year safety monitoring of operational and test systems to ensure safe transition between test and operations Monitor and track non-conformance behavior of the operational and flight test systems Perform software and hardware configuration verification along with supporting the Warfighter to asset management Provide safety support for Eastern, Western and Pacific Range activities such as safety training and certification MDA Parts and Materials Program: Enhance BMDS reliability through the following activities: Enforce Program compliance to the Missile Defense Agency Part, Material and Processes Assurance Provisions (PMAP) Provide a Part and Material knowledge center to address Program and Supplier part and material issues arising from development or fielded systems Update the Agency's preferred parts and materials list database to facilitate new system design and to identify part obsolescence issues Pursue remedies against counterfeit parts Acquisition Support:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD32 / *Quality, Safety, and Mission Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Ensure all new acquisitions are in compliance with the MDA Assurance Provisions (MAP), the MDA Parts, Materials and Processes Assurance Provisions and all applicable Defense Federal Acquisition Regulation (DFAR), Federal Acquisition Regulation (FAR), and clauses regarding quality, safety and mission assurance Update the Missile Defense Agency Assurance Provisions (MAP) and the MDA Parts Materials and Processes Mission Assurance Plan (PMAP) to incorporate design, test, manufacturing, quality, safety, and mission assurance methods to further improve future product reliability Improve MDA's acquisition strategy through participation in the definition and determination of all award fees Technical Assistance to MDA Elements: Perform independent/non-advocate reviews, such as design certification, pedigree, failure, preliminary design, critical design and technical interchange reviews to ensure compliance with industry best practices Provide mission assurance support to major failure review boards to ensure comprehensive mitigation strategies for operational assets are employed Provide propulsion, solid rocket motor, avionics, mechanical structures, guidance, navigation and control, and parts, materials, and processes expertise to enhance reliability Intra-Agency & Industry Activities: Perform major stakeholder quality initiatives to improve quality of products, improve onsite processes, and internal requirements at critical sole source suppliers Participate in the Defense Standardization Board to ensure that MDA has an equal voice in the specification and standard requirements used across the DoD Initiate and lead quality, safety, and mission assurance forums to obtain lessons learned and understand/promote new requirements or methods Safety and Occupational Health: Ensure compliance with DoD Safety and Occupational Health regulations and requirements Perform all required Occupational Safety and Health inspections of MDA facilities including those in the National Capital Region, Huntsville, AL, Colorado, Vandenberg Air Force Base and Dahlgren, VA.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD32 / *Quality, Safety, and Mission Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Monitor/respond to reports of incidents affecting the health and safety of MDA employees. ***FY 2016 Plans:*** Continuation of FY 2015 plans.			
Accomplishments/Planned Programs Subtotals	25.982	30.637	29.986

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The execution of an effective Quality, Safety and Mission Assurance program is carried out in collaboration with subject matter expertise found 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: PB 2016 Missile Defense Agency		Date: February 2015
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total 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	1.488	0.291		0.288	Oct 2014	0.260	Oct 2015	-		0.260	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Audits & Quality On-site Support	MIPR	NSWC Corona : AL, CA	11.042	2.500		3.297	Oct 2014	3.000	Oct 2015	-		3.000	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Mission Assurance Agency Operations	C/CPFF	AI Solutions : AL	4.645	0.800		1.102	Oct 2014	1.198	Oct 2015	-		1.198	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Quality Support	C/CPFF	AI Solutions : AL	5.004	1.000		0.593	Oct 2014	1.300	Oct 2015	-		1.300	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Safety	C/CPFF	APT, INC : AL	6.268	1.000		1.180	Oct 2014	1.180	Oct 2015	-		1.180	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Safety Officers	MIPR	AMRDEC : AL	3.049	0.319		0.330	Oct 2014	0.318	Oct 2015	-		0.318	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - HQ & Core Management	MIPR	AMRDEC : AL	1.550	0.300		0.300	Oct 2014	0.300	Oct 2015	-		0.300	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - In-Plant Quality Support (MARS)	C/CPFF	Various Multi : AL, AK, AZ, CA, CO, FL,	7.218	1.051		1.802	Oct 2014	1.355	Oct 2015	-		1.355	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		HI, NJ, MA, MO, MD, UT													
Quality, Safety & Mission Assurance - Independent Readiness Review Team	C/CPFF	AI Solutions : AL	2.967	0.773		0.529	Oct 2014	0.540	Oct 2015	-		0.540	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Mission Assurance Subject Matter Experts	C/CPFF	APT, INC. : AL	4.905	0.846		0.839	Oct 2014	0.522	Oct 2015	-		0.522	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Operations Support	MIPR	Various Multi : AL, CA	3.476	0.900		0.233	Oct 2014	0.200	Oct 2015	-		0.200	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Parts, Materials and Processes (PMP) Program	MIPR	Various Multi : AL, CA, IN	6.265	1.500		2.400	Oct 2014	2.155	Oct 2015	-		2.155	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Parts, Materials and Processes - PMP - Program	C/CPFF	APT, INC : AL	2.341	0.545		0.559	Oct 2014	0.641	Oct 2015	-		0.641	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Pedigree & Design Certification - FFRDC	MIPR	Aerospace : AL, CA	12.367	2.800		3.239	Oct 2014	3.000	Oct 2015	-		3.000	Continuing	Continuing	Continuing
		Subtotal	72.585	14.625		16.691		15.969		-		15.969	-	-	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance HQ & Core Management (MDA CIV)	Allot	MDA QS : AL, VA, MD, CA, AZ, HI, AK, MA, NJ, FL, AR, UT	32.252	9.697		11.203	Oct 2014	11.584	Oct 2015	-		11.584	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance Operations Support	C/CPFF	MDA QS : AL, DC, VA	5.309	1.000		1.500	Oct 2014	1.295	Oct 2015	-		1.295	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance Operations Support (Travel/PCS)	Allot	MDA QS : AL, CO, AK, DC, VA	11.896	0.660		1.243	Oct 2014	1.138	Oct 2015	-		1.138	Continuing	Continuing	Continuing
		Subtotal	49.457	11.357		13.946		14.017		-		14.017	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	122.042	25.982		30.637		29.986		-		29.986	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / *BMD Enabling Programs*	Project (Number/Name) MD32 / *Quality, Safety, and Mission Assurance*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 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: PB 2016 Missile Defense Agency		Date: February 2015
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*

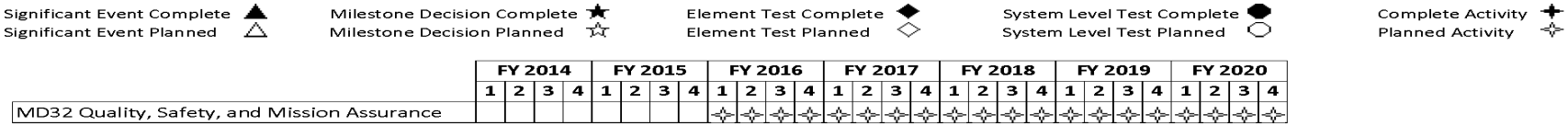

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD32 / *Quality, Safety, and Mission Assurance*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD32 Quality, Safety, and Mission Assurance	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	65.269	22.933	23.780	17.992	-	17.992	20.003	21.398	22.380	23.489	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015, Program Wide Support reflects a proportional change as a result of increases to the BMD Enabling Programs and in FY 2016, reflects a proportional change as a result of decreases in BMD Enabling Programs.
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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	22.933	23.780	17.992
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans: See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	22.933	23.780	17.992

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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: PB 2016 Missile Defense Agency			Date: February 2015
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total 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.	0.000	7.523		2.594		6.934	Jan 2016	-		6.934	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, CA, CO, VA	4.230	1.181		0.748	Mar 2015	-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations User Services	C/CPAF	Various : Multi: AL, CO, NM, VA, various	0.000	-		5.602		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	MDA : AK, AL, CA, CO, VA	32.378	-		-		-		-		-	32.378	64.756	-
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, CO, CA, VA	28.661	14.229		13.780	Nov 2014	10.253	Nov 2015	-		10.253	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	-		0.805	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	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - FFRDC	C/CPFF	JHU : CA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Facilities and Maintenance SRM	MIPR	Various : Multi: AL, CA, AL, AK	0.000	-		1.056		-		-		-	Continuing	Continuing	Continuing
		Subtotal	65.269	22.933		23.780		17.992		-		17.992	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / *BMD Enabling Programs*	Project (Number/Name) MD40 / *Program-Wide Support*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	65.269	22.933		23.780		17.992		-		17.992	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD40 / *Program-Wide Support*

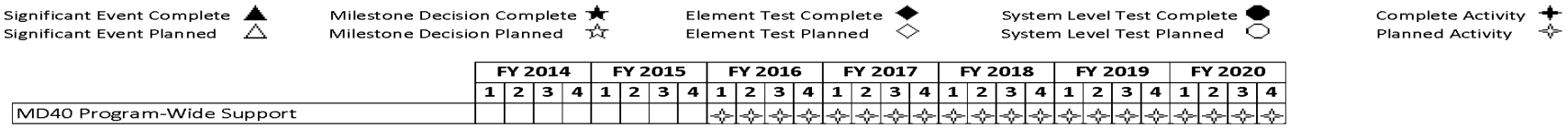

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
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 0603891C *I Special Programs - MDA*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	522.328	266.749	310.261	400.387	-	400.387	349.606	315.151	257.065	266.853	Continuing	Continuing
MD27: *Special Programs*	522.328	266.749	310.261	400.387	-	400.387	349.606	315.151	257.065	266.853	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	276.613	310.261	412.408	-	412.408
Current President's Budget	266.749	310.261	400.387	-	400.387
Total Adjustments	-9.864	-	-12.021	-	-12.021
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-5.283	-			
• SBIR/STTR Transfer	-4.581	-			
• Other Adjustment	-	-	-12.021	-	-12.021

Change Summary Explanation

FY 2016 adjustments reflect realignment to Department of Defense priorities.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	5,242.938	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing
MD09: *Aegis BMD*	4,971.655	711.040	681.417	732.273	-	732.273	640.153	640.336	457.486	489.092	Continuing	Continuing
MC09: *Cyber Operations*	-	0.820	0.265	0.870	-	0.870	0.885	0.891	0.891	0.891	Continuing	Continuing
MT09: *Aegis BMD Test*	166.697	105.000	-	-	-	-	-	-	-	-	-	271.697
MX09: *Aegis BMD Development Support*	16.521	20.276	28.758	73.118	-	73.118	85.642	68.805	76.361	58.207	Continuing	Continuing
MD40: *Program-Wide Support*	88.065	48.568	53.784	37.094	-	37.094	36.060	38.322	30.089	31.395	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

Increase from FY 2015 to FY 2016 allows for the award of the follow-on full scope of effort to produce prototype SM-3 Block IIA missiles in support of flight testing and delivery to fleet for initial deployment in order to meet expectations for European Phased Adaptive Approach (EPAA) Phase III. Also included in FY 2016 is the implementation of SM-3 Block IIA cost reduction initiatives to support meeting cost goals in order to reduce the current estimated Average Unit Production Price (AUPP) of the missile for greater long-term government affordability and sustainability.

A. Mission Description and Budget Item Justification

The Aegis Ballistic Missile Defense (BMD) mission is to deliver an enduring, operationally effective and supportable BMD capability to defend the nation, deployed forces, friends and allies, and to increase this capability by delivering evolutionary improvements as part of the Ballistic Missile Defense System (BMDS) upgrades. The Aegis BMD element of the BMDS capitalizes upon and evolves from the existing United States Navy Aegis Weapons System (AWS) and Standard Missile (SM) infrastructures. Aegis BMD provides a forward-deployable, mobile capability to detect and track Ballistic Missiles of all ranges, and the ability to destroy Short-Range Ballistic Missiles (SRBMs), Medium-Range Ballistic Missiles (MRBMs), and Intermediate-Range Ballistic Missiles (IRBMs) in the midcourse phase of flight, and shorter range missiles in the terminal phase of flight. Aegis BMD also provides a Long Range Surveillance and Track (LRS&T) capability to the BMDS. Upgrades to both the Aegis BMD Weapon System and the Standard Missile-3 (SM-3) configuration enable Aegis BMD to provide effective, supportable defensive capability against longer range, more sophisticated threats and an enduring Aegis Ashore defensive capability.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency					Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*		
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	909.928	929.208	955.825	-	955.825
Current President's Budget	885.704	764.224	843.355	-	843.355
Total Adjustments	-24.224	-164.984	-112.470	-	-112.470
• Congressional General Reductions	-	-0.556			
• Congressional Directed Reductions	-	-74.800			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-89.628			
• Reprogrammings	-9.970	-			
• SBIR/STTR Transfer	-14.254	-			
• Other Adjustment	-	-	-112.470	-	-112.470

Change Summary Explanation

FY 2015 changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

Decrease in FY 2016 is attributed to the following:
- $55.148M moved entire MT09 account to newly established PE (0604878C).
- $34.779M moved to the Missile Defense Agency (MDA) Operations and Maintenance Exhibits in FY 2016 for efforts transitioning through the acquisition life cycle from development to operations and maintenance.
- $22.543M decrease reflects realignment to Department of Defense priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MD09 / *Aegis BMD*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD09: *Aegis BMD*	4,971.655	711.040	681.417	732.273	-	732.273	640.153	640.336	457.486	489.092	Continuing	Continuing
Quantity of RDT&E Articles	8	1	-	-	-	-	-	-	-	-		

Note

Increase from FY 2015 to FY 2016 allows for the award of the follow-on full scope of effort to produce prototype SM-3 Block IIA missiles in support of flight testing and delivery to fleet for initial deployment in order to meet expectations for European Phased Adaptive Approach (EPAA) Phase III. Also included in FY 2016 is the implementation of SM-3 Block IIA cost reduction initiatives to support meeting cost goals in order to reduce the current estimated Average Unit Production Price (AUPP) of the missile for greater long-term government affordability and sustainability.

In February 2014, Aegis Ballistic Missile Defense (BMD) underwent a program reorganization in order to gain efficiencies and improve program affordability. As the primary budget exhibit for the program, 0603892C has been restructured in a method that better aligns with agency organization by providing more transparency and allowing for more efficient funding justification. FY 2016 budget exhibits are provided in the more efficient reorganization structure.

A. Mission Description and Budget Item Justification

Aegis BMD continues development of a sea-based BMD capability, in support of the Missile Defense Agency`s (MDA) mission to protect the homeland, deployed forces, friends and allies from ballistic missile threats of all ranges and in all stages of flight.

Aegis BMD efforts primarily enhance Missile Defense to defend deployed forces, allies and friends against theater threats:
- Aegis BMD 4.1 backfits the Aegis 5.0 Capability Upgrade (CU)(endo-atmospheric (ENDO) and exo-atmospheric (EXO)) into the BMD 4.0 architecture by FY 2016
- Aegis BMD 5.0 CU expands the threat set and further increases the raid size
- Aegis BMD 5.1 capability expands the threat set through the introduction of Engage on Remote (EoR) and the integration of the Standard Missile-3 (SM-3) Block IIA missile
- Aegis BMD further continues Discrimination and Technology improvements to the Standard Missile-3 (SM-3) Block IB Kinetic Warhead (KW)

The MDA conducted a Developmental Baseline Review (DBR) for BMD 4.1, BMD 5.0 CU, and BMD 5.1 baselining the development efforts with the MDA on 14 April 2014.

Aegis BMD 4.1 builds upon Aegis BMD 4.0 and adds Aegis BMD 5.0 CU capability providing European Phased Adaptive Approach (EPAA) Phase II EXO threat capability increase, SM-3 Maximum number Missiles In Flight (MAX MIF) improvements, multi-mission (Anti-Air Warfare (AAW) and BMD) warfare integration, and signal processor, Mark (MK) 41 Vertical Launch System (VLS) and Mission Planner capabilities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

Aegis BMD 5.0 Capability Upgrade (CU) will enhance Aegis BMD 5.0 by improving the EXO capability, increasing the maximum number of SM-3's inflight simultaneously, expanding the threat set to include those for EPAA Phase II, and increasing this capability by delivering evolutionary improvements as part of the Ballistic Missile Defense System (BMDS) upgrades.

Aegis BMD 5.1 builds upon BMD 5.0 CU and will further expand the threat set which is required for EPAA Phase III. This includes the introduction of an Engage on Remote (EoR) capability and the integration of the SM-3 Blk IIA missile. An EoR engagement allows the use of active and passive off board sensor information to launch and guide the SM-3 Block IIA missile to final intercept. The increased kinematic envelope of the SM-3 Block IIA when combined with EoR will expand the battlespace and increase the number of threats engaged over previous baselines.

The SM-3 Block IB improves Aegis BMD's ability to engage longer range, more sophisticated ballistic missiles that may deploy countermeasures and are launched in larger raid sizes. The SM-3 Block IB Kinetic Warhead`s (KW) two-color infra-red (IR) seeker and advanced signal processor provides a real-time discrimination and characterization capability while improving sensitivity for longer range targets and improved performance against more sophisticated threats. Additionally, the new Throttleable Divert and Attitude Control System (TDACS) KW divert engine has been upgraded over the SM-3 Block IA to provide a more flexible divert in order to maneuver the KW to intercept.

Aegis BMD and the Japan Ministry of Defense (JMOD) have undertaken an SM-3 Cooperative Development (SCD) program, which consists of a spiral upgrade to a 21-inch diameter SM-3 missile (SM-3 Block IIA). The SM-3 Block IIA missile will expand available battlespace and include Intermediate Range Ballistic Missile (IRBM) and selected longer-range threats, and when combined with Aegis BMD 5.1 weapon system modifications, will improve Engage-on-Remote (EoR) capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Aegis Ballistic Missile Defense (BMD) 4.x Development	118.415	92.098	40.691
Articles:	-	-	-
Description: Aegis BMD 4.1 aligns Baseline 4.X capability with Aegis Modernization ships containing Aegis Baseline 9.C1. Aegis BMD 4.1 builds upon Aegis BMD 4.0 and captures Aegis BMD 9.C1 Exo/Endo requirements including EPAA Exo threats and other Missile Defense capabilities. Aegis BMD 4.1 also increases MAX/Missiles In Flight & MAX Engagements over Aegis BMD 4.0.			
FY 2014 Accomplishments: - Completed weapon system concepts definition Improvement for Flight I/II DDGs - Successfully tracked and conducted simulated engagement of a raid of three ballistic missiles during FTX-18 - Received U.S. Navy Certification of baseline updates, BMD 4.0.2.1 and 4.0.2.2 for Fleet tactical operations - Began BMD 4.0.3 Baseline update for Near Term Discrimination Improvements for Homeland Defense (DIHD) initiative - Conducted BMD 4.1 In Progress Review (IPR) #2 and IPR#3. The system and element specifications development status were reviewed and approved to continue development			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conducted BMD 4.1 Test Program Review (TPR)which approved the Combat System Test Program planned for Aegis BMD 4.1. This testing includes sub-system Engineering Test and Evaluation (ET&E), Multi-Element Integration and Test (MEIT), system performance testing, Functional Assessments and final Engineering Assessment supporting Certification - Completed BMD 4.1 software Build 1 and Build 2 for Phase II EXO threat capability. Conducted land based testing and preliminary certification assessment. Initiated development of Build 3. - Conducted introductory of Software System Safety Technical Review Panel (SSSTRP) which provided an independent expert technical review of the software safety program. ***FY 2015 Plans:*** Prepare for and conduct Ballistic Missile Defense System (BMDS) Flight and Ground Test events as reflected in the Integrated Master Test Plan (IMTP) and the Exhibit R-4 schedule - Continue development of BMD 4.1 (backfit of BMD 5.0 CU capability into the BMD 4.0 architecture) - Conduct an Engineering Evaluation of BMD 4.1 to demonstrate baseline capabilities as a risk reduction activity during development - Conduct a Test Readiness Review of BMD 4.1 to determine readiness to begin formal testing by evaluating the preparedness of personnel, plans, and test resources Decrease to funding levels from FY 2014 to FY 2015 due to Aegis BMD 4.0 continuing toward the end of the development stage and transitioning to fielding. ***FY 2016 Plans:*** Decrease from FY 2015 is inclusive of all the following funding movements and effort reductions: Total capability decrease of $35.9M - Completion of 4.1 baseline development as the baseline transitions from development to fielding Total decrease attributed to movement of funding to other accomplishments is $15.51M - Funding for Developmental Support Engineering efforts moved to Project MX09, Aegis Ballistic Weapon System Support - Funding for DoD Civilian and Contractor support moved to Project MD09, Program Operations - Funding for Aegis Systems Engineering efforts moved to Project MD09, Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - Incorporate Aegis BMD 4.0.2 architecture into the Aegis BMD 5.0 CU Exo-atmospheric (EXO) advanced threat set - Accelerate BMD 4.1 certification by one quarter than previous planned enabling earlier fielding of European Phased Adaptive Approach (EPAA) Phase II EXO threat capability to BMD 4.0 Forward Deployed Naval Forces			
Title: Aegis Ballistic Missile Defense (BMD) 5.0 Development	153.163	107.537	26.944
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Description: Aegis BMD 5.0 Capability Upgrade (CU) is a combined weapon system developed with the US Navy. It will integrate Aegis BMD 4.0 capability into the Baseline 9 (Open Architecture) common source library. Aegis BMD 5.0 CU will expand the EXO capability, increasing the maximum number of missiles in flight simultaneously and expanding the threat set to include those for EPAA Phase II. Aegis BMD 5.0 CU is an essential capability to meet the requirements of EPAA Phase II and will provide evolutionary improvements in support of deployed forces, friends, and allies. ***FY 2014 Accomplishments:*** - Developed initial Aegis BMD 5.0 functionality for Aegis Ashore - Successfully conducted Link -16 Exercise with Aegis BMD 5.0 for Aegis Ashore - Aegis BMD 5.0 CU IPR 2 conducted to provide a development status post Critical Design Review (CDR) including weapons system performance analysis and overall systems development progress - Successfully complete an Integrated Air & Missile Defense exo-atmospheric tracking exercise with an Aegis Destroyer - Conducted a BMD 5.0 Mission Readiness Assessment (MRA) for Aegis Ashore Controlled Test Vehicle 1 (AA CTV-01) - Conducted BMDS Flight and Ground Test events as reflected in the IMTP and the R-4 Exhibit - Successfully conducted Aegis Ashore Controlled Test Vehicle (AACTV-01) - Successfully completed land based 5.0 Engineering Evaluation of FTM-25, FTM-26, and FTX-20 scenarios ***FY 2015 Plans:*** -Conduct Aegis Intercept Flight Test as reflected in the IMTP and the Exhibit R-4 schedule -Conduct a Mission Readiness Assessment (MRA) -Conduct an Engineering Assessment (EA) -Conduct Aegis Ashore Intercept Flight Test with Aegis BMD 5.0CU -Continue development of BMD 4.1 (backfit of BMD 5.0CU capability into the BMD 4.0 architecture) Decrease in funding levels from FY 2014 to FY 2015 due to Aegis BMD 5.0 nearing the end of the development stage and transitioning to fielding, and the current phase of program development. ***FY 2016 Plans:*** Decrease from FY 2015 is attributed to the following: Total capability decrease of $66.78M - Completion of the 5.0 development efforts and transition of the baseline from development to fielding. The follow-on capability, Baseline 5.1 is included under Project MD09, Aegis Ballistic Missile Defense (BMD) 5.x Development Total decrease attributed to movement of funding to other accomplishments is $13.81M - Funding for Developmental Support Engineering efforts moved to Project MX09, Aegis Ballistic Weapon System Support - Funding for DoD Civilian and Contractor support moved to Project MD09, Program Operations			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Funding for Aegis Systems Engineering efforts moved to Project MD09, Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - Continue Aegis BMD 5.0 CU co-development with Navy for Aegis Modernization - Complete certification and post-certification effort of European Phased Adaptive Approach (EPAA) Phase II into the Navy's Open Architecture baselines for fielding in the operational Ballistic Missile Defense System -Complete Aegis Intercept Flight Test as reflected in the IMTP and the Exhibit R-4 schedule for initial operational evaluation of operational effectiveness and suitability - Continue VLS development of the Ordnance Alteration (ORDALT) kit and Quality Assurance (QA) to support fielding of 5.0CU capability on USN ships. Activities support the procurement and fielding of hardware and software associated with the MK 41 VLS to be capable to launch SM-3 BLK IA/IB and other missile variants			
Title: Aegis Ballistic Missile Defense (BMD) 5.x Development	206.672	263.191	180.628
Articles:	-	-	-
Description: Aegis BMD 5.1 builds upon BMD 5.0 CU and will further expand the threat set to include those threats required for EPAA Phase III through the introduction of an Engage on Remote (EoR) capability and the integration of the SM-3 Block IIA missile. An EoR engagement allows the use of active and passive off board sensor information to launch and guide the SM-3 Block IIA missile to final intercept. The increased kinematic envelope of the SM-3 Block IIA when combined with EoR will expand the battlespace and increase the threat set engaged over previous baselines. BMD 5.1 was baselined with the Developmental Baseline Review (DBR) held with the MDA on April 14, 2014 (per DDM signed 19 June 2014).			
FY 2014 Accomplishments: - Completed the Preliminary Design Review (PDR) which finalized the Baseline Prime Item Development Specifications (PIDS/B1) and Critical Item Development Specifications (CIDS/B2) requirements for all BMD 5.1 Capability - Completed Critical Design Review (CDR) which finalized the Computer Program Requirements Specifications (CPRS/ B5)required for SM-3 Block IIA Organic Launch on Remote (LoR) engagement capability, and the BMD 5.1 Standard Missile-3 Cooperative Development (SCD) configuration for the SCD Flight Tests. - Commenced software development for SM-3 Blk IIA Organic and LoR engagement capability and the BMD 5.1 SCD configuration for the SCD Flight Tests. - Conducted preparations for CDR which will finalize the CPRS/B5 needed to support the BMD 5.1 EoR, Engagement Support Surveillance & Tracking (ESS&T), and BMDS Integration. - Conducted BMD 5.1 Test Program Review (TPR) of Common Source Library test strategy, test processes, associated risks, schedule, and SM-3 Blk IIA missile integration into VLS to grant permission to begin Element Test & Evaluation (ET&E). - Conducted the Vertical Launch System (VLS) Critical Design Review for the VLS design changes required for SM-3 Block IIA.			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Continue software development for the BMD 5.1 Standard Missile-3 Cooperative Development Program (SCD) configuration for the SCD Flight Tests. - Complete preparations for Critical Design Review (CDR) which will finalize the Baseline Program Performance requirements for the Ballistic Missile Defense (BMD) 5.1 Capability to include EoR and BMDS integration. - Conduct BMD 5.1 Critical Design Review (CDR) data package and conduct Navy Review Team (NRT) review. - Commence software development of the BMD 5.1 Phase 2 Tactical Computer Program to achieve partial European Phased Adaptive Approach (EPAA) Phase III threats and capabilities by 2018. - Complete development of BMD 5.1 Element Capabilities Specification (ECS) and System Specification for Aegis Modernization Advanced Capability Build 12 requirements needed to adapt BMD 5.1 for the Aegis Ashore configuration. - Conduct development of BMD 5.1 Prime Item Development Specification requirements needed to adapt BMD 5.1 for the Aegis Ashore configuration. - Conduct BMD 5.1 VLS Formal Integration and Qualification Testing in support of SM-3 Block IIA development. Increase in funding levels from FY 2014 to FY 2015 due to transitioning from requirements and design efforts to software development efforts to complete the BMD 5.1 Phase 1 development and include development of BMD 5.1 Phase 2 Tactical Computer Program for the EPAA Phase III ship and ashore capabilities. Development scope also increases for developmental testing to verify the SM-3 BLK IIA missile integration, VLS integration and BMDS Integration testing. System and software development efforts begin to ensure BMD 5.1 supports the Aegis Ashore configuration for EPAA Phase III. ***FY 2016 Plans:*** Decrease from FY 2015 is inclusive of all the following funding movements and effort reductions: Total capability decrease of $32.03M - Development life cycle shift from requirement and design efforts to implementation and testing of functionality - Development of major functionality complete by mid-year 2016 and program shift to primarily testing - Reduction of software development efforts for Aegis BMD 5.1 capability as cycle of program moves to focus on efforts in support of scheduled flight tests Total decrease attributed to movement of funding to other accomplishments $50.53M - Funding for Developmental Support Engineering efforts moved to Project MX09, Aegis Ballistic Weapon System Support - Funding for DoD Civilian and Contractor support moved to Project MD09, Program Operations - Funding for Aegis Systems Engineering efforts moved to Project MD09, Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - Funding for SM-3 Block IIA Integration with the 5.1 Baseline moved to Project MD09, SM-3 Block IIA Development - Aegis Ballistic Missile Defense (BMD) Phase 1 capabilities include Standard Missile-3 (SM-3) Block IIA missile integration, SM-3 weapons selection algorithm, enhanced tracking, discrimination and mission planner updates to support organic engagements,			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Launch-on-Remote (LoR) engagements, and Long Range Surveillance & Tracking (LRS&T) missions. Aegis BMD 5.1 Phase 1 integration, testing, and evaluation (IT&E) events include various lab-based and shipboard weapon-system-to-missile integration testing utilizing the Virtual Operational Missile (VOM) and the Inert Operational Missile (IOM), as well as participation in Ballistic Missile Defense System-wide (BMDS-wide) ground test campaigns. - Aegis BMD 5.1 Phase 1 development support early integration and testing with the SM-3 BLK IIA missile testing planned for SFTM-1 and SFTM-2. The development of partial capability is contiguous across both Phase 1 and Phase 2 and supports delivery for European Phased Adaptive Approach (EPAA) Phase III. - Aegis BMD 5.1 Phase 1 System Development: Continue Engineering, Development, Integration and Testing of the tactical Weapons System computer program, and integration of the SM-3 Block IIA missile. This development reduces risk to Aegis BMD 5.1 Phase 2 and EPAA Phase III by front-loading the development of the weapons system/missile functionality and integration in the development phase to support the upcoming SM-3 Block IIA Co-Development (SCD) Flight Test Mission-1 (SFTM-1) and SFTM-2 flight tests. - Conduct Engineering Assessment (EA) of Aegis BMD 5.1 functionality, stability, performance and readiness for the test execution of SFTM-1 and SFTM-2 as reflected in the IMTP - Support SFTM-1 using the Aegis BMD 5.1 Phase 1 tactical computer program for the first SM-3 Block IIA intercept test - Continue software development for the partial Aegis BMD 5.1 Phase 2, which includes all Phase 1 capabilities, and partial European Phased Adaptive Approach (EPAA) Phase III capabilities and threats - Continue assessment cycles to prepare certification and deployment of Aegis BMD 5.1 computer program at sea and ashore for European Phased Adaptive Approach (EPAA) Phase III - Conduct Aegis Ballistic Missile Defense (BMD) 5.1 Vertical Launch System (VLS) Formal Integration and Qualification Testing required for the fielding of 5.1 capability on DDG Flight I & II configured USN ships and Aegis Ashore - Continue Aegis BMD VLS modifications required for the fielding of 5.1 capability on DDG Flight IIA configured USN ships - Evaluate Mark (MK) 41 VLS performance results during Controlled Test Vehicle-1 (CTV-1) and CTV-2 and apply results to design to verify the capability of MK 41 VLS to fire the SM-3 BLK IIA prior to shipboard testing - Conduct Aegis BMD 5.1 Mark (MK) 41 VLS Formal Integration and Qualification Testing in support of fielding on DDG Flight I and IIA ship configurations - Provide MK 41 VLS support to Aegis Integration Event (AIE) to verify the compatibility of the MK 41 VLS firing the SM-3 BLK IIA with Aegis BMD 5.1 and perform regression testing - Conduct Aegis BMD 5.1 MK 41 VLS Certification and Safety Assessments for shipboard fielding to obtain Naval Ordnance System Safety Activity authorization for the placement of the SM-3 BLK IIA in the MK 41 VLS approving the safe firing the SM-3 BLK IIA - Provide Aegis BMD 5.1 MK 41 VLS support to the execution of SFTM-1 and SFTM-2 and evaluate the VLS performance results demonstrating the capability of the MK 41 VLS to launch the SM-3 BLK IIA missile. - Execute provisions for transition to production of Aegis BMD 5.1 MK 41 VLS modifications required on USN ships for the fielding of 5.1 capability with SM-3 Block IIA			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
All efforts on schedule to meet European Phased Adaptive Approach (EPAA) Phase III deployment.			
Title: Standard Missile-3 (SM-3) Block IB Development	43.865	69.876	41.242
Articles:	-	-	-
Description: See Description below.			
FY 2014 Accomplishments: - Continued IB Threat Update (IBTU) for 5.0 Capability Upgrade (5.0CU) and additional threats. - Prepared for and successfully conducted Ballistic Missile Defense System (BMDS) flight tests FTM-21, FTM-22 and Aegis Ashore Controlled Test Vehicle-01 (AACVT-01) as reflected in the Integrated Master Test Plan (IMTP) and the exhibit R-4 schedule. All missile objectives were met and all criteria was satisfied.			
FY 2015 Plans: - Complete IB Threat Update (IBTU) for 5.0 Capability Upgrade (5.0CU) and additional threats. - Prepare for and conduct Ballistic Missile Defense System (BMDS) flight test as reflected in the Integrated Master Test Plan (IMTP) and the exhibit R-4 schedule. - Increase in FY 2015 due to development of common avionics architecture between SM-3 IB and SM-3 IIA to support Diminishing Manufacturing Sources and Material Shortages (DMSMS) management, and provide long term cost savings in preparation of Foreign Military Sales.			
FY 2016 Plans: Decrease from FY 2015 is inclusive of all the following funding movements and effort reductions: Total capability decrease $16.468M - No flight test execution support due to the lack of Aegis BMD flight test missions scheduled for FY 2016 execution according to the Integrated Master Test Plan (IMTP) Total decrease attributed to the movement of funding to other accomplishments $12.166 - Funding for DoD Civilian and Contractor support moved to Project MD09, Program Operations - Funding for Aegis Systems Engineering efforts moved to Project MD09, Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - Assess the SM-3 Block IB missile capability against evolving threat characteristics to define improvements in missile discrimination processes to counter threat changes - Continue development of common avionics architecture between SM-3 Block IB and SM-3 Block IIA. This includes a SM-3 BLK IB sized Read-While-Integrate (ROIC) based on SM-3 BLK IIA technology for increased acquisition range for greater capability against extended range threats, repackage SM-3 BLK IIA Kinetic Warhead (KW) Guidance Electronic Unit (GEU) hardware to fit			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
within SM-3 BLK IB allowing implementation of SM-3 BLK IIA software improvements to enhance missile performance against advanced threats			
Title: Standard Missile-3 (SM-3) Block IIA Development	-	-	83.246
Articles:	-	-	-
Description: The SM-3 Block IIA missile will increase the area that can be defended by Aegis Ballistic Missile Defense (BMD) and increase the probability of kill against a larger threat set. It will leverage enhanced capability provided by Ballistic Missile Defense System (BMDS) sensor upgrades and is required to meet EPAA Phase III. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** Increase from FY 2015 is inclusive of all the following funding movements and additional efforts: Total increase attributed to movement of funding from other accomplishments $42.33M - Funding request for SM-3 Block IIA Integration previously captured in Project MD09, Aegis Ballistic Missile Defense (BMD) 5.x Development Total capability increase of $40.91M - Begin implementation of SM-3 Block IIA cost reduction initiatives to support meeting cost goals to reduce the current estimated Average Unit Production Price (AUPP) of the missile - Conduct Aegis Ballistic Missile Defense (BMD) 5.1 weapon system and SM-3 Block IIA Missile integration and testing - Conduct Kinetic Warhead (KW) Guidance Electronic Unit (GEU) hardware commonality development efforts to enhance missile performance against advanced threats - Conduct SM-3 Block IIA software update to support engagements against additional complex threats identified during Aegis BMD 5.1 design process conducted after missile Critical Design Review - Conduct adaptations to the SM-3 Block IIA missile to include software and G-switch modifications that meet range safety requirements for Aegis Ashore			
Title: SM-3 Manufacturing	-	53.801	136.217
Articles:	-	-	-
Description: Purchase of SM-3 missiles for the purposes of flight testing and delivery to the fleet as operational assets prior to an initial production decision.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
FY 2014 Accomplishments: N/A ***FY 2015 Plans:*** - Begin purchase of hardware material needed to support the manufacture of SM-3 Block IIA missile components. - Establish purchase orders for hardware material including, but not limited to, power devices, raw materials, lower level assemblies, and optics hardware. ***FY 2016 Plans:*** Increase from FY 2015 is to allow for the award of the follow-on full scope of effort to produce SM-3 Block IIA missiles in support of flight testing and delivery to fleet for initial deployment in FY 2017 - Continue funding for SM-3 Block IIA All Up Rounds (AURs) for use in support of flight test events (FTM-29, FTO-03 E1, FT0-03 E2, FTX-23 etc) as reflected in the Integrated Master Test Plan (IMTP), and initial deployment in support of European Phased Adaptive Approach (EPAA) Phase III. SM-3 Block IIA AURs validate the Engineering Manufacturing Readiness Level 3 criteria for an Initial Production Decision in FY 2017 Funding for DoD Civilian and Contractor support moved to Project MD09, Program Operations Funding for Aegis Systems Engineering efforts moved to Project MD09, Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion			
Title: Fielding - Aegis Weapon System (AWS)	111.326	7.800	-
Articles:	1	-	-
Description: See Description below. ***FY 2014 Accomplishments:*** Based on updated Navy Modernization Plan: - Completed one (1) 4.0 Install - Started two (2) additional 4.0 Installs - Purchased two (2) BMD 4.0 shipsets - Purchased one (1) BMD 5.x shipset ***FY 2015 Plans:*** - Install three (3) AMOD (Aegis Modernization program) BMD 5.0CU DDGs shipsets inline. - Update BMD 4.0 to 4.1 software for current ships.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Decrease from FY2014 to FY2015 is due to hardware and installations transitioning to procurement articles. ***FY 2016 Plans:*** No funding requested for FY 2016 under this program element. All Aegis BMD Weapon System Fielding efforts and hardware purchases have transitioned to Aegis Procurement account captured in PE 0208866C.			
Title: Fleet Integration	5.420	6.463	-
Articles:	-	-	-
Description: See description below ***FY 2014 Accomplishments:*** - Provided leadership and engineering/technical support to conduct Aegis BMD Combat Systems Readiness Assessment - Provided In-service Engineering support to Aegis Ballistic Missile Defense (ABMD) Weapon system and Vertical Launch System (VLS) - Identified and resolved BMD specific material issues with maintenance, engineering and operability - Responded to BMD readiness issues with maintenance, engineering and operability - Responded to BMD readiness issues related to Aegis BMD capability, introduction, and employment - Supported Combatant Commanders (COCOM)-directed Wargames and Exercises - Provided reach back analytical support to the COCOMs for real world operations - Provided maintenance and updates for Force on Force Modeling and Simulation ***FY 2015 Plans:*** - Provide In-service Engineering support to Aegis BMD - Provide leadership and engineering/technical support to conduct Aegis BMD Combat System Readiness - Respond to Fleet issues related to Aegis BMD installations, BMD operations and BMD events. - Provide reach back analytical support to the COCOMs for real world operations - Provide maintenance and update of Force on Force Modeling and Simulation - Provide BMD specific training to BMD ships, COCOM/Fleet Staffs; prepare/coordinate training documents for new BMD baselines. ***FY 2016 Plans:*** All efforts for this accomplishment have transitioned to Budget Project, MX09 Fleet Integration.			
Title: Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion	-	-	23.169
Articles:	-	-	-
Description: Aegis BMD Core System Engineering, Modeling and Simulation and Aegis BMD's participation in Ballistic Missile Defense System (BMDS) Modeling & Simulation Engineering which enables the program to provide cross baseline specification			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
management processes and capability assessments; Test Program alignment/trace to BMD specification and Element Specifications, Aegis BMD Modeling and Simulation Verification and Validation (V&V); Runs for Record; BMDS Operational Test Agencies (OTA) model accreditation for Hardware in the Loop (HWIL) Modeling and Simulation (M&S); Objective Simulation Framework (OSF) interface development; Core Truth Model (CTM) model upgrades; and Aegis BMD objectives in the BMDS Phased Adaptive Approach (PAA) Phases Integrated Master Assessment Plan (IMAP) assessments. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** New accomplishment developed to align to Aegis BMD FY 2014 restructure. Increase from FY 2015 is attributed to: (Total Capability increase 4.594M) - Funding was previously allocated in Project MD09, Aegis Ballistic Missile Defense (BMD) 4.x Development, Aegis Ballistic Missile Defense (BMD) 5.0 Development, Aegis Ballistic Missile Defense (BMD) 5.x Development, Standard Missile-3 (SM-3) Block IB Development, and SM-3 Manufacturing - Conduct requirements development, trace and configuration management for Aegis BMD Weapon System and Missile System Specifications - Conduct medium fidelity Monte Carlo Analysis contributing to Aegis BMD Capability Baselines and Ballistic Missile Defense System (BMDS) alignment for performance requirements, design space and threat capability assessments - Conduct development of Performance Assessment Matrix, Threat Compliance and Critical Engagement Conditions/Empirical Measurement Events (CEC/EMEs) to influence Aegis BMD Test and Evaluation efforts through a requirements-based input to MDA's Integrated Master Test Plan (IMTP) - Conduct Systems Engineering tasking for model development and Verification and Validation (V&V) of the following models in support of Commander Operational Test & Evaluation Force (COMOPTEVFOR) accreditation: FirmTrack X, Command and Decision Simulation (C&DSim), Link, Weapons Control System (WCS), Argo, and Standard Missile-3 (SM-3) 6 Degrees of Freedom (DOF) - Conduct Modeling and Simulation (M&S) Reviews in support of Aegis BMD Ground Tests - Conduct Extended Air Defense Simulation (EADSIM) development required for participation in exercises and wargames in support of the Warfighter			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conduct Aegis BMD Tier 2 Hardware-in-the-Loop (HWIL) Single Stimulation Framework (SSF) transition to the Objective Simulation Framework (OSF) BMDS initiative with focus on; Next Generation Simulation (NGS) OSF Interface development for Aegis BMD 4.1 and BL 9C.2. - Implement OSF Core Truth Model (CTM) updates for NGS including Aegis BMD signatures, lethality, environments, and truth interactions - HWIL OSF driven V&V for interface and CTM modifications of the Aegis BMD NGS - Conduct Aegis BMD NGS OSF BMDS integration testing - Conduct systems engineering for digital M&S transition to OSF - Conduct M&S Integrated Master Assessment Plan (IMAP) assessment activities - Conduct development of advanced discrimination algorithms as related to the Aegis BMD baselines in support of Discrimination Improvements for Homeland Defense (DIHD) requirements - Demonstrate updated discrimination and develop a plan for insertion into the Aegis BMD Baselines and SM-3 variants to eliminate gaps and enable future BMDS architectures in support of DIHD requirements - Participate in Far-term DIHD threat models specification. - Update element models to support the Far-term DIHD program. - Participate in planning and conduct technology trades and analysis to refine capabilities to mitigate the Far-term DIHD threats. - Fund efforts and studies to address the BMDS emergent threat.			
Title: Program Operations	-	-	113.734
Articles:	-	-	-
Description: Government, contractor, and Federally Funded Research and Development Center (FFRDC) workforce that manage the overall Aegis Ballistic Missile Defense (BMD) program and enable the program to develop, build, and test standard missiles and the associated Aegis Weapon Systems. Includes all operations support for the Aegis program office in Engineering, Logistics Program, Acquisition, Safety, Quality Assurance, Testing, Finance, Budget Formulation and Execution, Cost Estimation, and Earned Value Management in support of development activities. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** New accomplishment developed to align to Aegis Ballistic Missile Defense (BMD) FY 2014 restructure:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Funding was previously allocated within each budget accomplishment in Project MD09, Aegis Ballistic Missile Defense (BMD) 4.x Development, Aegis Ballistic Missile Defense (BMD) 5.0 Development, Aegis Ballistic Missile Defense (BMD) 5.x Development, Standard Missile-3 (SM-3) Block IB Development, and SM-3 Manufacturing - Aligning funds under one accomplishment and one purview allows for better cost efficiencies and oversight into operations costs of the development program - Total operations cost change from FY 2015 to FY 2016 is a slight increase of $3.5M to account for inflation indices - Ensure Aegis Ballistic Missile Defense (BMD) program compliance with internal and external directives, policies, laws and regulations - Conduct Internal Baseline Reviews (IBRs) that align with the Missile Defense Agency (MDA) approved baselines - Conduct a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management (CM), Manufacturing, Engineering, Security, and Safety - Provide Quality Safety and Mission Assurance operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety, and reliability to ensure high quality products are delivered for BMDS test events - Provide program management, subcontract management, quality assurance, verification of hardware and software development, technical oversight and testing execution - Provide technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, Configuration Management and integration activities			
Title: Modeling & Simulation HWIL Framework, Simulations, Models	39.871	40.076	41.580
Articles:	-	-	-
Description: The M&S Hardware-in-the-Loop (HWIL) Framework, Models and Simulations effort develops, maintains and deploys the HWIL framework hardware and software for use at element laboratories and Combatant Command (COCOM) locations to support IMTP events, BMDS capability delivery assessments, Warfighter training, exercises, and wargames. ***FY 2014 Accomplishments:*** - Maintained Single Stimulation Framework (SSF) support to Post Flight Reconstruction activities. - Continued integration of Optimistic Sensor Model (OSM) into SSF. - Continued deployment and integration of BMDS Hardware-in-the-loop (HWIL) SSF Objective Hardware for MDA Elements and a Releasable configuration for Allied and Coalition partners. - Continued integration of the SSF with the DSA into the Objective Simulation Framework (OSF). - Delivered the OSF Version 1.0 to begin the transition of HWIL capabilities. - Delivered improved debris and phenomenology modeling capabilities to support Aegis 4.0 and future baselines.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Incorporated advanced Modeling and Simulation (M&S) capabilities into the next version of the OSF for Aegis Ballistic Missile Defense (BMD) for tracking, discrimination, engagement and associated upper tier mitigation for Phased Adaptive Approach (PAA) III. - Maintained BMDS HWIL SSF software capability and necessary hardware/ maintenance to support ground testing. - Continued SSF sustainment, maintenance and product support. ***FY 2015 Plans:*** - Transition Single Stimulation Framework (SSF) support for Post Flight Reconstruction activities to Objective Simulation Framework (OSF). - Continue Optimistic Sensor Model (OSM) integration into OSF. - Complete integration of the SSF with the DSA into the Objective Simulation Framework (OSF). - Begin OSF sustainment, maintenance and product support for use in activities supporting MDA stakeholders and allies/coalition partners. - Deliver improved debris and phenomenology modeling capabilities to support Aegis future baselines. - Continue deployment and integration of BMDS Hardware-in-the-loop (HWIL) SSF and OSF Objective Hardware for MDA Elements and a Releasable configuration for Allied and Coalition partners. ***FY 2016 Plans:*** - Develop Objective Simulation Framework (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 system level Modeling and Simulation Enterprise needs. - Begin implementation of new capabilities needed to support MDA's Tier 2 Digital requirements, including hardware and software, data storage and transmission, and verification tools. - Control and maintain the Modeling and Simulation (M&S) Integration and Development Laboratories for Element M&S. - Develop plans, procedures and documentation for scheduled events including Wargames and COCOM Exercises and the Distributed, Focused and Integrated Hardware-In-the-Loop Events as presented in the Integrated Master Test Plan (IMTP). - Develop, maintain, test, field, and operate model representations for use in system level events and other MDA M&S stakeholder application areas. Deploy hardware and software updates to CONUS and OCONUS distributed sites. Perform regular maintenance and critical repairs of hardware and software.			
Title: Systems Engineering & Integration	11.784	17.888	19.109
Articles:	-	-	-
Description: Perform requirements development, engineering analysis, capability integration, and performance verification for Aegis BMD development and BMDS integration, including Aegis BMD compliance with the BMDS Specification, BMDS Description Document, and Master Integration Plan (MIP).			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
FY 2014 Accomplishments: - Continued support to the Combat Systems Engineering Development Site (CSEDS) for Aegis BMD system development. - Conducted non-advocate assessments of BMDS capabilities and limitations prior to capability delivery decisions to determine fielding readiness - Performed top-down system level engineering analysis, capability integration, and performance verification for Aegis BMD development and BMDS integration, including Aegis BMD compliance with the BMD System Specification, BMD System Description Document, and Master Integration Plan (MIP). - Conducted system level performance analyses to support ongoing BMDS Architecture and Systems Engineering efforts. - Conducted extensive analysis of data collected in BMD test events to evaluate BMD operations and performance. ***FY 2015 Plans:*** - Identify BMDS architecture alternatives that improve the system's performance and are complementary to and interoperable with NATO systems and theaters around the world. - Develop and refine Capability Planning specifications for future BMDS Elements/Components. - Develop functional performance, interface, and design suitability requirements in collaboration with BMDS element engineers to flow-down and allocate requirements to Programs. - Conduct system level performance analyses to support ongoing BMDS Architecture and Systems Engineering efforts. - Respond to Warfighter, COCOM and Other requests for analyses and requests for information; provide analytical support for real-world events. - Conduct non-advocate assessments of BMDS capabilities and limitations prior to capability delivery decisions to determine fielding readiness (including Defense of the Homeland, Defense of Israel and Theater/Regional BMD) - Conduct extensive analysis of data collected in BMD test events to evaluate BMD operations and performance. - FY 2015 increase is due to increased effort to identify and analyze future architecture alternatives for BMDS and Aegis BMD applications, and support assessment of capabilities to support Warfighter analyses and fielding decisions. ***FY 2016 Plans:*** FY 2016 increase is due to increased capability integration and assessment support for Aegis BMD/BMDS leading to EPAA Phase II Technical Capability Declaration. - Conduct system level performance analyses to support ongoing BMDS Architecture and Systems Engineering efforts. - Perform top-down system level engineering analysis, capability integration, and performance verification for Aegis BMD development and BMDS integration, including Aegis BMD compliance with the BMD System Specification, BMD System Description Document, and Master Integration Plan (MIP). - Identify architecture alternatives that improve the BMD System's performance and are complementary to and interoperable with NATO systems and theaters around the world.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Develop functional performance, interface, and design suitability requirements in collaboration with Aegis BMD engineers to ensure correct flow-down and allocation of BMD System-level requirements to Aegis BMD. - Respond to Warfighter, COCOM and other requests for analyses and requests for information; provide analytical support for real-world events. - Conduct non-advocate assessments of BMDS capabilities and limitations prior to capability delivery decisions to determine fielding readiness (including Theater/Regional BMD) - Conduct extensive analysis of data collected in BMD test events to evaluate BMD System operations and performance.			
Title: M&S Digital Framework, Simulation, Models	4.990	4.957	4.989
Articles:	-	-	-
Description: The Modeling and Simulation (M&S) Digital Framework, simulation, and models effort includes: development and sustainment of digital products and the architecture framework, and delivery/maintenance of infrastructure for BMDS performance assessments. ***FY 2014 Accomplishments:*** -Incorporated advanced Modeling and Simulation (M&S) capabilities into the next version of the Objective Simulation Framework (OSF) for Aegis Ballistic Missile Defense (BMD) for tracking, discrimination, engagement and associated upper tier mitigation to satisfy Phased Adaptive Approach (PAA) Phase 2/3 needs in BMDS Performance Assessment test venues. -Began the transition of real-time digital simulations to the OSF to support Warfighter Exercises, Warfighter Training, Element spiral development, and Ground Test campaigns. ***FY 2015 Plans:*** - Continue the transition of real-time digital simulation capability to the Objective Simulation Framework (OSF) to support Warfighter Exercises, Warfighter Training, Element spiral development, and Ground Test campaigns. - Integrate, test, functionally qualify, and deliver end to end BMDS simulations supporting various events (utilizing the OSF and Element-provided medium/high-resolution models) to support full-envelope BMDS Digital Performance Assessments. ***FY 2016 Plans:*** - Continue re-architecting of MDA's BMD International Simulation (I-SIM) to adapt to growing distributed event requirements in support of COCOM and International Wargames, conceptual planning, BMD visualizations, BMD training/orientation, M&S demonstrations, and the Joint Functional Component Command for Integrated Missile Defense (JFCC IMD) Material & Fielding Requirements List (MFRL). - Integrate, test, functionally qualify, and deliver BMDS M&S tools for use in MDA test events, Wargames, and exercises - Continue the transition of real-time digital simulation capability to the Objective Simulation Framework (OSF) to support BMD System and Element Intended Uses.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provide threat representations (kinematic trajectories, radar cross section (RCS), and infrared (IR) signature data) for use in real-world events, simulations, exercises, wargames, and test and evaluation activities across the DoD. - Perform operational planning for the FY 2017 BMDS assessment events.			
Title: BMDS Verification, Validation & Assessment (VV&A) ***Articles:*** ***Description:*** See Description below. ***FY 2014 Accomplishments:*** - Provided integrated Verification, Validation and Accreditation (VV&A) of Missile Defense Agency (MDA) M&S at the system level for specific events, to include Technical Assessment, Performance Assessment, Ground Tests that support Ballistic Missile Defense System (BMDS) fielding decisions, and tier one Combatant Commanders (COCOM) exercises. - Developed integrated VV&A event Plans and Reports for events as reflected in the Integrated Master Test Plan (IMTP). - Conducted specified system post-flight reconstructions and pre-mission testing events so as to optimize the body of evidence and analysis supporting system-level Ballistic Missile Defense System (BMDS) accreditation perform all system-level VV&A associated with these events as reflected in the IMTP. - Conducted system-level verification and validation of threat trajectory and signature end-to-end environmental implementation is consistent and correct communications and architecture behave properly and interoperability is adequately addressed. ***FY 2015 Plans:*** - Conduct verification and validation (V&V) in support of MDA BMD system level accreditation process in support of Ground Test and Performance Assessment events. - Develop integrated Verification, Validation and Accreditation (VV&A) and V&V event Plans and Reports for events as reflected in the Integrated Master Test Plan (IMTP) and the Exhibit R-4 schedule. - Conduct specified system post-flight reconstructions, element post-flight reconstructions, and pre-mission testing events so as to optimize the body of evidence and analysis supporting system-level Ballistic Missile Defense System (BMDS) accreditation. Perform all system-level V&V associated with these events as reflected in the IMTP and the Exhibit R-4 schedule. - Conduct system-level V&V of threat trajectory and signature end-to-end environmental implementation is consistent and correct communications and architecture behave properly and interoperability is adequately addressed. - FY 2015 increase is due to re-categorization of assessment efforts previously reported in budget project MT09. ***FY 2016 Plans:*** -FY 2016 increase is due to increased assessment and validation activities supporting capability declaration for EPAA phase II. - Conduct extensive analysis of data collected in BMDS ground and flight test events, instrumental to understanding BMD System operations and performance and anchoring models and simulations.	15.534 -	17.730 -	20.724 -

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Identify mitigation approaches for BMDS performance issues uncovered during system level analysis and assessment. - Monitor development and recommend improvements to the Missile Defense Agency wide simulation enterprise based on an evaluation of the validity of Component, Element and System-level models, frameworks, and participation in system level assessment activities and Modeling and Simulation events. - Conduct verification and validation (V&V) in support of MDA BMD System level accreditation process in support of BMDS Ground Test and performance assessment events. - Develop integrated Verification, Validation and Accreditation (VV&A) and V&V event Plans and Reports for events as reflected in the Integrated Master Test Plan (IMTP) and the Exhibit R-4 schedule. - Conduct specified BMD System post-flight reconstructions, element post-flight reconstructions, and pre-mission testing events so as to optimize the body of evidence and analysis supporting system-level Ballistic Missile Defense System (BMDS) accreditation. Perform all system-level V&V associated with these events as reflected in the IMTP and the Exhibit R-4 schedule.			
Accomplishments/Planned Programs Subtotals	711.040	681.417	732.273

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0604880C: *Land Based SM-3 (LBSM3)*	124.568	123.444	34.970	-	34.970	40.787	30.486	20.193	22.079	Continuing	Continuing
• 0604881C: *AEGIS SM-3 Block IIA Co-Development*	297.169	263.695	172.645	-	172.645	66.828	-	-	-	-	800.337

Remarks

D. Acquisition Strategy

The Aegis Ballistic Missile Defense (BMD) element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall Ballistic Missile Defense System (BMDS) capability. After considering all the technical and management aspects of the program and to meet the requirements presented by an evolving ballistic missile threat, the Aegis BMD program awarded sole source contracts to Raytheon and Lockheed Martin to continue development of the Standard Missile-3 (SM-3) missile and the Aegis BMD Weapon System, respectively.

The Modeling & Simulation (M&S) acquisition strategy utilizes full and open competition to develop, acquire and deliver the integrated architectures/frameworks, as well as develop and deliver models of AEGIS systems. The Digital and Hardware-in-the-Loop (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 AEGIS BMD prime contractors, with additional technical standards and engineering oversight provided by Federally Funded Research and Development Centers (FFRDCs) and University Affiliated Research Centers (UARCs).

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev MD09	MIPR	AEGIS Techrep : Moorestown, NJ	0.324	0.352		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev MD09 - Crane	MIPR	NSWC Crane : Crane, IN	0.071	-		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev MD09 - PAC	MIPR	SPAWAR PAC : San Diego, CA	0.170	-		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev MD09 - SCSC	MIPR	Wallops Island : VA	0.751	1.467		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev.	MIPR	NAVSEA : VA	8.239	0.848		-		-		-		-	-	9.087	-
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - 201112203132279	MIPR	NSWC Corona : CA	0.659	0.017		1.398	Oct 2014	3.746	Nov 2015	-		3.746	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09	MIPR	NSWC/DD : DAHLGREN, VA	75.128	2.811		5.490	Oct 2014	9.711	Nov 2015	-		9.711	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 - 20117142293189	MIPR	NSWC/PHD : PT. HUENEME, CA	13.072	0.824		1.046	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD	MIPR	JHU/APL/MD : COLUMBIA, MD	25.874	4.120		4.144	Oct 2014	2.803	Nov 2015	-		2.803	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
4.0 Dev. - MD09 - 20117142293191															
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 - 20117142293195	SS/CPIF	LOCKHEED MARTIN : MOORESTOWN, NJ	681.821	34.758		13.422	Oct 2014	6.415	Nov 2015	-		6.415	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 - AG	SS/CPAF	RAYTHEON/AZ : TUCSON, AZ	1.943	10.468		-		11.966	Nov 2015	-		11.966	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 - AG APL	MIPR	JHU/APL : Columbia, MD	0.000	1.937		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 - AG Corona	MIPR	NSWC Corona : CA	0.000	0.770		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 - AG DD	MIPR	NSWC Dahlgren : Dahlgren, VA	0.000	0.220		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 - AG PHD	MIPR	NSWC PHD : Pt. Hueneme, CA	0.000	0.566		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 - D AG	MIPR	MDA : VA	15.309	5.000		-		6.050	Nov 2015	-		6.050	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 Aegis VLS	MIPR	AEGIS BMD : DAHLGREN, VA	71.221	0.274		-		-		-		-	-	71.495	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 SEG	MIPR	SEG : CA	0.000	0.050		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 TD	MIPR	Aegis BMD : Various	0.000	3.370		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 TD LM	SS/CPIF	Lockheed Martin : Moorestown, NJ	0.000	27.950		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 VLS	MIPR	NSWC Dahlgren : Dahlgren, VA	0.000	3.187		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev. - MD09 VLS LM	MIPR	NAVSEA - LM : Washington, DC	0.000	0.086		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - C2BMC Program	MIPR	MDA : VA	6.150	-		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09	SS/CPIF	LOCKHEED MARTIN : MOORESTOWN, NJ	637.457	69.744		75.156	Oct 2014	20.502	Nov 2015	-		20.502	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 -	MIPR	MITRE : CECOM	1.829	-		0.897	Oct 2014	0.751	Nov 2015	-		0.751	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - 2011714231 TD	MIPR	AEGIS BMD : AZ, VA, CA	1.848	9.291		0.977	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0	MIPR	NSWC/DD : DAHLGREN, VA	64.127	18.929		8.914	Oct 2014	2.049	Nov 2015	-		2.049	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development - MD09 - 20117142316263															
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - 20117142316266	MIPR	NSWC/PHD : PT. HUENEME, CA	4.085	0.902		1.009	Oct 2014	0.557	Nov 2015	-		0.557	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - 20117142316267	MIPR	JHU/APL/MD : COLUMBIA, MD	34.353	5.499		8.199	Oct 2014	2.849	Nov 2015	-		2.849	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - 20117142316272	C/CPAF	RAYTHEON/AZ : TUCSON, AZ	0.030	-		0.672	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - 20117142316275	SS/CPAF	RAYTHEON/AZ : TUCSON, AZ	4.000	-		-		-		-		-	-	4.000	-
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - 20117142316278 - 2012628495024	MIPR	NSWC Crane : Crane, IN	0.000	-		0.470	Oct 2014	0.236	Nov 2015	-		0.236	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - AW	MIPR	Various : Various	0.000	0.912		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - AW Navsea	MIPR	NAVSEA : Washington, DC	0.000	5.728		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - AW Techrep	MIPR	Aegis Techrep : Moorestown, NJ	0.000	0.603		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0	MIPR	Wallops Island : VA	0.000	0.578		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MD09 / *Aegis BMD*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development - MD09 - AW Wallops															
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - AWE	MIPR	Wallops Island : VA	0.000	0.351		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - AWE LM	MIPR	NAVSEA - LM : Washington, DC	0.000	5.016		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - Aegis	MIPR	Aegis BMD : VA	44.594	-		0.825	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - Development Test	SS/CPIF	Lockheed Martin : Moorestown, NJ	21.169	-		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - LM	SS/CPIF	Lockheed Martin : Moorestown, NJ	24.600	-		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - TD	SS/CPFF	IDT : Arlington VA	0.000	1.499		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - TD LM	SS/CPIF	Lockheed Martin : Moorestown, NJ	0.000	6.200		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - AA Development	MIPR	PMRF : Hawaii	0.000	-		-		5.967		-		5.967	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - BMD 5.1 Dev. - MD09 VLS IH	MIPR	NSWC Indian Head : Indian Head, MD	0.000	0.232		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense (BMD) 5.x Development - BMD 5.1 Development - MD09	MIPR	NSWC Corona : CA	3.737	2.623		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - BMD 5.1 Development - MD09 LM	MIPR	Lockheed Martin : MD	8.633	-		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - BMD 5.1 Development MD09	MIPR	Various : MA, MD, VA, NJ	2.022	2.732		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - BMD 5.1.0 Dev MD09 - AW LM	MIPR	NAVSEA - LM : Washington, DC	0.000	7.807		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - BMD 5.1.0 Dev MD09 - AW VLS	MIPR	NAVSEA - LM : Washington, DC	0.000	9.920		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - BMD 5.1.0 Dev MD09 - SCSC	MIPR	Wallops Island : VA	0.000	0.546		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - C2BMC ADNS III	MIPR	Aegis TechRep : Moorestown, NJ	6.150	0.148		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142323680	MIPR	NSWC/DD : DAHLGREN, VA	35.202	4.106		7.174	Oct 2014	7.237	Nov 2015	-		7.237	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142323684	MIPR	NSWC/PHD : PT HUENEME, CA	1.579	0.368		0.866	Nov 2014	5.060	Nov 2015	-		5.060	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MD09 / *Aegis BMD*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142323686	MIPR	JHU/APL/MD : COLUMBIA, MD	30.874	3.180		8.381	Oct 2014	6.169	Nov 2015	-		6.169	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142323689	SS/CPAF	LOCKHEED MARTIN : MOORESTOWN, NJ	243.789	88.427		195.003	Oct 2014	133.685	Nov 2015	-		133.685	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20126284501509	MIPR	SPAWAR : CA	6.829	-		6.123	Nov 2014	3.079	Nov 2015	-		3.079	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - AG	SS/CPAF	RAYTHEON/AZ : TUCSON, AZ	0.210	35.504		33.295	Oct 2014	16.745	Nov 2015	-		16.745	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - TD	MIPR	Various : MA, MD, VA, NJ	22.088	5.167		3.539	Nov 2014	1.780	Nov 2015	-		1.780	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - VLS	MIPR	AEGIS BMD : AZ, VA, CA	54.407	1.266		3.046	Nov 2014	0.906	Nov 2015	-		0.906	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - VLS 5.1 FIELDING	MIPR	NAVSEA - BAE : Washington, DC	0.000	0.700		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - VLS 5.1 FIELDING LM	MIPR	NAVSEA - LM : Washington, DC	0.000	0.500		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09	SS/CPAF	Raytheon : Tucson, AZ	974.516	17.978		48.059	Oct 2014	41.242	Nov 2015	-		41.242	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - 20117142332255	MIPR	NSWC/DD : Dahlgren, VA	35.769	0.352		2.351	Oct 2014	-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MD09 / *Aegis BMD*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Standard Missile-3 (SM-3) Block IB Development - MD09 - 20117142332256	MIPR	JHU/APL/MD : Columbia, MD	44.231	5.600		5.170	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - 20117142332259	MIPR	NSWC/PHD : Port Hueneme, CA	13.148	0.934		1.880	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - 20117142332261	MIPR	NSWC Carderock : MD	17.117	1.165		0.940	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - AFMETCAL	MIPR	AFMETCAL : Heath, OH	0.880	1.754		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - AFRL	MIPR	AFRL : Edward AFB, CA	0.273	1.800		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - AW	MIPR	NAVSEA : Washington, DC	0.000	1.482		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - AW Wallops	MIPR	Wallops Island : VA	0.000	0.104		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - China Lake	MIPR	NAWC : China Lake, CA	1.568	1.258		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - Corona	MIPR	NSWC Corona : Corona, CA	0.579	0.770		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - Indian Head	MIPR	NSWC Indian Head : Indian Head, MD	0.806	0.779		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - NSA	MIPR	NSA : MD	0.180	-		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MD09 / *Aegis BMD*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Standard Missile-3 (SM-3) Block IB Development - MD09 - Oak Ridge National Laboratory	MIPR	Oak Ridge National Laboratory : Oak Ridge, TN	0.017	-		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - SMC	MIPR	Space Missile Command : El Segundo, CA	0.161	-		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - USTRANSCOM	MIPR	USTRANSCOM : Scott Air Force Base Illinois	0.000	0.064		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 Crane	MIPR	NSWC Crane : Crane, IN	0.548	0.651		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 TD	MIPR	Various : MA, CA, VA, MD	0.000	1.317		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - MD09 - SM-3 BLK IIA AFFORDABILITY DEVELOPMENT	SS/CPIF	Raytheon : Tucson, AZ	0.000	-		-		12.100	Nov 2015	-		12.100	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - MD09 - SM-3 BLK IIA INTEGRATION	SS/CPIF	Raytheon : Tucson, AZ	0.000	-		-		47.900	Nov 2015	-		47.900	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - MD09 - SM-3 BLK IIA INTEGRATION - APL	MIPR	JHU/APL : Laurel, MD	0.000	-		-		13.400	Nov 2015	-		13.400	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - MD09 - SM-3 BLK IIA INTEGRATION - DD	MIPR	NSWC DD : Dahlgren, VA	0.000	-		-		9.846	Nov 2015	-		9.846	Continuing	Continuing	Continuing
SM-3 Manufacturing - SM-3 MANUFACTURING - MD09	SS/CPAF	Raytheon : Tucson, AZ	337.105	-		53.801	Oct 2014	136.217	Dec 2015	-		136.217	-	527.123	-

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Fielding - Aegis Weapon System (AWS) - 3.6 Training and Support Services	MIPR	PEO IWS : Washington, DC	0.000	6.462		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - MD09 - SWRMC	MIPR	SWRMC : San Diego, CA	0.000	6.000		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment	MIPR	MDA : Arlington Va	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment - Norfolk Ship Support	MIPR	Norfolk Ship Support : Norfolk, VA	8.475	6.930		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment NSWC CD	MIPR	NSWC CD : Philadelphia, PA	0.210	0.524		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment - Aegis Tech	MIPR	AEGIS TECHREP : Moorestown, NJ	3.604	0.360		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment - Crane	MIPR	NSWC Crane : Crane, IN	1.600	1.295		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment - Dahlgren	MIPR	NSWC/DD : Dahlgren, VA	33.014	4.443		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment - E CPFF	C/CPFF	Various : Dahlgren, VA	0.608	1.172		-		-		-		-	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Fielding - Aegis Weapon System (AWS) - Production and Deployment - Ingalls	MIPR	Ingalls Planning Yard : Pascagoula, MS	0.101	0.134		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment - LM	SS/CPIF	Lockheed Martin : Moorestown, NJ	230.827	28.394		3.997	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment - NSWC PHD	MIPR	NSWC/PHD : Port Hueneme, CA	42.904	10.706		3.803	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment - PEO IWS	MIPR	PEO IWS : Washington Navy Yard, DC	36.692	35.500		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment - Raytheon	C/CPAF	Raytheon : Washington, DC	12.979	3.740		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment - SUPSHIP	MIPR	SUPSHIP : Bath. ME	5.700	3.700		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment NAVSEA	MIPR	NAVSEA : VA	114.474	0.625		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and Deployment SPAWAR CH	MIPR	SPAWAR CH : Charleston, SC	0.015	0.256		-		-		-		-	Continuing	Continuing	Continuing
Fielding - Aegis Weapon System (AWS) - Production and	MIPR	SPAWAR PAC : San Diego, CA	0.267	1.085		-		-		-		-	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Deployment SPAWAR OAC															
Fleet Integration - 20098185191945	MIPR	NSWC/PHD : Port Hueneme, CA	17.038	0.328		2.393	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Fleet Integration - MD09	MIPR	SMDC/ARSTRST : Huntsville, AL	8.742	0.320		0.137	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Fleet Integration - MD09 - 20117142371317	MIPR	CSCS : Dahlgren, VA	11.148	0.975		1.360	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Fleet Integration - MD09 - 20117142371318	MIPR	JHU/APL/MD : Columbia, MD	6.417	1.656		0.941	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Fleet Integration - MD09 - 2011714237132	MIPR	NSWC/DD : Dahlgren, VA	15.833	2.141		1.526	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Fleet Integration - MD09 - 2012723031274	MIPR	MDA : VA	2.072	-		0.106	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - NAVSEA	MIPR	NAVSEA : Tewksbury, MA	0.000	-		-		1.100	Nov 2015	-		1.100	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD APL	SS/CPFF	JHU/APL : Columbia, MD	0.000	-		-		5.737	Nov 2015	-		5.737	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD LM	C/CPFF	Lockheed Martin : Moorestown, NJ	0.000	-		-		4.700	Nov 2015	-		4.700	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD MIT	MIPR	Hanscom AFB - MIT/ LL : Lexington, MA	0.000	-		-		2.200	Nov 2015	-		2.200	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and	MIPR	CECOM - MITRE : Dahlgren, VA	0.000	-		-		0.345	Nov 2015	-		0.345	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Insertion - MD09 - TD MITRE															
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD NSWCDD	MIPR	NSWC DD : Dahlgren, VA	0.000	-		-		7.087	Nov 2015	-		7.087	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - Technology Design and Insertion - FT DIHD Support (DE)	MIPR	Various - MDA : AL,VA	0.000	-		-		2.000	Nov 2015	-		2.000	Continuing	Continuing	Continuing
Modeling & Simulation HWIL Framework, Simulations, Models - M&S HWIL Engineering	Various	MDA : AL, VA	0.000	-		2.796	Nov 2014	4.467	Nov 2015	-		4.467	Continuing	Continuing	Continuing
Modeling & Simulation HWIL Framework, Simulations, Models - M&S HWIL Engineering - CSS Support	C/CPFF	Sparta : AL, CO	6.383	4.782		2.930	Nov 2014	2.588	Nov 2015	-		2.588	Continuing	Continuing	Continuing
Modeling & Simulation HWIL Framework, Simulations, Models - M&S HWIL Engineering - Engineering Support	C/CPAF	Northrop Grumman : CO	2.360	5.363		4.800	Nov 2014	4.700	Nov 2015	-		4.700	Continuing	Continuing	Continuing
Modeling & Simulation HWIL Framework, Simulations, Models - M&S HWIL Engineering - Integration	MIPR	AMRDEC : AL	1.935	4.482		4.300	Nov 2014	4.347	Nov 2015	-		4.347	Continuing	Continuing	Continuing
Modeling & Simulation HWIL Framework, Simulations, Models - M&S HWIL Engineering - Prime	C/CPFF	Teledyne Brown Engineering : AL, CO	23.938	25.244		25.250	Nov 2014	25.478	Nov 2015	-		25.478	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Modeling & Simulation HWIL Framework, Simulations, Models - Single Stimulation Framework & Objective Simulation Framework, Procure, Install, Test - MD09	C/CPAF	Boeing : AL	151.380	-		-		-		-		-	-	151.380	-
Systems Engineering & Integration - CSS - MD09	C/CPFF	Cobham : CA	6.660	-		-		-		-		-	-	6.660	-
Systems Engineering & Integration - Systems Engineering	MIPR	MDA : VA, AL	35.430	4.966		6.807	Nov 2014	6.852	Nov 2015	-		6.852	Continuing	Continuing	Continuing
Systems Engineering & Integration - Systems Engineering - CSS	C/CPFF	CSC : VA	9.357	1.573		1.200	Nov 2014	1.224	Nov 2015	-		1.224	Continuing	Continuing	Continuing
Systems Engineering & Integration - Systems Engineering - Industry	C/CPAF	Boeing : VA	17.026	5.245		9.881	Nov 2014	11.033	Nov 2015	-		11.033	Continuing	Continuing	Continuing
M&S Digital Framework, Simulation, Models - Digital Simulation Architecture - MD09	C/CPAF	Northrop Grumman : CO	14.992	4.990		4.957	Nov 2014	4.989	Nov 2015	-		4.989	Continuing	Continuing	Continuing
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment - CSS Support	C/CPFF	CSC : AL	0.000	-		3.890	Nov 2014	3.852	Nov 2015	-		3.852	Continuing	Continuing	Continuing
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment - CSS Support (2)	C/CPFF	Sparta : AL	0.000	-		0.510	Nov 2014	0.525	Nov 2015	-		0.525	Continuing	Continuing	Continuing
BMDS Verification, Validation & Assessment	C/CPAF	Boeing : AL	0.000	-		4.778	Nov 2014	6.914	Nov 2015	-		6.914	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
(VV&A) - Verification & Assessment - Industry															
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment - Labs	MIPR	MITRE : VA	0.000	-		1.295		1.476	Nov 2015	-		1.476	Continuing	Continuing	Continuing
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment - OGA	MIPR	AMRDEC : AL	0.000	-		7.257	Nov 2014	7.957	Nov 2015	-		7.957	Continuing	Continuing	Continuing
		Subtotal	4,403.423	596.952		587.161		618.539		-		618.539	-	-	-

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev - MD09	MIPR	MDA MIDAESS : Arlington, VA	3.789	8.952		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev - MD09 -	MIPR	Dahlgren : Dahlgren, VA	4.817	1.241		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev - MD09 - 0	MIPR	MDA : Arlington, VA	41.632	4.956		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD	MIPR	NAVSEA : Washington, DC	20.742	2.981		9.000		-		-		-	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
4.0 Dev - MD09 - 20117142431989															
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev - MD09 - 20117142432002	C/CPIF	Lockheed Martin : Arlington, VA	2.006	0.396		25.000		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev - MD09 - 20117142432014	C/CPAF	Raytheon : Arlington, VA	1.960	-		25.598		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev - MD09 - 20117142432019	MIPR	Aegis BMD : Dahlgren, VA	3.834	0.400		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev - MD09 - 20117142432022	MIPR	MDA : Arlington, VA	24.296	0.414		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 4.x Development - BMD 4.0 Dev - MD09 - 2012722816284	MIPR	JHU/APL : Columbia MD	0.000	-		7.000		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09	MIPR	MDA : Arlington, VA	32.552	7.152		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 -	MIPR	JHU/APL : Columbia MD	0.000	-		1.349		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0	MIPR	NAVSEA : Washington, DC	16.875	4.302		-		-		-		-	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development - MD09 - 20117142454161															
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - 20117142454173	MIPR	Dahlgren : Dahlgren, VA	9.022	1.792		1.349		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - 20117142454175	C/CPIF	Lockheed Martin : Arlington, VA	0.849	0.571		7.720		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - 20117142454178	C/CPAF	Raytheon : Arlington, VA	0.287	-		-		-		-		-	-	0.287	-
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - 20117142454181	MIPR	Aegis BMD : Dahlgren, VA	24.312	0.577		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - 20117142454184	MIPR	MDA : Arlington, VA	33.704	0.598		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.0 Development - MD09 - 20117142454188	MIPR	MDA MIDAESS : Arlington, VA	16.606	12.919		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09	MIPR	MDA : Arlington, VA	12.198	11.133		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 2011714247033	MIPR	NAVSEA : Washington, DC	6.189	6.697		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x	MIPR	Dahlgren : Dahlgren, VA	6.069	2.789		-		-		-		-	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development - MD09 - 20117142470341															
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142470344	C/CPIF	Lockheed Martin : Arlington, VA	0.225	0.889		5.764		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142470352	C/CPAF	Raytheon : Arlington, VA	0.182	-		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142470355	MIPR	Aegis BMD : Dahlgren, VA	4.389	0.897		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142470358	MIPR	MDA : Arlington, VA	21.523	0.931		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142470359	MIPR	MDA MIDAESS : Arlington, VA	10.260	20.110		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) 5.x Development - MD09 - 20117142470359 - 2012722862854	MIPR	JHU/APL : Columbia MD	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09	MIPR	JHU/APL : Columbia MD	0.000	-		2.000		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 -	MIPR	MDA : Arlington, VA	29.386	1.979		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - 20117142487038	MIPR	NAVSEA : Washington, DC	81.311	1.190		-		-		-		-	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Standard Missile-3 (SM-3) Block IB Development - MD09 - 20117142487073	MIPR	Dahlgren : Dahlgren, VA	9.053	0.495		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - 20117142487113	C/CPIF	Lockheed Martin : Arlington, VA	2.009	0.158		9.476		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - 20117142487117	C/CPAF	Raytheon : Arlington, VA	0.318	0.138		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - 20117142487119	MIPR	Aegis BMD : Dahlgren, VA	39.449	0.159		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - 20117142487125	MIPR	MDA : Arlington, VA	27.079	0.165		-		-		-		-	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MD09 - 20117142487128	MIPR	MDA MIDAESS : Arlington, VA	9.870	3.573		-		-		-		-	Continuing	Continuing	Continuing
Program Operations - MD09 - Civ Sal	MIPR	MDA : Arlington, VA	0.000	-		-		35.328	Oct 2015	-		35.328	Continuing	Continuing	Continuing
Program Operations - MD09 - DA/DAC	MIPR	MDA : Arlington, VA	0.000	-		-		0.264	Nov 2015	-		0.264	Continuing	Continuing	Continuing
Program Operations - MD09 - DD PM	MIPR	NSWC DD : Dahlgren, VA	0.000	-		-		7.632	Nov 2015	-		7.632	Continuing	Continuing	Continuing
Program Operations - MD09 - IT	MIPR	MDA : Arlington, VA	0.000	-		-		0.519	Nov 2015	-		0.519	Continuing	Continuing	Continuing
Program Operations - MD09 - MDA Travel	MIPR	MDA : Arlington, VA	0.000	-		-		2.065	Oct 2015	-		2.065	Continuing	Continuing	Continuing
Program Operations - MD09 - MIDAESS	MIPR	MDA : Arlington, VA	0.000	-		-		48.168	Oct 2015	-		48.168	Continuing	Continuing	Continuing
Program Operations - MD09 - NAVSEA Civ Sal	MIPR	NAVSEA : Washington, DC	0.000	-		-		13.856	Oct 2015	-		13.856	Continuing	Continuing	Continuing
Program Operations - MD09 - NAVSEA RB Sal	MIPR	NAVSEA : Washington, DC	0.000	-		-		2.109	Oct 2015	-		2.109	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Operations - MD09 - NAVSEA Train	MIPR	NAVSEA : Washington, DC	0.000	-		-		0.069	Oct 2015	-		0.069	Continuing	Continuing	Continuing
Program Operations - MD09 - NAVSEA Travel	MIPR	NAVSEA : Washington, DC	0.000	-		-		1.056	Oct 2015	-		1.056	Continuing	Continuing	Continuing
Program Operations - MD09 - PCS	MIPR	MDA : Arlington, VA	0.000	-		-		0.105	Nov 2015	-		0.105	Continuing	Continuing	Continuing
Program Operations - MD09 - PE Comms	C/CPAF	Lockheed Martin : Moorestown, NJ	0.000	-		-		0.960	Nov 2015	-		0.960	Continuing	Continuing	Continuing
Program Operations - MD09 - Security	MIPR	Various : VA	0.000	-		-		1.603	Nov 2015	-		1.603	Continuing	Continuing	Continuing
		Subtotal	496.793	98.554		94.256		113.734		-		113.734	-	-	-

Remarks

New accomplishment developed to align to Aegis Ballistic Missile Defense (BMD) FY 2014 restructure: - Funding was previously allocated within each budget accomplishment in Project MD09.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Verification, Validation & Assessment (VV&A) - VV&A - MD09	C/CPAF	Northrop Grumman : VA	60.943	-		-		-		-		-	-	60.943	-
BMDS Verification, Validation & Assessment (VV&A) - VV&A - OGA	MIPR	AMRDEC : AL	7.482	6.970		-		-		-		-	Continuing	Continuing	Continuing
BMDS Verification, Validation & Assessment (VV&A) - Validation & Assessment - CSS	C/CPFF	CSC : AL	0.000	7.308		-		-		-		-	Continuing	Continuing	Continuing
BMDS Verification, Validation & Assessment (VV&A) - Validation & Verification Support	MIPR	Various : VA, AL, CO	3.014	1.256		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MD09 / *Aegis BMD*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			71.439	15.534		-		-		-		-	-	-	-

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4,971.655	711.040		681.417		732.273		-		732.273	-	-	-

Remarks

Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, MIPRs, and civilian salaries on the R-3.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

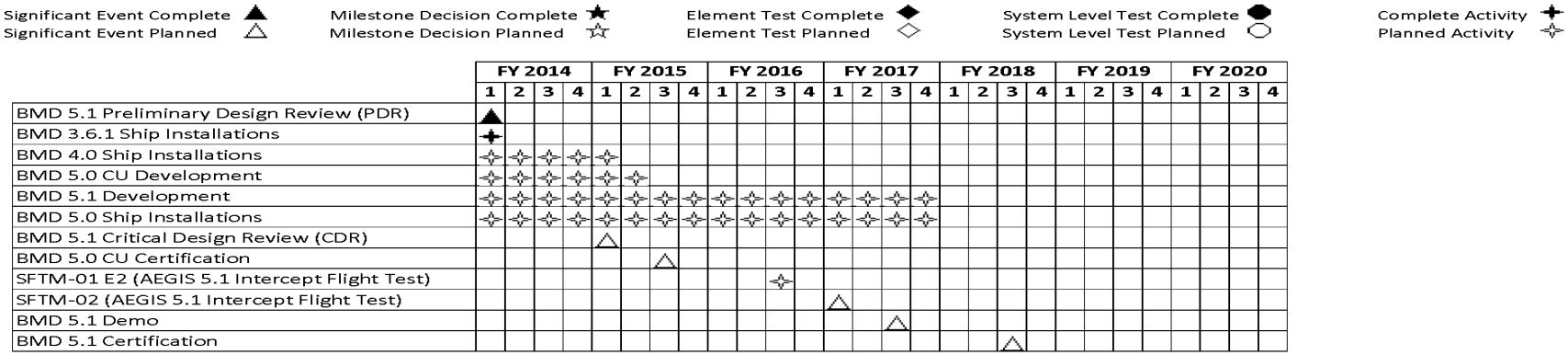


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD09 / *Aegis BMD*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BMD 5.1 Preliminary Design Review (PDR)	1	2014	1	2014
BMD 3.6.1 Ship Installations	1	2014	1	2014
BMD 4.0 Ship Installations	1	2014	1	2015
BMD 5.0 CU Development	1	2014	2	2015
BMD 5.1 Development	1	2014	4	2017
BMD 5.0 Ship Installations	1	2014	4	2017
BMD 5.1 Critical Design Review (CDR)	1	2015	1	2015
BMD 5.0 CU Certification	3	2015	3	2015
SFTM-01 E2 (AEGIS 5.1 Intercept Flight Test)	3	2016	3	2016
SFTM-02 (AEGIS 5.1 Intercept Flight Test)	1	2017	1	2017
BMD 5.1 Demo	3	2017	3	2017
BMD 5.1 Certification	3	2018	3	2018

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MC09 / *Cyber Operations*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MC09: *Cyber Operations*	-	0.820	0.265	0.870	-	0.870	0.885	0.891	0.891	0.891	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project MC09, Defensive Cyber Operations Project was established in this Program Element (PE) for PB 2014.

Increase from FY 2015 is due to all cyber security efforts being moved from MD09 to MC09 to match execution. FY 2015 amounts will be updated accordingly to match actual costs at the end of FY 2015.

A. Mission Description and Budget Item Justification

The funds in this project sustain Missile Defense Agency (MDA) DoD Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for MDA Aegis Ballistic Missile Defense (BMD) mission systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the DIACAP documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&M on all MDA information systems.

This project supports the monitoring and tracking of cyber security mitigation detailed in Information Technology Security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA Senior Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation (IV&V) 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 (FISMA).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Network / System Certification and Accreditation (C&A)	0.820	0.265	0.870
Articles:	-	-	-
Description: See Description below.			
FY 2014 Accomplishments: - Conducted cyber security / information assurance engineering and architecture planning for Aegis BMD information technology systems. - Planned and tested the Information Assurance (IA) controls for Ballistic Missile Defense System (BMDS) Aegis BMD systems. - Developed Aegis BMD DIACAP certification and accreditation packages. - Conducted Controls Validation Testing (CVT) of Aegis BMD mission systems and provided Plan of Action and Milestones to mitigate information assurance deficiencies.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MC09 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conducted annual information assurance reviews on the Aegis BMD enclaves to assess compliance in implementing and maintaining IA controls. ***FY 2015 Plans:*** -Cyber security was recently reallocated to Project MC09 in FY 2014. All cyber security efforts are being combined within this Project and the FY 2015 data will be updated with the actual costs when adjustments are authorized. - Conduct cyber security / information assurance engineering and architecture planning for Aegis BMD information technology systems. - Plan and test the IA controls for Ballistic Missile Defense System (BMDS) Aegis BMD systems. - Develop Aegis BMD DIACAP certification and accreditation packages. - Conduct Controls Validation Testing (CVT) of Aegis BMD mission systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies. - Conduct annual information assurance reviews on the Aegis BMD enclaves to assess compliance in implementing and maintaining IA controls. ***FY 2016 Plans:*** Increase from FY 2015 is due to all cyber security efforts being moved from MD09 to MC09 to match execution. FY 2015 amounts will be updated accordingly to match actual costs at the end of FY 2015. - Conduct cybersecurity engineering and architecture requirements planning for Aegis BMD systems - Plan and test the Risk Management Framework (RMF) controls for Ballistic Missile Defense System (BMDS) in regards to Aegis BMD systems to comply with new directive, RMF for DoD Information Technology (DoDI 8510.01) to replace the DoD Information Assurance Certification and Accreditation Process (DIACAP). - Coordinate the development of Aegis BMD Risk Management Framework (RMF) accreditation packages - Conduct Controls Validation Testing (CVT) of Aegis BMD systems and provide a Risk Assessment Report (RAR) to mitigate cybersecurity deficiencies - Conduct annual cybersecurity reviews on the Aegis BMD systems to assess compliance in implementing and maintaining RMF controls			
Accomplishments/Planned Programs Subtotals	0.820	0.265	0.870

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MC09 / *Cyber Operations*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	41.051	46.387	49.570	-	49.570	50.533	51.363	52.217	54.247	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0604880C: *Land Based SM-3 (LBSM3)*	124.568	123.444	34.970	-	34.970	40.787	30.486	20.193	22.079	Continuing	Continuing
• 0901598C: *Management HQ - MDA*	34.712	35.598	35.871	-	35.871	35.187	34.509	33.466	33.992	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MC09 / *Cyber Operations*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C&A) - BOOZ ALLEN HAMILTON INC	C/CPIF	MDA : MCLEAN, VA	0.000	0.643		-		0.640	Nov 2015	-		0.640	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services	C/CPIF	Torch Technologies : Huntsville, AL	0.000	0.177		0.265	Oct 2014	0.230	Nov 2015	-		0.230	Continuing	Continuing	Continuing
		Subtotal	0.000	0.820		0.265		0.870		-		0.870	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.820		0.265		0.870		-		0.870	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MC09 / *Cyber Operations*

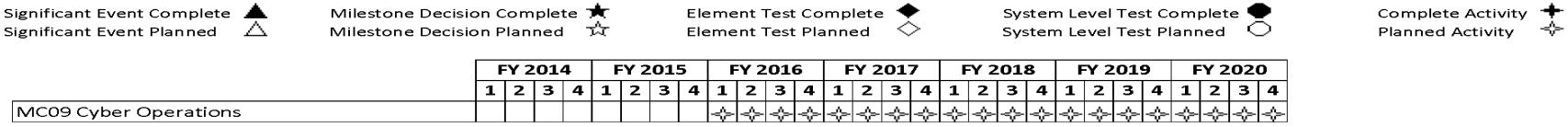


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MC09 / *Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MC09 Cyber Operations	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MT09 / *Aegis BMD Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT09: *Aegis BMD Test*	166.697	105.000	-	-	-	-	-	-	-	-	-	271.697
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2015, the MT09 Aegis BMD Test project was transferred to PE 0604878C: Aegis BMD Test in accordance with Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

A. Mission Description and Budget Item Justification

The Aegis Ballistic Missile Defense (BMD) mission is to deliver an enduring, operationally effective and supportable BMD capability to defend the nation, deployed forces, friends and allies, and to increase this capability by delivering evolutionary improvements as part of the Ballistic Missile Defense System (BMDS) upgrades. The Aegis BMD element of the BMDS capitalizes upon and evolves from the existing United States Navy Aegis Weapons System (AWS) and Standard Missile (SM) infrastructures. Aegis BMD provides a forward-deployable, mobile capability to detect and track Ballistic Missiles of all ranges, and the ability to destroy Short-Range Ballistic Missiles (SRBMs), Medium-Range Ballistic Missiles (MRBMs), and Intermediate-Range Ballistic Missiles (IRBMs) in the midcourse phase of flight and shorter range missiles in the terminal phase of flight. Aegis BMD also provides a Long Range Surveillance and Track (LRS&T) capability to the BMDS. Upgrades to both the Aegis BMD Weapon System and the SM-3 missile configuration enable Aegis BMD to provide effective, supportable defensive capability against longer range, more sophisticated threats and an enduring Aegis Ashore defensive capability.

Proving Missile Defense:
- Working with the Services' Operational Test Agencies (OTA), with the support of the Director of Operational Test and Evaluation (DOT&E), Missile Defense Agency (MDA) has developed a test program to improve confidence in missile defense capabilities under development and ensure the capabilities transferred to the warfighter are operationally effective, suitable, and survivable.
- As part of the Agency's rigorous test program, System Pre-Flight predictions provide confidence in test execution by predicting element performance and exercising element interfaces. System Post-Flight Reconstruction replicates the Ballistic Missile Defense System configuration and actual environmental conditions and target dynamics observed in flight to anchor modeling and simulation results.
- The Integrated Master Test Plan (IMTP) is event-oriented and extends until the collection of all identified data is completed to ensure adequate test investments.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Aegis Ballistic Missile Defense (BMD) Testing	55.160	-	-
Articles:	-	-	-
Description: See Description below.			
FY 2014 Accomplishments: - Continued to conduct Aegis BMD-specific analysis during pre and post-mission analysis phases.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MT09 / *Aegis BMD Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Began test planning for FY 2015 Aegis flight test missions: prepared target, developed models and simulations, and readied the range for test. - Continued to conduct Post Flight Analysis for test conducted in FY 2014 Aegis flight test missions. - Prepared for and conducted Ballistic Missile Defense System (BMDS) Flight and Ground Test events as reflected in the Integrated Master Test Plan (IMTP) and the Exhibit R-4 schedule. - Participated in BMD special technology experiments. ***FY 2015 Plans:*** Per FY 2015 appropriations bill, all Test funding moved to PE 0604878C. ***FY 2016 Plans:*** Per FY 2015 appropriations bill, all Test funding moved to PE 0604878C.			
Title: BMDS Level Testing	34.161	-	-
Articles:	-	-	-
Description: See Description below. ***FY 2014 Accomplishments:*** - Prepared for and conducted BMDS Flight and Ground Test events as reflected in the IMTP and the Exhibit R-4 schedule. - Exercised of Phase II capability of the Phased Adaptive Approach. ***FY 2015 Plans:*** Per FY 2015 appropriations bill, all Test funding moved to PE 0604878C. ***FY 2016 Plans:*** Per FY 2015 appropriations bill, all Test funding moved to PE 0604878C.			
Title: Modeling & Simulation Hardware-In-the-Loop (HWIL) Framework, Simulations, Models	15.679	-	-
Articles:	-	-	-
Description: See Description below. ***FY 2014 Accomplishments:*** - Provided support for scheduled Integrated Master Test Plan (IMTP) events Global Lightning 14, Terminal Fury 14, Vigilant Shield 14, Global Defender (GDEx06 Part 1), FTG-06b Countdown Exercise, FTG-06b HWIL System Pre-Mission Test (SPMT), GTI-04e Part 1a, and GTI-04e Part 2. - Delivered the Objective Simulation Framework (OSF) Version 2.0 Version 1.0 to begin the transition of Hardware-in-the-loop (HWIL) capabilities. - Integrated, tested, functionally qualified, and delivered end-to-end BMDS simulations supporting various uses.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MT09 / *Aegis BMD Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Developed and established Hardware-in-the-loop (HWIL) M&S Integration Test Cases for Ground and Flight Tests (Pre-Post Mission). - Developed and presented M&S objectives, event requirements, accreditation status and strategic VV&A plans as part of MDA BMDS Integrated Master Test Plan (IMTP) development. - Provided engineering support for planning, execution, and analysis of the test events listed in the Integrated Master Test Plan (IMTP) - Participated in major test reviews. - Utilized models and simulations (M&S) for pre-test assessment and post-test review. FY 2014 decrease is due to initial consolidation of Digital and HWIL frameworks as part of OSF implementation. ***FY 2015 Plans:*** No funding requested due to completion of consolidation of Digital and HWIL frameworks as part of OSF implementation. Per FY 2015 appropriations bill, all Test funding moved to PE 0604878C. ***FY 2016 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	105.000	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0604881C: *AEGIS SM-3 Block IIA Co-Development*	297.169	263.695	172.645	-	172.645	66.828	-	-	-	-	800.337

Remarks

D. Acquisition Strategy

The Aegis Ballistic Missile Defense (BMD) element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall Ballistic Missile Defense System (BMDS) capability. Competition will be maximized for procurement of any products or services in FY 2014, as appropriate.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MT09 / *Aegis BMD Test*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense (BMD) Testing - MT09 -	MIPR	NSWC : DAHLGREN, VA	8.254	8.039		-		-		-		-	-	16.293	-
Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 201112202597076	MIPR	PMRF Barking Sands : Kauai, HI	0.000	1.366		-		-		-		-	-	1.366	-
Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 201112202597078	MIPR	NAWC/ PM PT : MUGU, CA	0.000	0.700		-		-		-		-	-	0.700	-
Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 201112202630564	MIPR	JHU/APL/ MD : COLUMBIA, MD	16.750	13.953		-		-		-		-	-	30.703	-
Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 201112202630567	MIPR	Aegis BMD : VA	1.591	2.562		-		-		-		-	-	4.153	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MT09 / *Aegis BMD Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 201112202630569	SS/CPIF	Lockheed Martin : Moorestown, NJ	0.000	10.565		-		-		-		-	-	10.565	-
Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 20111220263057	MIPR	SPAWAR : San Diego, CA	1.800	5.027		-		-		-		-	-	6.827	-
Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 20111220266947	MIPR	NSWC/PHD PT. : HUENEME, CA	6.900	6.679		-		-		-		-	-	13.579	-
Aegis Ballistic Missile Defense (BMD) Testing - MT09 - NAVSEA	MIPR	NAVSEA : VA	0.480	1.775		-		-		-		-	-	2.255	-
Aegis Ballistic Missile Defense (BMD) Testing - MT09- Corona	MIPR	NSWC Corona : CA	4.105	3.900		-		-		-		-	-	8.005	-
Aegis Ballistic Missile Defense (BMD) Testing - MT09- Various	Various	Various : HI, VA, CA, MA	2.106	0.594		-		-		-		-	-	2.700	-
BMDS Level Testing - MT09	MIPR	NSWC PHD PT. : HUENEME, CA	11.764	3.048		-		-		-		-	-	14.812	-
BMDS Level Testing - MT09 - 201112202535339	MIPR	JHU/APL/MD : COLUMBIA, MD	11.455	3.305		-		-		-		-	-	14.760	-
BMDS Level Testing - MT09 - 20111220253534	MIPR	NAVSEA : VA	0.625	-		-		-		-		-	-	0.625	-
BMDS Level Testing - MT09 - 201112202535342	MIPR	SPAWAR SAN DIEGO : CA	8.549	1.120		-		-		-		-	-	9.669	-
BMDS Level Testing - MT09 - 201112202535344	MIPR	CORONA : CA	5.435	2.495		-		-		-		-	-	7.930	-
BMDS Level Testing - MT09 - 201112202535347	MIPR	LOCKHEED MARTIN : MOORESTOWN NJ	9.865	1.550		-		-		-		-	-	11.415	-
BMDS Level Testing - MT09 - 201112202535348	MIPR	MDA : VA	6.187	5.403		-		-		-		-	-	11.590	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MT09 / *Aegis BMD Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Level Testing - MT09 - NSWC DD	MIPR	NSWC DD : Dahlgren, VA	4.595	1.254		-		-		-		-	-	5.849	-
BMDS Level Testing - MT09 - PM PT	MIPR	NAWC/ PM PT : MUGU, CA	5.750	4.575		-		-		-		-	-	10.325	-
BMDS Level Testing - MT09 - PMRF	MIPR	PMRF Barking Sands : Hawaii	10.932	6.547		-		-		-		-	-	17.479	-
BMDS Level Testing - MT09 - Pearl Harbor	MIPR	Commander Pacific Fleet : Pearl Harbor, HI	6.150	1.209		-		-		-		-	-	7.359	-
BMDS Level Testing - MT09 - Target Hardware	MIPR	MDA : VA	15.110	-		-		-		-		-	-	15.110	-
BMDS Level Testing - NAWC/AD	MIPR	NAWC/AD : Pax River, MD	0.000	2.253		-		-		-		-	-	2.253	-
BMDS Level Testing - Various	MIPR	Various : VA, MD, CA, DC, MA, AL, TN, NM	7.188	1.402		-		-		-		-	-	8.590	-
Modeling & Simulation Hardware-In-the-Loop (HWIL) Framework, Simulations, Models - Test Analysis Support	MIPR	Various : AL, CO, VA	2.013	4.232		-		-		-		-	-	6.245	-
Modeling & Simulation Hardware-In-the-Loop (HWIL) Framework, Simulations, Models - Test Engineering Support	MIPR	MDA : Various	7.724	6.149		-		-		-		-	-	13.873	-
Modeling & Simulation Hardware-In-the-Loop (HWIL) Framework, Simulations, Models - Testing - Industry	C/CPAF	Boeing : AL	11.369	5.298		-		-		-		-	-	16.667	-
		Subtotal	166.697	105.000		-		-		-		-	-	271.697	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MT09 / *Aegis BMD Test*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

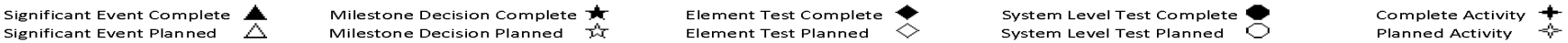
N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	166.697	105.000		-		-		-		-	-	271.697	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MT09 / *Aegis BMD Test*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Warfighter TP 07b (BMDS Ground Test)																					✧	✧						
Warfighter TP 06 (BMDS Ground Test)											✧																	
Warfighter TP 07a (BMDS Ground Test)															✧													
FTO-03 E1 (Aegis Multiple Engagement Flight Test)																			△									
FTX-20 (Aegis Simulated Intercept Flight Test)					△																							
FTM-24 (Aegis Intercept Flight Test)							△																					
FTO-02 E1 (Aegis Ashore Intercept Flight Test)							△																					
FTM-26 (Aegis Intercept Flight Test)					△																							
FTM-25 (Aegis Intercept Flight Test)					△																							
FTX-23 (AEGIS 5.1 Target Only Flight Test)																								△				
FTO-02 E2 (AA/Aegis/THAAD/Patriot Multiple Engagement Flight Test)								△																				
FTM-30 (AEGIS 5.1 Intercept Flight Test)																												△
GTD-04E					△																							
FTX-19 (Aegis Simulated Intercept Flight Test)						△																						

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MT09 / *Aegis BMD Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Warfighter TP 07b (BMDS Ground Test)	1	2019	2	2019
Warfighter TP 06 (BMDS Ground Test)	3	2016	3	2016
Warfighter TP 07a (BMDS Ground Test)	3	2017	3	2017
FTO-03 E1 (Aegis Multiple Engagement Flight Test)	3	2018	3	2018
FTX-20 (Aegis Simulated Intercept Flight Test)	1	2015	1	2015
FTM-24 (Aegis Intercept Flight Test)	3	2015	3	2015
FTO-02 E1 (Aegis Ashore Intercept Flight Test)	3	2015	3	2015
FTM-26 (Aegis Intercept Flight Test)	1	2015	1	2015
FTM-25 (Aegis Intercept Flight Test)	1	2015	1	2015
FTX-23 (AEGIS 5.1 Target Only Flight Test)	4	2019	4	2019
FTO-02 E2 (AA/Aegis/THAAD/Patriot Multiple Engagement Flight Test)	4	2015	4	2015
FTM-30 (AEGIS 5.1 Intercept Flight Test)	4	2020	4	2020
GTD-04E	1	2015	1	2015
FTX-19 (Aegis Simulated Intercept Flight Test)	2	2015	2	2015

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MX09 / *Aegis BMD Development Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MX09: *Aegis BMD Development Support*	16.521	20.276	28.758	73.118	-	73.118	85.642	68.805	76.361	58.207	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In February 2014, Aegis Ballistic Missile Defense (BMD) underwent a program reorganization in order to gain efficiencies and improve program affordability. As the primary budget exhibit for the program, 0603892C is restructured in a method that better aligns with agency organization by providing more transparency and allowing for more efficient funding justification. FY 2016 budget exhibits are provided in the more efficient reorganization structure.

Increase from FY 2015 is attributed to development efforts progressing through the life-cycle of the Aegis BMD program from development to developmental support.

A. Mission Description and Budget Item Justification

Aegis Ballistic Missile Defense (BMD), in accordance with negotiated agreements between the United States Navy and the Missile Defense Agency (MDA) has identified and segregated funding for Developmental Support of Aegis BMD specific elements resident aboard Aegis capable Navy ships. Computer Program Support, consists of, but is not limited to, reviews of Technical Observation Reports (TORs) that are generated by ship crews during exercises or deployments, determination of root causes and preparation of Computer Program Change Request (CPCR) to correct TORs, updates to the in-service computer program to apply, test and certify multiple CPCRs, and tests installation of Aegis Weapon System (AN/SPY-radar/Fire Control Section (FCS)) alignment updates as required. Aegis BMD provides support to Annual Integration Events (AIEs) to ensure any updated Aegis Combat System (ACS) computer programs do not degrade BMD equipped ships and provides distance and technical support for BMD equipped ships. Additionally, Aegis BMD continues to analyze the Ballistic Missile Defense System (BMDS) elements to ensure that any and all interoperability impacts are captured and resolved to eliminate any impact to the warfighter. Aegis continues to work with Program Executive Office (PEO) Integrated Warfare Systems (IWS) and PEO Command, Control, Communications, Computers, & Intelligence (C4I), Aegis' Navy counterparts, in order to maintain common C4I top level requirements for all Aegis BMD Baselines.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Aegis Ballistic Missile Defense Operations and Support	20.276	28.758	-
Articles:	-	-	-
Description: See Description below.			
FY 2014 Accomplishments: - Maintained and operated the facility at PMRF and ensure Aegis Ashore mission. - Provided Sustainment of BMD 3.6 Computer Program to include the engineering and development of all 3.6 baseline update software and associated safety, system engineering, configuration management, performance verification, supporting documentation, labs, information assurance, certification, and critical emergent code corrections based on test data.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MX09 / *Aegis BMD Development Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provided Shipboard Sustainment of BMD specific equipment to include In-service sustainment of BMD Baseline Aegis Combat System (ACS) and Vertical Launch System Global Positioning System (VLS GPS) Interface (VGI) hardware configuration management and integrated logistics support certifications submission and approval, Commercial Off-The-Shelf management Technical documentation updates. - Provided Sustainment of Standard Missile-3 (SM-3) to include Recertification, Transportation, Integrated Logistics Support, VLS Canister Support, Quality and Reliability, Minor repairs, and Surveillance. - Provided In-service Engineering support to Aegis BMD. - Provided capability and maintenance training for Aegis BMD ship crews. The FY 2014 increase is due to the increase in the number of operational SM-3s and BMD capable ships. ***FY 2015 Plans:*** - Provide Sustainment of BMD 3.6 Computer Program to include the engineering and development of all 3.6 baseline update software and associated safety, system engineering, configuration management, performance verification, supporting documentation, labs, information assurance, certification, and critical emergent code corrections based on test data. - Provide Shipboard Sustainment of BMD specific equipment to include In-service sustainment of BMD Baseline Aegis Combat System (ACS) and Vertical Launch System Global Positioning System (VLS GPS) Interface (VGI) hardware configuration management and integrated logistics support certifications submission and approval, Commercial Off-The-Shelf management Technical documentation updates. - Provide Sustainment of Standard Missile-3 (SM-3) to include Recertification, Transportation, Integrated Logistics Support, VLS Canister Support, Quality and Reliability, Minor repairs, and Surveillance. - Provide In-service Engineering support to Aegis BMD. - Provide capability and maintenance training for Aegis BMD ship crews. Increase in request from FY2014 to FY2015 due to the increase in sustainment support for additional shipsets. ***FY 2016 Plans:*** Begining in FY 2016 funding for the Sustainment of Aegis Ashore, Computer Program, Shipboard BMD Specific Equipment, and SM-3 Block IB Sustainment efforts are transferred to Operations and Maintenance. Computer Program Development Support efforts transferred to Project MX09, Aegis Ballistic Weapon System Support.			
Title: Fleet Integration	-	-	6.132
Articles:	-	-	-
Description: Provide Fleet operations and mission support to enable the conduct of sustained BMD operations, advocate war fighter requirements and fleet feedback in baseline development and capability upgrades to Aegis BMD weapon system. To			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MX09 / *Aegis BMD Development Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
provide analysis and Mission Planning support for Geographic Combatant Commanders for operational application of Maritime BMD capabilities. Provide BMD Capabilities Analysis and Exercise Support for Aegis BMD baselines under development or currently employed in the Operational Fleet. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** Beginning in FY 2016, transferred from Project MD09, Fleet Integration - Provide In-service Engineering support to Aegis Ballistic Missile Defense (BMD) ships and resolve any identified issues. - Provide leadership, engineering, and technical support to conduct Aegis BMD Combat System Readiness to resolve any identified issues. - Respond to Fleet training, analysis, and operational integration of maritime capabilities as part of Aegis BMD installations, BMD operations and BMD events and resolve any interoperability issues. - Provide reach back analytical support to the Combatant Commanders (COCOMs) for real world operations and resolve any readiness issues Aegis BMD ships might encounter. - Provide maintenance and updates for Force on Force Modeling and Simulation to ensure accurate characterization of capability is provided to the warfighter community. - Prepare and coordinate training documents for new BMD baselines to ensure that operators are provided current BMD baseline material for training. - Provide BMD specific training to BMD ships, COCOM, and Fleet Staffs to ensure full interoperability between Aegis BMD ships and Fleet staffs.			
Title: Aegis Ballistic Weapon System Support	-	-	48.328
Articles:	-	-	-
Description: Command, Control, Computer, Communications and Intelligence (C4I) systems engineering for the development and fielding of Aegis Ballistic Missile Defense (BMD) communications systems which includes Aegis BMD and BMDS interoperability, integration of space and joint sensors systems with Aegis BMD and Aegis BMD baseline certifications; Integrated Air and Missile Defense (IAMD) planning; and maintaining Top Level Requirements (TLR) between the Missile Defense Agency and the Navy. Aegis BMD Mission and Quality Assurance which provides for the assessment of flight test readiness and ensure root cause of failures and nonconformance is adequate and corrective actions are sufficient to prevent repeat failures. ***FY 2014 Accomplishments:***			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MX09 / *Aegis BMD Development Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** Increase from FY 2015 to FY 2016 attributed to: - New accomplishment developed to align to Aegis BMD FY 2014 program reorganization - Beginning in FY 2016, funding for Computer Program Development Support efforts previously transferred from Project MX09, Aegis Ballistic Missile Defense Operations and Support - Beginning in FY 2016, funding for Developmental Support Engineering efforts transferred from Project MD09, Aegis Ballistic Weapon System Development (BMD 4.x), Aegis Ballistic Missile Defense (BMD) 5.0 Development, and Aegis Ballistic Weapon System Development (BMD 5.x) - Conduct Command, Control, Computer, Communications and Intelligence (C4I) systems engineering for the development of Aegis Ballistic Missile Defense (BMD) requirements, analysis of development efforts by other Ballistic Missile Defense System (BMDS) element for potential Aegis BMD interoperability issues, and resolve any identified interoperability problems - Implement C4I systems for operational deployment by Aegis BMD ships and elements - Maintain C4I Top Level Requirements (TLRs) for development of systems supporting command and control, and communications equipment between Navy and MDA Program Executive Offices - Certify Deterministic Routing for Aegis Ashore and Aegis BMD ships, including development of Concepts of Operation (ConOps), and Tactics for use of this capability, and deployment of operational assets - Conduct Navy and Joint Link certifications required for BMD Baseline certifications for operational deployment - Certify overhead satellite data sources to meet Aegis BMD fire control capabilities in support of dual path requirement in Aegis BMD 5.1 - Develop and implement collaborative Integrated Air and Missile Defense (IAMD) planning tools for ensuring effective Strategic Homeland, Regional, and Theater Aegis BMD employment - Implement and manage C4I aspects of the BMDS Test Site (BTS) San Diego upgrade plan to maintain fleet representative C4I configurations to support testing, troubleshooting, and Fleet operations - Conduct Mission and Quality Assurance (QA) reviews for failures and non-conformance for the SM-3 Block IIA - Support all phases of computer program baseline functionality by providing engineering development testing, certification testing, and special testing - Perform system troubleshooting and maintenance as required for Aegis BMD related systems - Provide preventative and corrective maintenance services and upgrades in support of Aegis BMD systems and associated support systems - Support the fielded Aegis BMD computer programs baselines approved as an Operational Capability Baseline			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MX09 / *Aegis BMD Development Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provide engineering support to Operationally Capable Baseline ships that participate in BMD test events - Conduct test event analysis to investigate Technical Observation Reports (TORs) and BMD Deficiency Reports (BDRs) in order to provide an engineering solution for impacts to Aegis BMD capabilities - Develop Computer Program Change Requests (CPCRs) and determine appropriate baseline for insertion - Monitor and address Fleet feedback concerns raised during waterfront technical exchanges and ship visits - Update threat adaptation data to keep pace with emergent threats - Provide support for contingency operations of National interest			
Title: Infrastructure Upgrades	-	-	18.658
Articles:	-	-	-
Description: -Special Access Program (SAP) infrastructure labor to include Contractor Program Security Officers, Information Assurance Officers, and System Administrators that will oversee the data transfer efforts. -Sustainment of core information technology data and unified communications services to accomplish research and development activities. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** Increase from FY 2015 to FY 2016 is attributed to new security efforts as directed by the Security Classification Guide (SCG) - Transfer necessary data between collateral and SAP environments to comply with Federal and DoD mandates (Cybersecurity and Joint Information Environment) - Configuration and data management to ensure Modeling and Simulation (M&S) and software builds are identical in collateral and SAP environment			
Accomplishments/Planned Programs Subtotals	20.276	28.758	73.118

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0604880C: *Land Based SM-3 (LBSM3)*	124.568	123.444	34.970	-	34.970	40.787	30.486	20.193	22.079	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MX09 / *Aegis BMD Development Support*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0604881C: *AEGIS SM-3 Block IIA Co-Development*	297.169	263.695	172.645	-	172.645	66.828	-	-	-	-	800.337

Remarks

D. Acquisition Strategy

The Aegis Ballistic Missile Defense (BMD) element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall Ballistic Missile Defense System (BMDS) capability. After considering all the technical and management aspects of the program and to meet the requirements presented by an evolving ballistic missile threat, the Aegis BMD program awarded sole source contracts to Raytheon and Lockheed Martin to continue development of the Standard Missile-3 (SM-3) missile and the Aegis BMD Weapon System, respectively.

Competition will be maximized for purchase of any products or services in FY 2016, as appropriate.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MX09 / *Aegis BMD Development Support*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense Operations and Support - ABMD O&S - MX09	MIPR	JHU/APL : MD	5.031	0.547		28.758	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense Operations and Support - MX09 - Corona	MIPR	NSWC Corona : Corona, CA	0.706	0.259		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense Operations and Support - MX09 - Crane	MIPR	NSWC Crane : Crane, IN	0.000	0.074		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense Operations and Support - MX09 - D	MIPR	MDA : Various	0.000	0.508		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense Operations and Support - MX09 - DD	MIPR	NSWC/DD : VA	5.100	5.275		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense Operations and Support - MX09 - Indian Head	MIPR	NSWC Indian Head : Indian Head, MD	0.000	0.090		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense Operations and Support - MX09 - LM	C/CPFF	Lockheed Martin : Moorestown, NJ	1.754	2.003		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense Operations and Support - MX09 - NAVSEA	MIPR	NAVSEA : Wash Navy Yard	0.862	1.151		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense Operations and Support - MX09 - NSWC CD	MIPR	NSWC Carderock : MD	1.171	0.127		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense Operations and Support - MX09 - PEO C4I	MIPR	SPAWAR : San Diego, CA	0.000	1.124		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MX09 / *Aegis BMD Development Support*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense Operations and Support - MX09 - PHD	MIPR	NSWC PHD : Port Hueneme, CA	0.927	2.511		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense Operations and Support - MX09 - PMRF	MIPR	PMRF : Hawaii	0.175	1.800		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense Operations and Support - MX09 - Raytheon	SS/CPAF	Raytheon : Tucson, AZ	0.000	4.237		-		-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense Operations and Support - MX09 - Tech Rep	MIPR	Tech Rep : Moorestown, NJ	0.795	0.570		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	16.521	20.276		28.758		-		-		-	-	-	-

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Fleet Integration - MX09 - Fleet PHD	MIPR	NSWC PHD : Port Hueneme, CA	0.000	-		-		0.432	Nov 2015	-		0.432	Continuing	Continuing	Continuing
Fleet Integration - MX09 - Fleet APL	C/CPAF	JHU/APL/MD : Columbia, MD	0.000	-		-		1.342	Nov 2015	-		1.342	Continuing	Continuing	Continuing
Fleet Integration - MX09 - Fleet DD	MIPR	NSWC DD : Dahlgren, VA	0.000	-		-		2.913	Nov 2015	-		2.913	Continuing	Continuing	Continuing
Fleet Integration - MX09 - Fleet SMDC	MIPR	SMDC/ARSTRST : Huntsville, AL	0.000	-		-		0.369	Nov 2015	-		0.369	Continuing	Continuing	Continuing
Fleet Integration - MX09 - Fleet CSCS	MIPR	CSCS : Dahlgren, VA	0.000	-		-		1.076	Nov 2015	-		1.076	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MX09 / *Aegis BMD Development Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Weapon System Support - MX09 - AW APL	SS/CPFF	JHU/APL : Columbia, MD	0.000	-		-		0.900	Nov 2015	-		0.900	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW DD	MIPR	NSWC DD : Dahlgren, VA	0.000	-		-		5.000	Nov 2015	-		5.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW LM	C/CPFF	Lockheed Martin : Moorestown, NJ	0.000	-		-		12.000	Nov 2015	-		12.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW NAVSEA	MIPR	NAVSEA : Washington, DC	0.000	-		-		17.038	Nov 2015	-		17.038	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW SSCPAC	MIPR	SPAWAR : San Diego, CA	0.000	-		-		2.390	Nov 2015	-		2.390	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW TECH REP	MIPR	Tech Rep : Moorestown, NJ	0.000	-		-		0.600	Nov 2015	-		0.600	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW Wallops	MIPR	SCSC : Wallops Island, VA	0.000	-		-		2.000	Nov 2015	-		2.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - D	MIPR	MDA : Arlington, VA	0.000	-		-		1.037	Nov 2015	-		1.037	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - TD Corona	MIPR	NSWC Corona : Corona, CA	0.000	-		-		0.240	Nov 2015	-		0.240	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - TD JHU/APL	SS/CPFF	JHU/APL : Columbia, MD	0.000	-		-		0.750	Nov 2015	-		0.750	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - TD MITRE	MIPR	CECOM - MITRE : Dahlgren, VA	0.000	-		-		0.900	Nov 2015	-		0.900	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MX09 / *Aegis BMD Development Support*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Weapon System Support - MX09 - TD NSWC DD	MIPR	NSWC DD : Dahlgren, VA	0.000	-		-		0.820	Nov 2015	-		0.820	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - TD PHD	MIPR	NSWC PHD : Port Hueneme, CA	0.000	-		-		0.250	Nov 2015	-		0.250	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - TD SSCPAC	MIPR	SPAWAR : San Diego, CA	0.000	-		-		3.903	Nov 2015	-		3.903	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW PHD	MIPR	NSWC PHD : Port Hueneme, CA	0.000	-		-		0.500	Nov 2015	-		0.500	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09 - ICT Funding	MIPR	Various : Various	0.000	-		-		11.832	Oct 2015	-		11.832	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09 - S APL	SS/CPAF	JHU/APL : Laurel, MD	0.000	-		-		0.400	Nov 2015	-		0.400	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09 - S Corona	MIPR	NSWC Corona : Corona, CA	0.000	-		-		0.630	Nov 2015	-		0.630	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09 - S LM	C/CPAF	Lockheed Martin : Moorestown, NJ	0.000	-		-		1.296	Nov 2015	-		1.296	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09 - S MIT	C/CPAF	MIT : Lexington, MA	0.000	-		-		0.120	Nov 2015	-		0.120	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09 - S RMS	C/CPAF	Raytheon : Tucson, AZ	0.000	-		-		3.720	Nov 2015	-		3.720	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09- S DD	MIPR	NSWC DD : Dahlgren, VA	0.000	-		-		0.660	Nov 2015	-		0.660	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		73.118		-		73.118	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MX09 / *Aegis BMD Development Support*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	16.521	20.276		28.758		73.118		-		73.118	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MX09 / *Aegis BMD Development Support*

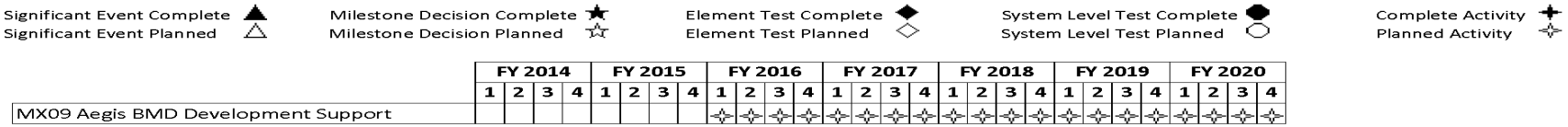


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MX09 / *Aegis BMD Development Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MX09 Aegis BMD Development Support	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / *AEGIS BMD*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	88.065	48.568	53.784	37.094	-	37.094	36.060	38.322	30.089	31.395	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015, Program Wide Support reflects a proportional change as a result of increases in BMD Aegis and in FY 2016, reflects a proportional change as a result of decreases in BMD Aegis.
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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	48.568	53.784	37.094
Articles:	-	-	-
Description: See Description below.			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans: See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	48.568	53.784	37.094

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**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

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	C/CPAF	Various : Multi: AL, CA, CO, VA	0.000	0.108		1.614		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations User Services	C/CPAF	Various/Multi: AL, CA, CO, : NM, VA, various	0.000	-		0.623		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries	Allot	MDA : Multi: AK, AL, CO, CA, VA	61.579	34.211		41.567	Nov 2014	33.229	Nov 2015	-		33.229	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services	MIPR	Various : Multi: AK/ AL/CA/CO/HI/MD/ VA/NJ/NY/OCONUS	10.482	7.535		6.100	Mar 2015	-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, CA, CO, VA	14.947	6.714		3.880		3.621	Nov 2015	-		3.621	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support, International, and materiel and Readiness	MIPR	Naval Surface Warfare Center : AL, VA	0.000	-		-		0.244	Mar 2016	-		0.244	Continuing	Continuing	Continuing
Program Wide Support - FFRDC/UARC	MIPR	Various : Multi: AL, CA, CO, VA	1.057	-		-		-		-		-	1.615	2.672	-
		Subtotal	88.065	48.568		53.784		37.094		-		37.094	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	88.065	48.568		53.784		37.094		-		37.094	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD40 / *Program-Wide Support*

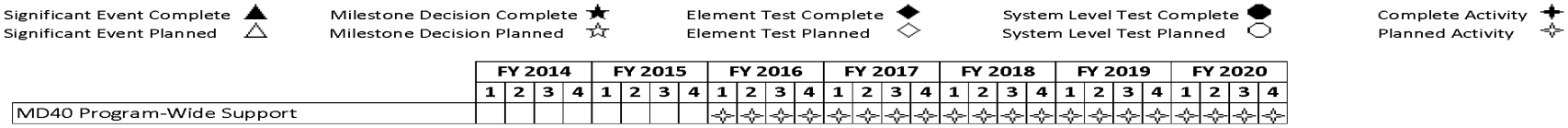


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603892C / *AEGIS BMD*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603893C / *Space Tracking and Surveillance System*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	667.333	41.618	31.331	31.632	-	31.632	17.917	23.937	28.789	30.344	Continuing	Continuing
MD12: *Space Tracking and Surveillance System (STSS)*	663.816	39.529	29.517	30.241	-	30.241	17.070	22.711	27.255	28.700	Continuing	Continuing
MD40: *Program-Wide Support*	3.517	2.089	1.814	1.391	-	1.391	0.847	1.226	1.534	1.644	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

N/A

A. Mission Description and Budget Item Justification

With the successful launch of two Space Tracking and Surveillance System (STSS) satellites in 2009, the Agency has on-orbit capability to validate remote sensor and fire control integration to inform the design and operation of future MDA space-layer capabilities, to characterize contribution of space data into the Ballistic Missile Defense System (BMDS) architecture, and to provide sensor measurements and background data supporting trade studies and analyses for future MDA space-layer options in support of sensor development and discrimination improvements for Homeland Defense. Lessons learned from the two STSS satellites are guiding decisions on the development of a fiscally sustainable, continuously available, future operational constellation and ground communications/processing system.

STSS is providing risk reduction for future MDA space-layer options models, algorithms, sensors and spacecraft development by providing complex target signatures, interface definition, communications architectures, and performance across threat object acquisition, tracking, and discrimination. STSS also informs the BMDS Concept of Operations, timelines and performance requirements for remote space sensor cuing for ballistic missile engagements, expanding battle space for weapon systems such as Aegis BMD. The goal for STSS satellites is to demonstrate spacebased capabilities including persistent tracking and integrated BMDS discrimination improvements for Homeland Defense.

Early missile tracking capability from space provides a cost effective and operationally suitable means of providing global persistent surveillance and engagement, directly addressing the number one missile defense priority need for Combatant Commanders. STSS will emphasize continued research and development to address the more sophisticated threats the Agency expects in the far term by demonstrating technologies that support development and capability delivery of future MDA space-layer options. The STSS satellites demonstrate the ability of a space sensor to provide high precision, real time tracking of missiles and midcourse objects, thus enabling simultaneous regional, theater, and strategic missile defense systems to be cued to track well beyond their organic detection capability. Data from on-going STSS testing has validated the ability to track cold, midcourse objects from space and close the fire control loop with BMDS interceptors. During several MDA flight tests, STSS has provided data in real-time that met the Aegis Missile Defense Systems' Quality of Service data requirements for Remote Engagement Authorized. Finally, STSS provides the means to demonstrate the benefit of future MDA space-layer capabilities which, when combined with radars, will provide robustness against current and advanced countermeasures.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0603893C *I Space Tracking and Surveillance System*

The Missile Defense Agency developed, and is using two STSS satellites to demonstrate key functions of space sensors to reduce risk for future MDA space-layer options. STSS testing is funded as part of a capabilities development program and reflected in the Program Element submission. The wealth of data and lessons learned from the STSS satellites efforts continue to provide insights as MDA pursues longer term space sensor needs.

Near Field Infrared Experiment (NFIRE)

The NFIRE technology project was designed to collect near field phenomenology data for use in developing plume to hard body handover algorithms for boost phase interceptor programs. The NFIRE satellite carries a Laser Communication Terminal, which has been and continues to be used to conduct communication experiments with the German Terra SAR-X satellite. These experiments test low earth orbit satellite-to-ground and satellite-to-satellite capabilities of the terminal for potential incorporation into the Ballistic Missile Defense System. Data products are utilized by multiple programs to improve missile engagement performance. The NFIRE program has an option to execute satellite End-of-Life plans by the end of FY 2015 and initiate safe satellite de-orbit.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	40.347	31.346	33.697	-	33.697
Current President's Budget	41.618	31.331	31.632	-	31.632
Total Adjustments	1.271	-0.015	-2.065	-	-2.065
• Congressional General Reductions	-	-0.015			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.905	-			
• SBIR/STTR Transfer	-0.634	-			
• Other Adjustment	-	-	-2.065	-	-2.065

Change Summary Explanation

FY 2015 change reflects Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

The FY 2016 reduction of $2.065 reflects a realignment of Department of Defense priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603893C / *Space Tracking and Surveillance System*	Project (Number/Name) MD12 / *Space Tracking and Surveillance System (STSS)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD12: *Space Tracking and Surveillance System (STSS)*	663.816	39.529	29.517	30.241	-	30.241	17.070	22.711	27.255	28.700	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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.

In FY 2017 - FY 2020, the STSS PE was decreased by $30.903 million to realign funds in support of the Spacebased Kill Assessment to PE 0603895C MD33.

A. Mission Description and Budget Item Justification

Space Tracking and Surveillance System (STSS) Satellites

The goal for STSS satellites is to demonstrate spacebased capabilities including persistent tracking and integrated Ballistic Missile Defense System (BMDS) discrimination improvements for Homeland Defense. The STSS satellites provide two on-orbit assets with visible and infrared sensors in low earth orbit for testing with other BMDS elements. These two satellites provide valuable risk reduction for threat object acquisition, tracking, and discrimination functionality to include stereo data fusion, cueing radars over the horizon and over-the-horizon fire control. The program is demonstrating the functions and interfaces required for space data delivery to the BMDS, validating the data quality necessary for interceptors to launch and/or engage on STSS sensor data. The two satellites are operated from the ground station processing center at the Missile Defense Space Center (MDSC) by a government and contractor team. The STSS satellites demonstrate MDA space-layer capabilities and reduce risk for future systems by viewing high-value Targets of Opportunity and participating in BMDS flight tests in FY 2015 and beyond.

The on-orbit sensors collect invaluable background, scene and target signatures to support future MDA space-layer and other weapon sensor development trade studies. STSS activities provide information for integration of space-based missile tracking (midcourse phase); remote sensor and weapons cueing via the Command and Control, Battle Management and Communications (C2BMC); features and discrimination; and hit/impact point assessments. STSS enables early capability assessment to address the Warfighter's need for highly available early missile tracking from space, providing an operationally suitable means of global persistent surveillance and engagement. Capabilities being assessed for future MDA space-layer capabilities include detecting and acquiring ballistic missiles; tracking ballistic missiles and their deployed objects; performing autonomous acquisition-to-track handover within a satellite; performing tracking handover to a satellite from a ground cue; performing uplink and downlink of mission, health, and status data both directly and via crosslink between two satellites; reporting ballistic missile and intercept event to close the fire-control loop; filtering reports to C2BMC; and providing near real-time object data to external users.

Near Field Infrared Experiment (NFIRE)

The NFIRE satellite is operated from the Missile Defense Space Center (MDSC) and is capable of collecting environmental background characterization (regional/ seasonal atmospheric radiance variability, day-night, land-sea clutter, clouds, auroral measurements, etc.) for future Missile Defense Agency (MDA) space-layer

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

sensors, hyper-temporal short wave infrared data to support research and development of early launch detection and tracking capabilities, and earth limb radiance measurements to support improvement of environmental models. The NFIRE satellite also carries a Laser Communication Terminal to conduct communication experiments with the German Terra SAR-X satellite. Communications experiments test low earth orbit satellite-to-ground and satellite-to-satellite laser communications capabilities for potential incorporation into the Ballistic Missile Defense Systems (BMDS). The NFIRE program has an option to execute satellite End-of-Life plans by the end of FY 2015 and initiate safe satellite de-orbit.

Lessons learned and data gathered from the STSS demonstration satellites program and the NFIRE program provide valuable information for future MDA space-layer modeling and simulation activities in assessing the capability of a low earth orbit constellation to complement sensor coverage and missile detection and tracking capabilities provided by Overhead Persistent Infrared sensors.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Demonstration Satellites	35.386	25.513	29.240
Articles:	-	-	-
Description: The Space Tracking and Surveillance System (STSS) demonstration satellites collect and deliver critical space and missile characterization data used to design and inform Ballistic Missile Defense System and space-layer future capabilities.			
FY 2014 Accomplishments: - Demonstrated sufficient track quality from STSS to support GMD Launch on Remote using STSS - Demonstrated sufficient track quality from STSS to support Aegis BMD Engage on Remote using STSS - Operationalized STSS as a contributing Space Situational Awareness sensor - Collected data to support discrimination algorithm development with STSS - Conducted missile tracking experiments as identified in the Ballistic Missile Defense System (BMDS) Level Testing - Testing with the STSS satellites continues the accomplishment of the Space Knowledge Points - Performed satellite functionality testing and calibration as part of the satellite operations			
FY 2015 Plans: - Testing with the STSS satellites continues to demonstrate critical space capabilities: -- Aegis Engage on STSS against lethal object -- Aegis Launch on/Engage on using STSS against multiple targets -- Aegis Launch on/Engage on using STSS against a raid -- Ability to support Hit/Kill assessment from space -- Ability to support Discrimination -- Ability to support Space Situational Awareness mission from space -- Ability to cue Ballistic Missile Defense System (BMDS) sensors from space -- Ability to integrate space into emerging fire control loops - Perform satellite functionality testing and calibration as part of the satellite operations			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conduct missile tracking experiments as identified in the test specific sections, BMDS Level Testing and Element Integration and Testing ***FY 2016 Plans:*** - Testing with the STSS satellites continues to demonstrate critical space capabilities that may include: -- Ability to support BMDS integrated discrimination for Homeland Defense -- Engage on STSS against lethal object -- Launch on/Engage on using STSS against multiple targets -- Launch on/Engage on using STSS against a raid -- Ability to support Hit/Kill assessment from space -- Ability to cue Ballistic Missile Defense System (BMDS) sensors from space -- Ability to integrate space into emerging fire control loops -- Demonstrate precision cue to BMDS sensors - Perform satellite functionality testing and calibration as part of the satellite operations - Conduct missile tracking experiments as identified in the test specific sections, BMDS Level Testing and Element Integration and Testing -- Provide Air Force Space Command Space Situational Awareness support			
Title: BMDS Level Testing	1.944	1.124	1.001
Articles:	-	-	-
Description: Space Tracking and Surveillance System (STSS) demonstration satellites and Near Field Infrared Experiment (NFIRE) satellites participate in the Ballistic Missile Defense System (BMDS) Integrated Master Test Plan (IMTP) events to collect Critical Engagement Conditions (CEC)/Empirical Measurement Events (EME) to verify, validate, and accredit modeling and simulation representations used for assessing system performance and prove the capability of space based sensors contributions to the BMDS mission. ***FY 2014 Accomplishments:*** - Performed risk reduction for future Missile Defense Agency (MDA) space-layer to include Overhead Persistent Infrared (OPIR) Enterprise integration and demonstrations across Overhead Persistent Infrared (OPIR) cuing, Joint Tasking Operations, and data utility - Conducted STSS data collections to support joint OPIR mission utility assessments across Space Situation Awareness, Battle Space Awareness, and Technical Intelligence missions to include integration, analysis, and studies to confirm data sharing capabilities			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Demonstrated STSS providing precision tracking, cues, and discrimination support to future versions of Command and Control, Battle Management and Communications (C2BMC) and BMDS weapon systems (sensors and shooters) to evaluate performance, Concept of Operations, and Tactics, Techniques, and Procedures - STSS satellites participated in the IMTP BMDS flight tests as described in the R4 ***FY 2015 Plans:*** - Risk reduction for future MDA space-layer to include OPIR Enterprise integration and demonstrations across OPIR cuing, Joint Tasking Operations, and data utility - Conduct STSS data collections to support joint OPIR mission utility assessments across Space Situation Awareness, Battle Space Awareness, and Technical Intelligence missions to include integration, analysis, and studies to confirm data sharing capabilities - Demonstrate STSS providing precision tracking, cues, and discrimination support to future versions of C2BMC and BMDS weapon systems (sensors and shooters) to evaluate performance, Concept of Operations, and Tactics, Techniques, and Procedures. - Current STSS participation in the Integrated Master Test Plan is described in the R4 ***FY 2016 Plans:*** - Risk reduction for future Missile Defense Agency (MDA) space-layer to include OPIR Enterprise integration and demonstrations across OPIR cuing, Joint Tasking Operations, and data utility - Conduct Space Tracking and Surveillance System (STSS) demonstration satellites data collections to support joint OPIR mission utility assessments across Space Situation Awareness, Battle Space Awareness, and Technical Intelligence missions to include integration, analysis, and studies to confirm data sharing capabilities - Demonstrate STSS providing precision tracking, cues, and discrimination support to future versions of Command and Control, Battle Management and Communications (C2BMC) and Ballistic Missile Defense System (BMDS) weapon systems (sensors and shooters) to evaluate performance, Concept of Operations, and Tactics, Techniques, and Procedures. - Current STSS participation in the Integrated Master Test Plan: --GMD Homeland Defense Flight Test -- Tracking of advanced threats The reduction of $0.633 million from FY 2015 to FY 2016 is commensurate with the planned participation in BMDS-level flight tests.			
Title: Near Field Infrared Experiment (NFIRE)	2.199	2.880	-
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Description: NFIRE satellite is capable of providing critical space, earth phenomenology and missile characterization data for use in the BMDS. ***FY 2014 Accomplishments:*** -Provided greater than the required 95% operations availability of the NFIRE satellite ***FY 2015 Plans:*** -Provide 95% operations availability of the NFIRE satellite until satellite end-of-life is executed ***FY 2016 Plans:*** -Satellite end-of-life expected in FY 2015			
Accomplishments/Planned Programs Subtotals	39.529	29.517	30.241

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603895C: *Ballistic Missile Defense System Space Programs*	6.412	6.389	23.289	-	23.289	21.433	16.108	11.933	11.952	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	501.170	455.068	513.256	-	513.256	585.727	484.242	442.202	460.945	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

The Space Tracking and Surveillance System (STSS) demonstration satellites program follows the Missile Defense Agency`s (MDA) capability-based acquisition strategy that emphasizes testing, incremental development, and evolutionary acquisition. The STSS effort utilizes a single prime contractor, Northrop Grumman Aerospace Systems (NGAS), formerly known as Northrop Grumman Space Technology (NGST), with the subcontractor Raytheon providing the sensor payload. This contract implements MDA`s capability-based acquisition strategy by using existing satellite hardware as a low risk opportunity, building upon the lessons learned from previous development efforts, and establishing a series of planned enhancements to bring added capability to the Ballistic Missile Defense System (BMDS).

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Demonstration Satellites - Capability Based R&D	SS/CPAF	NGAS : Redondo Beach, CA, Schriever AFB, CO	522.117	28.431		17.416	Oct 2014	16.600	Oct 2015	-		16.600	Continuing	Continuing	Continuing
Demonstration Satellites - STSS Support to Missile Defense Space Center (MDSC)	SS/CPAF	NGIS : Schriever AFB, CO	16.317	1.059		0.942	Oct 2014	3.190	Oct 2015	-		3.190	Continuing	Continuing	Continuing
Demonstration Satellites - Systems Engineering	FFRDC	Aerospace : Los Angeles CA, Schriever AFB CO	50.045	1.538		0.761	Oct 2014	1.340	Oct 2015	-		1.340	Continuing	Continuing	Continuing
Near Field Infrared Experiment (NFIRE) - Prime Contract	SS/CPAF	Orbital Sciences Corporation : AZ	0.654	1.036		1.569	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Near Field Infrared Experiment (NFIRE) - Various	C/Various	Various : Various	0.772	1.163		1.311	Oct 2014	-		-		-	Continuing	Continuing	Continuing
		Subtotal	589.905	33.227		21.999		21.130		-		21.130	-	-	-

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.

FY 2015 Demonstration Satellites - Capability Based R&D amount decreased since PB 2015 due to change in priorities.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Demonstration Satellites - Contract Support Services (CSS)	C/Various	MDA : AL, CO	14.955	1.986		2.616	Oct 2014	3.657	Oct 2015	-		3.657	Continuing	Continuing	Continuing
Demonstration Satellites - IT User Services	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	-		0.601	Oct 2014	-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603893C / *Space Tracking and Surveillance System*	Project (Number/Name) MD12 / *Space Tracking and Surveillance System (STSS)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Demonstration Satellites - MDA Civilian	Allot	MDA : Schriever AFB, CO	7.810	1.418		1.822	Oct 2014	3.479	Oct 2015	-		3.479	Continuing	Continuing	Continuing
Demonstration Satellites - Other Government Agency (OGA) Civilian	MIPR	SMC : Schriever AFB, CO	10.712	0.383		0.480	Oct 2014	0.439	Oct 2015	-		0.439	Continuing	Continuing	Continuing
Demonstration Satellites - Program Mission Support	Various	Various : Various	21.095	0.571		0.473	Oct 2014	0.535	Oct 2015	-		0.535	Continuing	Continuing	Continuing
Demonstration Satellites - UARC	C/CPFF	Utah University, Space Dynamics Laboratory : AL, AK, CA, CO, HI, MA, UT, VA	0.000	-		0.402	Oct 2014	-		-		-	-	0.402	0.402
		Subtotal	54.572	4.358		6.394		8.110		-		8.110	-	-	-

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.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Level Testing - BMDS Integration-Test Engineering and Resources	SS/CPAF	NGAS : Redondo Beach, CA	19.339	1.944		1.124	Oct 2014	1.001		-		1.001	Continuing	Continuing	Continuing
		Subtotal	19.339	1.944		1.124		1.001		-		1.001	-	-	-

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-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603893C / *Space Tracking and Surveillance System*	Project (Number/Name) MD12 / *Space Tracking and Surveillance System (STSS)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	663.816	39.529		29.517		30.241		-		30.241	-	-	-

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

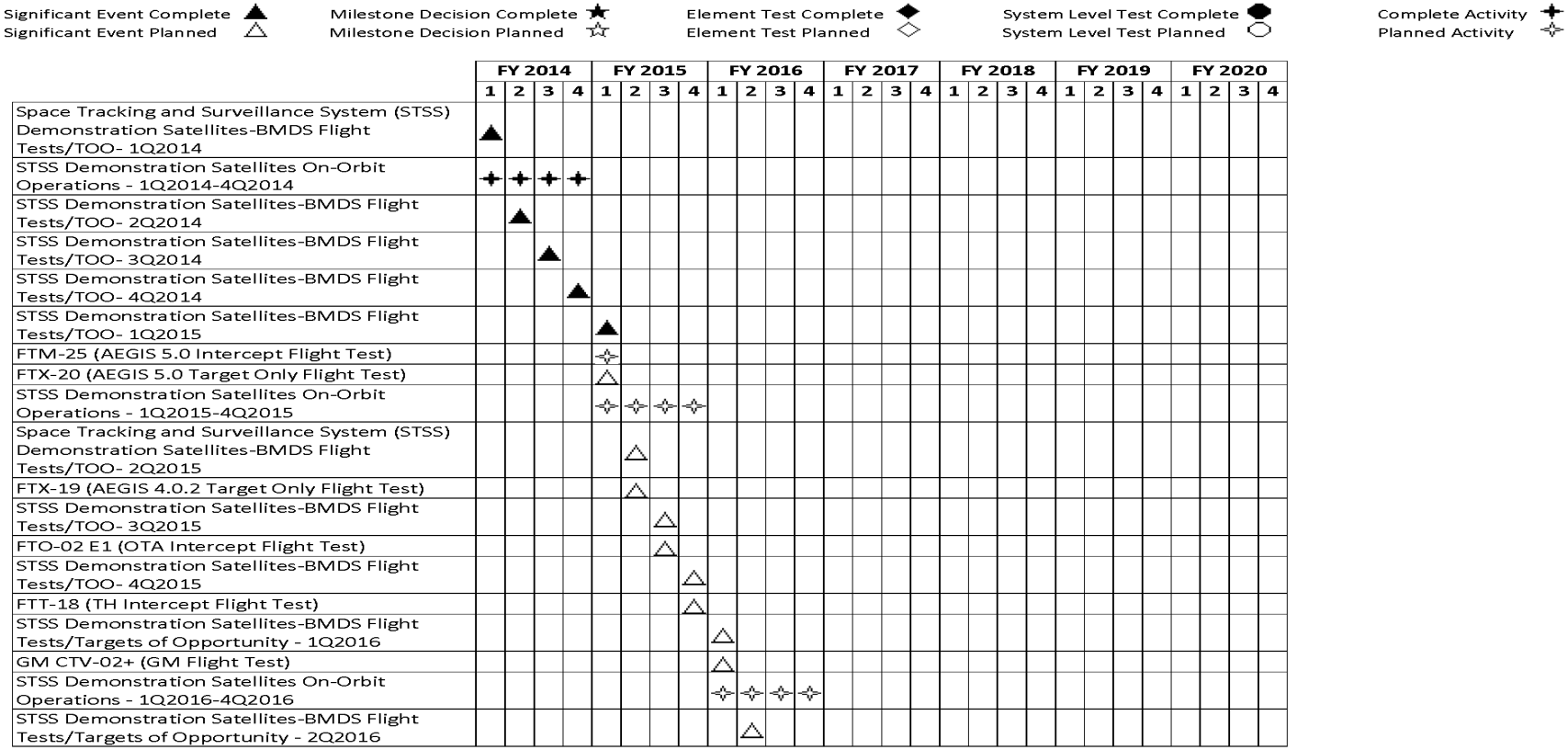


Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

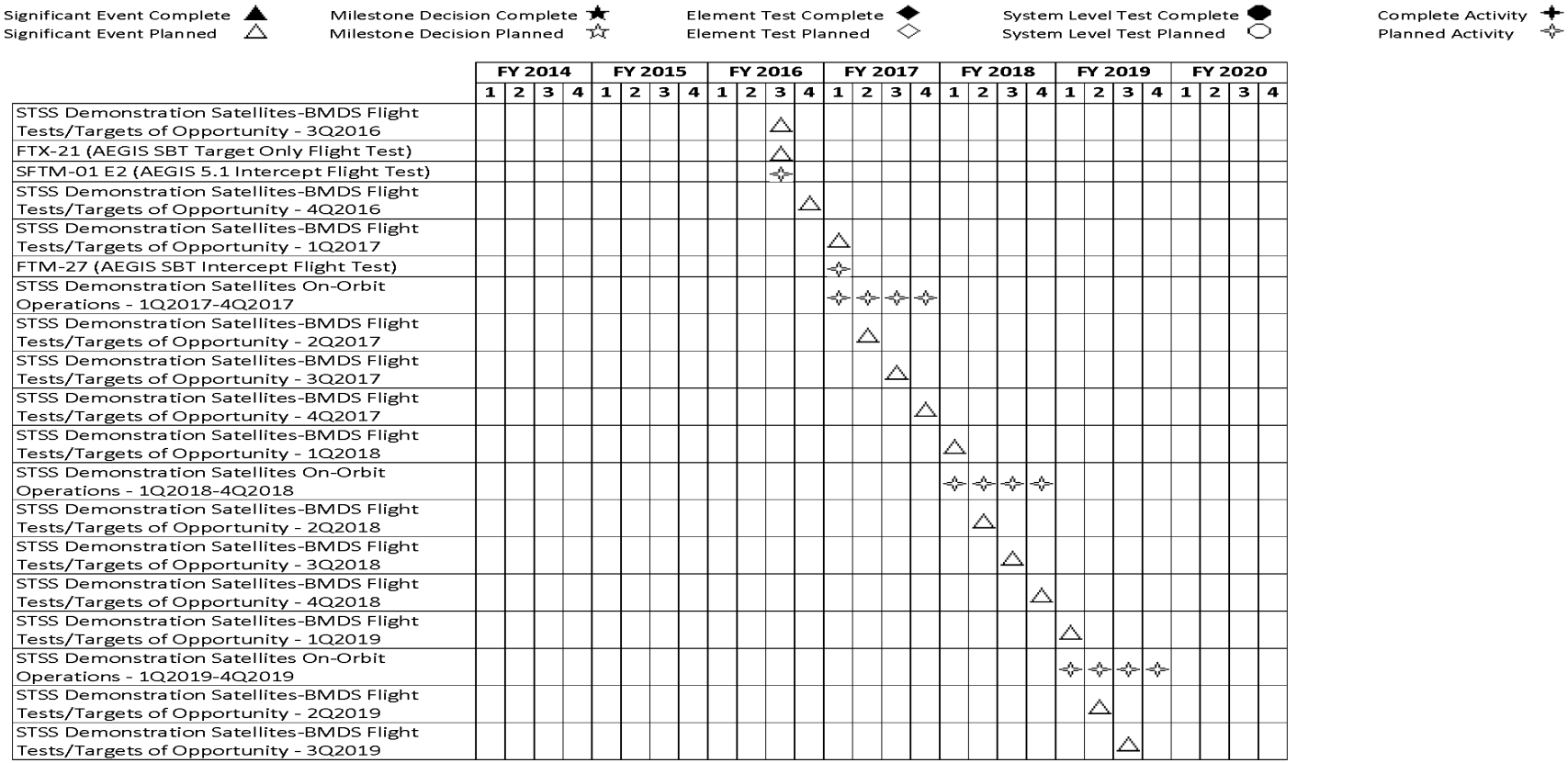


Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬡ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2019																								△				
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 1Q2020																									△			
STSS Demonstration Satellites On-Orbit Operations - 1Q2020-4Q2020																									✧	✧	✧	✧
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 2Q2020																										△		
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 3Q2020																											△	
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2020																												△

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

Exhibit R-4A, RDT&E Schedule Details PB 2016 Missile Defense Agency		DATE: February 2015
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 04: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603893C: *Space Tracking and Surveillance System*	**PROJECT** MD12: *Space Tracking and Surveillance System (STSS)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Space Tracking and Surveillance System (STSS) Demonstration Satellites-BMDS Flight Tests/TOO- 1Q2014	1	2014	1	2014
STSS Demonstration Satellites On-Orbit Operations - 1Q2014-4Q2014	1	2014	4	2014
STSS Demonstration Satellites-BMDS Flight Tests/TOO- 2Q2014	2	2014	2	2014
STSS Demonstration Satellites-BMDS Flight Tests/TOO- 3Q2014	3	2014	3	2014
STSS Demonstration Satellites-BMDS Flight Tests/TOO- 4Q2014	4	2014	4	2014
STSS Demonstration Satellites-BMDS Flight Tests/TOO- 1Q2015	1	2015	1	2015
FTM-25 (AEGIS 5.0 Intercept Flight Test)	1	2015	1	2015
FTX-20 (AEGIS 5.0 Target Only Flight Test)	1	2015	1	2015
STSS Demonstration Satellites On-Orbit Operations - 1Q2015-4Q2015	1	2015	4	2015
Space Tracking and Surveillance System (STSS) Demonstration Satellites-BMDS Flight Tests/TOO- 2Q2015	2	2015	2	2015
FTX-19 (AEGIS 4.0.2 Target Only Flight Test)	2	2015	2	2015
STSS Demonstration Satellites-BMDS Flight Tests/TOO- 3Q2015	3	2015	3	2015
FTO-02 E1 (OTA Intercept Flight Test)	3	2015	3	2015
STSS Demonstration Satellites-BMDS Flight Tests/TOO- 4Q2015	4	2015	4	2015
FTT-18 (TH Intercept Flight Test)	4	2015	4	2015
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 1Q2016	1	2016	1	2016
GM CTV-02+ (GM Flight Test)	1	2016	1	2016
STSS Demonstration Satellites On-Orbit Operations - 1Q2016-4Q2016	1	2016	4	2016
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 2Q2016	2	2016	2	2016
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 3Q2016	3	2016	3	2016
FTX-21 (AEGIS SBT Target Only Flight Test)	3	2016	3	2016
SFTM-01 E2 (AEGIS 5.1 Intercept Flight Test)	3	2016	3	2016
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2016	4	2016	4	2016
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 1Q2017	1	2017	1	2017
FTM-27 (AEGIS SBT Intercept Flight Test)	1	2017	1	2017

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

Exhibit R-4A, RDT&E Schedule Details PB 2016 Missile Defense Agency		DATE: February 2015
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 04: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603893C: *Space Tracking and Surveillance System*	**PROJECT** MD12: *Space Tracking and Surveillance System (STSS)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
STSS Demonstration Satellites On-Orbit Operations - 1Q2017-4Q2017	1	2017	4	2017
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 2Q2017	2	2017	2	2017
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 3Q2017	3	2017	3	2017
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2017	4	2017	4	2017
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 1Q2018	1	2018	1	2018
STSS Demonstration Satellites On-Orbit Operations - 1Q2018-4Q2018	1	2018	4	2018
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 2Q2018	2	2018	2	2018
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 3Q2018	3	2018	3	2018
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2018	4	2018	4	2018
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 1Q2019	1	2019	1	2019
STSS Demonstration Satellites On-Orbit Operations - 1Q2019-4Q2019	1	2019	4	2019
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 2Q2019	2	2019	2	2019
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 3Q2019	3	2019	3	2019
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2019	4	2019	4	2019
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 1Q2020	1	2020	1	2020
STSS Demonstration Satellites On-Orbit Operations - 1Q2020-4Q2020	1	2020	4	2020
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 2Q2020	2	2020	2	2020
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 3Q2020	3	2020	3	2020

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

Exhibit R-4A, RDT&E Schedule Details PB 2016 Missile Defense Agency		DATE: February 2015
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 04: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603893C: *Space Tracking and Surveillance System*	**PROJECT** MD12: *Space Tracking and Surveillance System (STSS)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2020	4	2020	4	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Space Tracking and Surveillance System (STSS) Demonstration Satellites-BMDS Flight Tests/TOO- 1Q2014	1	2014	1	2014
STSS Demonstration Satellites On-Orbit Operations - 1Q2014-4Q2014	1	2014	4	2014
STSS Demonstration Satellites-BMDS Flight Tests/TOO- 2Q2014	2	2014	2	2014
STSS Demonstration Satellites-BMDS Flight Tests/TOO- 3Q2014	3	2014	3	2014
STSS Demonstration Satellites-BMDS Flight Tests/TOO- 4Q2014	4	2014	4	2014
STSS Demonstration Satellites-BMDS Flight Tests/TOO- 1Q2015	1	2015	1	2015
FTM-25 (AEGIS 5.0 Intercept Flight Test)	1	2015	1	2015
FTX-20 (AEGIS 5.0 Target Only Flight Test)	1	2015	1	2015
STSS Demonstration Satellites On-Orbit Operations - 1Q2015-4Q2015	1	2015	4	2015
Space Tracking and Surveillance System (STSS) Demonstration Satellites-BMDS Flight Tests/TOO- 2Q2015	2	2015	2	2015
FTX-19 (AEGIS 4.0.2 Target Only Flight Test)	2	2015	2	2015
STSS Demonstration Satellites-BMDS Flight Tests/TOO- 3Q2015	3	2015	3	2015
FTO-02 E1 (OTA Intercept Flight Test)	3	2015	3	2015
STSS Demonstration Satellites-BMDS Flight Tests/TOO- 4Q2015	4	2015	4	2015
FTT-18 (TH Intercept Flight Test)	4	2015	4	2015
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 1Q2016	1	2016	1	2016
GM CTV-02+ (GM Flight Test)	1	2016	1	2016
STSS Demonstration Satellites On-Orbit Operations - 1Q2016-4Q2016	1	2016	4	2016
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 2Q2016	2	2016	2	2016
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 3Q2016	3	2016	3	2016
FTX-21 (AEGIS SBT Target Only Flight Test)	3	2016	3	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD12 / *Space Tracking and Surveillance System (STSS)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SFTM-01 E2 (AEGIS 5.1 Intercept Flight Test)	3	2016	3	2016
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2016	4	2016	4	2016
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 1Q2017	1	2017	1	2017
FTM-27 (AEGIS SBT Intercept Flight Test)	1	2017	1	2017
STSS Demonstration Satellites On-Orbit Operations - 1Q2017-4Q2017	1	2017	4	2017
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 2Q2017	2	2017	2	2017
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 3Q2017	3	2017	3	2017
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2017	4	2017	4	2017
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 1Q2018	1	2018	1	2018
STSS Demonstration Satellites On-Orbit Operations - 1Q2018-4Q2018	1	2018	4	2018
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 2Q2018	2	2018	2	2018
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 3Q2018	3	2018	3	2018
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2018	4	2018	4	2018
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 1Q2019	1	2019	1	2019
STSS Demonstration Satellites On-Orbit Operations - 1Q2019-4Q2019	1	2019	4	2019
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 2Q2019	2	2019	2	2019
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 3Q2019	3	2019	3	2019
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2019	4	2019	4	2019
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 1Q2020	1	2020	1	2020
STSS Demonstration Satellites On-Orbit Operations - 1Q2020-4Q2020	1	2020	4	2020
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 2Q2020	2	2020	2	2020
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 3Q2020	3	2020	3	2020
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2020	4	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603893C / *Space Tracking and Surveillance System*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	3.517	2.089	1.814	1.391	-	1.391	0.847	1.226	1.534	1.644	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015 and FY 2016, Program Wide Support reflects a proportional change as a result of decreases to the Space Tracking and Surveillance System program. 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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	2.089	1.814	1.391
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans: See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	2.089	1.814	1.391

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	C/CPAF	Various : Multi: AL, CA, CO,	0.000	0.259		0.205	Jul 2015	-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services	MIPR	Various : Multi: AK/ AL/CO/CA/HI/MD/ VA/NJ/NY/OCONUS	1.062	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Northrop Grumman : CO	2.455	1.830		1.609	Jan 2015	1.391	Jan 2016	-		1.391	Continuing	Continuing	Continuing
		Subtotal	3.517	2.089		1.814		1.391		-		1.391	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.517	2.089		1.814		1.391		-		1.391	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD40 / *Program-Wide Support*

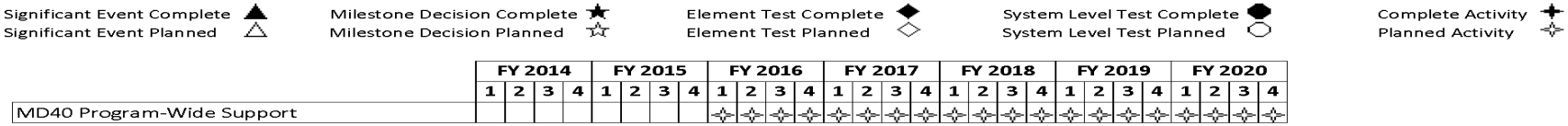


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603893C / *Space Tracking and Surveillance System*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603895C / *Ballistic Missile Defense System Space Programs*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	44.030	6.412	6.389	23.289	-	23.289	21.433	16.108	11.933	11.952	Continuing	Continuing
MD33: *MD Space Exp Center (MDSEC)*	43.780	6.075	6.020	22.265	-	22.265	20.420	15.283	11.297	11.305	Continuing	Continuing
MD40: *Program-Wide Support*	0.250	0.337	0.369	1.024	-	1.024	1.013	0.825	0.636	0.647	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

FY 2016 increase is in support of the Space-based Kill Assessment (SKA) project to address the 2014 National Defense Authorization Act requirement for MDA to develop and field an improved kill assessment capability by FY 2020.

A. Mission Description and Budget Item Justification

This program element funds two activities: 1) The SKA project, a Missile Defense Agency (MDA) experiment to demonstrate kill assessment from space and 2) the Missile Defense Space Center (MDSC), an MDA facility at Schriever AFB, CO, dedicated to space systems. The MDSC facilitates the integration and demonstration of missile defense space capabilities with other defense and national security systems.

Kill assessment is the determination that the weapon hit a lethal object and that object is assessed to be no longer lethal. In FY 2014 a timely confluence of events was setting the stage for the kill assessment experiment that later became known as SKA. First, the cancellation of the Precision Tracking Space System (PTSS) program allowed residual FY 2013 PTSS funds in PE 0604883C to be used for space experimentation consistent with the intent of the original appropriation. Second, an MDA study called the “Space Layer Option Study” found that disaggregated systems could provide sensor capabilities at lower price points (later echoed in Government Accountability Office report GAO-15-7 on the same topic). Third, section 237 in the FY 2014 National Defense Authorization Act directed MDA to improve kill assessment for the Ground-based Midcourse Defense program.

Nine years of testing using the “Kill Assessment Sensor Package” sensor on the Aegis Ballistic Missile Defense program indicated that the physics of the kill assessment problem was well understood and that expensive and risky technology development was not needed for space-based kill assessment. This sensor testing on the Aegis Ballistic Missile Defense program also showed that an electro-optical / infrared sensor was the optimal sensor to observe an intercept and record data in the frequency bands most advantageous for kill assessment. Additionally, a United States Air Force space experiment highlighted an opportunity was still available to leverage remaining space on the replenishment of a commercial satellite constellation.

In April 2014, MDA began the SKA experiment remaining consistent with guidance to best leverage intellectual capital investment in the PTSS program while evolving the technical plan to respond to changes in circumstances, risk and budgetary environment. The SKA experiment will design and assemble a network of small sensors to be integrated onto commercial host satellites and while on orbit, observe missile defense intercepts and deliver a kill assessment declaration to the Ballistic Missile

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0603895C *I Ballistic Missile Defense System Space Programs*

Defense System. If deemed successful by the warfighter, this experiment has the potential to change the economics of the defense of the American homeland from enemy ballistic missiles.

The MDSC capabilities and infrastructure provide MDA user capabilities for supporting flight tests, conducting concept development, demonstrations, experiments, and developing and evaluating algorithms within a multi-security level, collaborative environment. As part of a collaborative environment, the Missile Defense Space Center (MDSC) conducts studies and experiments with Air Force Space Command seeking to optimize future Missile Defense Agency (MDA) space-layer options to support Space Situational Awareness (SSA).

The MDSC provides MDA elements with a centralized collaboration and integration environment for Ballistic Missile Defense System (BMDS) sensor operations and integration to support the ballistic missile defense mission. The infrastructure of the MDSC supports the operation and control of MDA space systems. In addition, the MDSC annual operating expenses provide infrastructure support for security, configuration management, engineering, test, experiment, data, and logistics and create a collaborative environment for the MDA community that includes the Space Tracking and Surveillance System (STSS); Near Field Infrared Experiment; BMDS Overhead Persistent Infrared Architecture; Command and Control, Battle Management and Communications (C2BMC); Integrated Sensor Manager; MDA C2BMC Experimentation Laboratory; MDA Enterprise Sensors Laboratory; and future MDA space-layer capabilities.

MDSC supports:
- BMDS integrated discrimination for Homeland Defense
- Engage on STSS against lethal object
- Launch on/Engage on using STSS against multiple targets
- Launch on/Engage on using STSS against a raid
- Ability to support hit/kill assessment from space
- Ability to support SSA mission from space
- Ability to cue BMDS sensors from space
- Ability to integrate space into emerging fire control loops
- Develop and refine ground operational concepts for MDA space systems, sensors, data, services, and networks
- Operate and refine the MDSC Interchange System to provide robust access to MDA space data and MDA user net-centric sensor tasking request interface
- Develop and maintain a security environment to support data integration, test, demonstrations, and experiments across multiple security levels
- Provide a Test Integration Lab to support testing, demonstrations, experiments, integration and algorithm development
- Demonstrate connectivity and integration of space sensor layer data for the BMDS community and external users
- Conduct experiments to test algorithm validity for Missile Defense space systems
- Mature BMDS space based sensing through studies, analysis, sensor data integration, algorithm development, performance assessments, and architecture improvements
- Develop and mature joint space sensing Concept of Operations, Tactics, Techniques, & Procedures, and asset management to evaluate space based sensor contributions to the BMDS
- Integrate and evaluate MDA, other Department of Defense agencies, and Services space capabilities to demonstrate space based sensing contributions for discrimination support, hit assessment, dim target detection and tracking, advanced threat tracking, and wideband infrared sensor data integration and exploitation

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0603895C *I Ballistic Missile Defense System Space Programs*

- Support development and demonstration of real-time Infrared/Radar data fusion (system track)
- Provide infrastructure to demonstrate integration of missile defense space capabilities with other defense and national security systems

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	6.515	6.389	7.112	-	7.112
Current President's Budget	6.412	6.389	23.289	-	23.289
Total Adjustments	-0.103	-	16.177	-	16.177
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.103	-			
• Other Adjustment	-	-	16.177	-	16.177

Change Summary Explanation

In FY 2016, the Ballistic Missile Defense System Space Programs Program Element (PE) was increased to complete development and begin integration and testing of the Spacebased Kill Assessment (SKA), a project initiated with appropriated funds in PE 0604883C, budget project MD10, to address the 2014 National Defense Authorization Acts requirement for the Missile Defense Agency to develop and field an improved kill assessment capability by FY 2020.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603895C / *Ballistic Missile Defense System Space Programs*	Project (Number/Name) MD33 / *MD Space Exp Center (MDSEC)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD33: *MD Space Exp Center (MDSEC)*	43.780	6.075	6.020	22.265	-	22.265	20.420	15.283	11.297	11.305	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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.

FY 2016 increase is in support of the Space-based Kill Assessment (SKA) project to address the 2014 National Defense Authorization Act requirement for MDA to develop and field an improved kill assessment capability by FY 2020.

A. Mission Description and Budget Item Justification

SPACEBASED KILL ASSESSMENT (SKA)
Kill assessment can be described as a determination that the weapon hit a lethal object and that object is assessed to be no longer lethal. The SKA system is designed to perform this determination and is made up of two segments: a space segment and a ground segment.

The space segment is a network of kill assessment sensors, the electronics that control them and the circuit card processors that mate the sensors to the satellite hosts. At approximately ten kilograms each, the sensors house three, single-pixel photodiodes that are commercially available today. The sensors themselves move in two axes, azimuth and elevation, by way of two, commercial-off-the-shelf actuators. Heaters and thermal blankets protect the sensor components from space's temperature fluctuations. Cabling connects the sensor assemblies to their circuit card processors which serve as the principal interface to the satellite hosts. The space segment is made up of a network of sensors, each mated to a different satellite; and the total number of sensors and where they are placed in the network are specifically tailored for the kill assessment mission.

The ground segment is a small network of desktop computers, servers and routers that monitor the health of the on-orbit sensors, command the sensors to perform the kill assessment mission and analyze the data to make a kill assessment determination for the Ballistic Missile Defense System (BMDS). The ground segment hosts the complex kill assessment algorithms which accomplish several tasks, including flash detection and analysis; hit/miss/kill/glancing blow assessment of the intercept; and scheduling of the network of sensors for optimal observation opportunities. The ground segment also includes the equipment necessary for security and information assurance protection.

The Missile Defense Space Center (MDSC), located at the Missile Defense Integration and Operations Center, will act as the communications hub for SKA data. The MDSC will route and process SKA data for BMDS as it does for other sensor programs, so that the BMDS is presented with only a new data stream, not a new command and control system with which to interface.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

The SKA sensors are hosted on satellites that are not developed by the Missile Defense Agency, thus schedule performance is the highest priority of the experiment. Since the launch of the host satellites will not wait for hosted payloads that are delivered late, the management of the SKA project focuses on the ability to meet schedule commitments. This schedule discipline has one important benefit: cost containment. For example commercially available parts and components are chosen over those that require technology development, driving down non-recurring engineering costs. Additionally a fixed schedule addresses one of the largest contributors to cost overruns on space programs: the standing workforce that must be employed for longer durations as schedules slip.

The following activities were funded by the FY 2013 Precision Tracking Space System program element 0604883C in support of the Spacebased Kill Assessment (SKA) development:
- Developed SKA project strategy with stakeholders in February and March 2014
- Obtained project approval by Missile Defense Agency (MDA) executive leadership in April 2014
- Took delivery of all parts and components required for sensor engineering models (3) and qualification models (2) in May 2014
- Conducted Preliminary Design Review with warfighter and United States Air Force, United States Strategic Command and United States Northern Command participation in July 2014
- Successfully mated an engineering grade SKA processor card to a test figure simulating the host satellite in September 2014
- Assemble and deliver sensor assembly engineering model #1 and conduct testing
- Complete build out of initial instantiation of the ground segment development facility and processing equipment
- Assemble and deliver sensor assembly qualification model #1 and conduct testing
- Conduct Critical Design Review with warfighter and military service participation
- Conduct Production Readiness Review
- Begin assembly of sensor flight models
- Conduct Pre-Environmental Review

Funds requested for SKA in FY 2016 are to be used for three major activities:
- Complete assembly, integration and test of the sensor payloads with the host satellites
- Continue development of the ground system
- Begin preparations for on-orbit experimentation

MISSILE DEFENSE SPACE CENTER (MDSC)
The MDSC provides capabilities and infrastructure to support the Ballistic Missile Defense System (BMDS) as the single location for MDA elements to conduct space operations. The MDSC provides a multi-level security environment for sensor data management and integration across space and terrestrial sensor data activities. MDSC experiments leverage Department of Defense (DoD) (Defense Support Program, Space Based Infrared System) and national security space capabilities. MDSC activities support analysis, demonstration and integration of space sensor capabilities into developmental and operational MDA elements. MDSC enables the development of advanced technology and algorithms including fusion of multiple sensor types (radar, overhead persistent infrared, electro-optical and other emerging sensor technologies). MDSC supports mission integration of space-based missile tracking (boost and midcourse phases), sensor and weapons cueing via Command

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

and Control, Battle Management and Communications , features and discrimination, kill and impact point assessments into the BMDS and other (non-MDA) mission areas to include Space Situational Awareness, technical intelligence, and battle space characterization.

The MDSC continues to develop and refine current operations for BMDS Space systems. The MDSC hosts a collaborative experimentation environment via the MDSC Interchange System (MIS) and the MDSC Test Integration Lab (TIL) for BMDS elements that rely on, experiment with, integrate with, or seek to improve the BMDS capability by utilizing space-based, systems-derived data. The MIS provides common, secure data architecture for MDA, DoD and national security space sensor data and a satellite sensor tasking request tool interface with Missile Defense Agency (MDA) users. The Test Integration Lab provides a common location for MDA user collaboration with access to space sensor layer data via the Missile Defense Space Center (MDSC) Interchange System during tests and experiments. The MDSC supports efforts to increase the effectiveness of the Ballistic Missile Defense System (BMDS) (including probability of engagement success, increase in defended area and raid size capacity, additional redundancy of architecture, unity of command) through the integration of MDA developed capabilities.

The MDSC Sensor Registration Health & Status Monitoring Experiment addresses efforts such as sensor registration (reporting of sensor errors/biases) and correlation (ensuring the information from multiple sensors seeing a threat relates to the same object) and provides a platform for real-time algorithm integration and test. Other MDSC experiments explore areas including system track (creating a single engageable track of a threat from multiple reports provided by different land, sea, and space based multiple sensors), discrimination (identifying object details to determine the target from debris or decoys), battle management (combining the best sensors and shooters to ensure the highest probability of a kill), hit/kill Assessment (determining if the target selected was destroyed after missile impact), and communications (providing the worldwide connection of sensors and shooters to command authorities). These experiments are structured to be implemented across the BMDS elements to create and utilize system level data and decisions that allow Combatant Commanders the ability to automatically and manually optimize sensor coverage and interceptor inventory to defend against ballistic threats.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Missile Defense Space Center (MDSC)	5.586	4.825	-
Articles:	-	-	-
Description: The MDSC provides a central collaborative environment to develop, operate, exploit, and integrate Joint Space Capabilities for the Ballistic Missile Defense System (BMDS).			
FY 2014 Accomplishments: - Supported Simulated Aegis (Hardware-in-the Loop (HWIL)) Engage-On Space Tracking and Surveillance System (STSS) satellites Tests and fulfillment of Overhead Persistent Infrared (OPIR) requests for STSS data - Conducted analysis of space radiation environment and its influence on Missile Defense Agency (MDA) space system performance - Conducted analysis of space based sensor data from STSS, Near Field Infrared Experiment (NFIRE), and OPIR observations, both individually and combined, to support signatures and algorithms to aid future tracking and discrimination architectures - Supported concept studies and analysis for alternative sensor payload configurations (e.g. hosted payloads)			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Developed and integrated real time algorithms for dim target detection and tracking, discrimination support, hit assessment, and wideband IR sensor data integration and exploitation - Conducted algorithm development, performance assessments, architecture assessments, and concept evaluations of future MDA space-layer options ***FY 2015 Plans:*** - Support launch, integration, and operations of future Missile Defense Agency (MDA) space capabilities - Support Hardware-in-the Loop (HWIL) Engage-On STSS satellites tests and fulfill Overhead Persistent Infrared (OPIR) requests for STSS data based on satellite availability - Conduct analysis of space radiation environment and its influence on MDA space system performance - Conduct analysis of space based sensor data from STSS and OPIR observations, both individually and combined, to identify phenomenology and techniques to aid future tracking and discrimination architectures - Support concept studies and analysis for alternative sensor payload configurations (e.g. hosted payloads) - Develop and integrate real-time algorithms for dim target detection and tracking, discrimination support, hit/kill assessment, and wideband infrared sensor data integration and exploitation - Conduct algorithm development, performance assessments, architecture assessments, and concept evaluations of future MDA space-layer options. - Provides future space-layer capability risk reduction through analysis, test and demonstration - Support Air Force Space Command and joint mission partners with Space Situational Awareness, technical intelligence, battlespace awareness, and missile warning ***FY 2016 Plans:*** N/A			
Title: Spacebased Kill Assessment	0.489	1.195	22.265
Articles:	-	-	-
Description: Experimental system designed to demonstrate kill assessment for Homeland Defense Funding for the Spacebased Kill Assessment (SKA) was initiated in PE 0604883C (Precision Tracking Space System), budget project MD10. ***FY 2014 Accomplishments:*** - Developed SKA project strategy with stakeholders in February and March 2014 - Obtained project approval by Missile Defense Agency executive leadership in April 2014			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conducted Preliminary Design Review with warfighter and United States Air Force, United States Strategic Command and United States Northern Command participation in July 2014 ***FY 2015 Plans:*** The following tasks are planned to be conducted with the residual FY 2013 funds from program element 0604883C and appropriated funds in 0603895C - Assemble and deliver sensor assembly engineering model #1 and conduct testing - Complete build out of initial instantiation of the ground segment development facility and processing equipment - Assemble and deliver sensor assembly qualification model #1 and conduct testing - Conduct Critical Design Review with warfighter and military service participation - Conduct Production Readiness Review - Begin assembly of sensor flight models - Conduct Pre-Environmental Review ***FY 2016 Plans:*** Increase from FY 2015 to FY 2016 is for additional effort to complete development and begin integration and testing of the Spacebased Kill Assessment payload. - Complete sensor assembly and testing of SKA flight units - Complete delivery of flight unit sensors to integrator - Integrating and testing of SKA payload onto host payload module - Integrating and testing of host payload module onto host satellite - Prepare for on-orbit checkout of first SKA sensors			
Accomplishments/Planned Programs Subtotals	6.075	6.020	22.265

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603893C: *Space Tracking and Surveillance System*	41.618	31.331	31.632	-	31.632	17.917	23.937	28.789	30.344	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	501.170	455.068	513.256	-	513.256	585.727	484.242	442.202	460.945	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Spacebased Kill Assessment (SKA) experiment will leverage experience that the Johns Hopkins University Applied Physics Laboratory (APL) has gained in its 9-year history of performing kill assessment studies and conducting experiments associated with the Aegis Ballistic Missile Defense program. The APL is the developer of the SKA experiment and its primary subcontractor will be responsible for payload integration and hosting accommodation using a firm fixed price contract to contain costs. The SKA experiment is following precedent established by a United States Air Force experiment using a commercial satellite program as the platform host for a Department of Defense payload; thus taking full advantage of a multi-billion dollar space and ground system that already exists.

Functions and operations of the Missile Defense Space Center (MDSC) were financed through a 10-year MDSC Joint National Integration Center Research and Development Contract Services Contract. The sole-source contractor, Northrop Grumman Information Systems, was responsible for integrating Research, Development, Test and Evaluation, operations support, and resource and infrastructure management for the MDSC, providing customer support, while achieving efficiencies through approaches that exceed customer requirements.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Missile Defense Space Center (MDSC) - MDSC Support (JRDC Services Contract)	SS/CPAF	NGIS : Schriever AFB, CO	28.221	2.931		1.800	Dec 2014	-		-		-	-	32.952	36.537
Missile Defense Space Center (MDSC) - MDSC/ Enterprise Sensors Laboratory (ESL) Experiments	C/Various	Various : Various	6.542	0.504		-		-		-		-	-	7.046	7.351
Spacebased Kill Assessment - Spacebased Kill Assessment Development and Experimentation	C/CPFF	JHU/APL : Laurel, MD	0.000	-		-		21.264	Oct 2015	-		21.264	Continuing	Continuing	Continuing
		Subtotal	34.763	3.435		1.800		21.264		-		21.264	-	-	-

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.

Funding for the Spacebased Kill Assessment was initiated in PE 0604883C, budget project MD10.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Missile Defense Space Center (MDSC) - Contract Support Services (CSS)	C/Various	Various, MDA : CO/ AL	3.728	1.527		1.410	Oct 2014	-		-		-	-	6.665	-
Missile Defense Space Center (MDSC) - MDA Civilian	Allot	MDA : Schriever AFB, CO	1.753	0.466		1.615	Oct 2014	-		-		-	-	3.834	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Spacebased Kill Assessment - Contract Support Services (CSS)	C/Various	Various, MDA : CO/AL	0.000	-		-		0.312	Oct 2015	-		0.312	Continuing	Continuing	Continuing
Spacebased Kill Assessment - FFRDC	FFRDC	Various : CO/AL/MD/VA	0.000	0.339		0.513		0.455	Oct 2015	-		0.455	Continuing	Continuing	Continuing
Spacebased Kill Assessment - MDA Civilian	Allot	MDA : VA	0.000	-		0.181		0.199	Oct 2015	-		0.199	Continuing	Continuing	Continuing
Spacebased Kill Assessment - Program Mission Support	C/Various	Various : CO/AL/MD/VA	0.000	0.150		0.501		0.035	Oct 2015	-		0.035	Continuing	Continuing	Continuing
		Subtotal	5.481	2.482		4.220		1.001		-		1.001	-	-	-

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.

Funding for the Spacebased Kill Assessment was initiated in PE 0604883C, budget project MD10.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603895C / *Ballistic Missile Defense System Space Programs*	Project (Number/Name) MD33 / *MD Space Exp Center (MDSEC)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Missile Defense Space Center (MDSC) - Mission Planning and Analysis	C/CPFF	Utah State University Space Dynamics Laboratory : UT	3.536	0.158		-		-		-		-	-	3.694	3.694
		Subtotal	3.536	0.158		-		-		-		-	-	3.694	3.694

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.

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	43.780	6.075		6.020		22.265		-		22.265	-	-	-

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

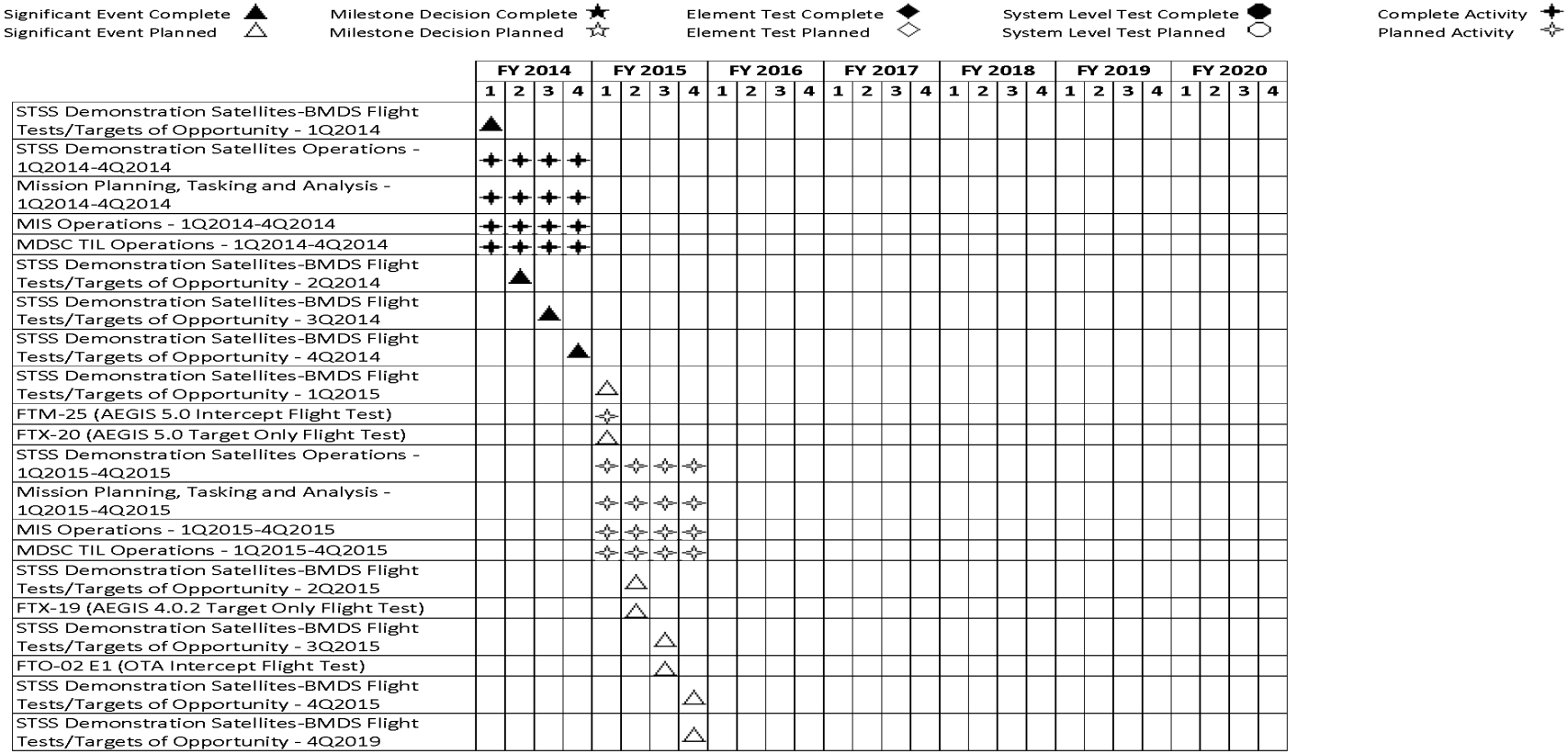


Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

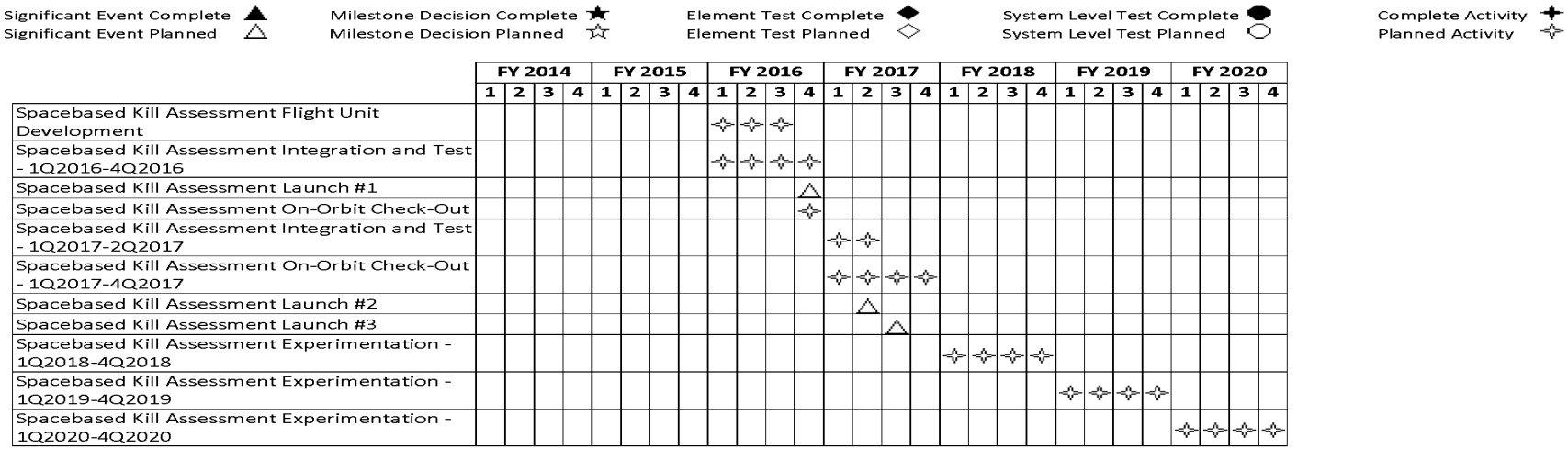


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 1Q2014	1	2014	1	2014
STSS Demonstration Satellites Operations - 1Q2014-4Q2014	1	2014	4	2014
Mission Planning, Tasking and Analysis - 1Q2014-4Q2014	1	2014	4	2014
MIS Operations - 1Q2014-4Q2014	1	2014	4	2014
MDSC TIL Operations - 1Q2014-4Q2014	1	2014	4	2014
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 2Q2014	2	2014	2	2014
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 3Q2014	3	2014	3	2014
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2014	4	2014	4	2014
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 1Q2015	1	2015	1	2015
FTM-25 (AEGIS 5.0 Intercept Flight Test)	1	2015	1	2015
FTX-20 (AEGIS 5.0 Target Only Flight Test)	1	2015	1	2015
STSS Demonstration Satellites Operations - 1Q2015-4Q2015	1	2015	4	2015
Mission Planning, Tasking and Analysis - 1Q2015-4Q2015	1	2015	4	2015
MIS Operations - 1Q2015-4Q2015	1	2015	4	2015
MDSC TIL Operations - 1Q2015-4Q2015	1	2015	4	2015
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 2Q2015	2	2015	2	2015
FTX-19 (AEGIS 4.0.2 Target Only Flight Test)	2	2015	2	2015
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 3Q2015	3	2015	3	2015
FTO-02 E1 (OTA Intercept Flight Test)	3	2015	3	2015
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2015	4	2015	4	2015
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity - 4Q2019	4	2015	4	2015
Spacebased Kill Assessment Flight Unit Development	1	2016	3	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Spacebased Kill Assessment Integration and Test - 1Q2016-4Q2016	1	2016	4	2016
Spacebased Kill Assessment Launch #1	4	2016	4	2016
Spacebased Kill Assessment On-Orbit Check-Out	4	2016	4	2016
Spacebased Kill Assessment Integration and Test - 1Q2017-2Q2017	1	2017	2	2017
Spacebased Kill Assessment On-Orbit Check-Out - 1Q2017-4Q2017	1	2017	4	2017
Spacebased Kill Assessment Launch #2	2	2017	2	2017
Spacebased Kill Assessment Launch #3	3	2017	3	2017
Spacebased Kill Assessment Experimentation - 1Q2018-4Q2018	1	2018	4	2018
Spacebased Kill Assessment Experimentation - 1Q2019-4Q2019	1	2019	4	2019
Spacebased Kill Assessment Experimentation - 1Q2020-4Q2020	1	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603895C / *Ballistic Missile Defense System Space Programs*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	0.250	0.337	0.369	1.024	-	1.024	1.013	0.825	0.636	0.647	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, Program Wide Support reflects a proportional change as a result of increases in Ballistic Missile Defense System Space Programs.
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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	0.337	0.369	1.024
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans: See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	0.337	0.369	1.024

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space 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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603895C / *Ballistic Missile Defense System Space Programs*	Project (Number/Name) MD40 / *Program-Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	C/CPAF	Various : Multi: AL, CA, CO, VA	0.250	0.246		0.369	Jun 2015	-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: Al, CA, CO, VA	0.000	0.091		-		1.024	Nov 2015	-		1.024	Continuing	Continuing	Continuing
		Subtotal	0.250	0.337		0.369		1.024		-		1.024	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.250	0.337		0.369		1.024		-		1.024	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD40 / *Program-Wide Support*

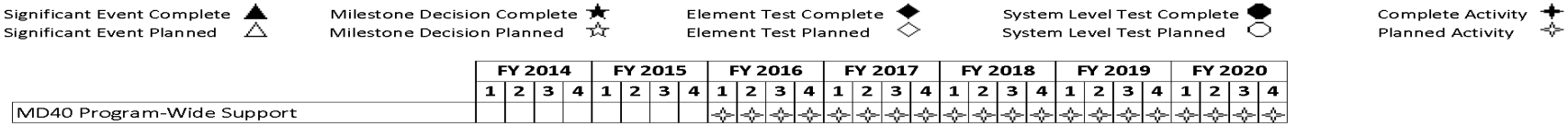


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
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 0603896C *I Ballistic Missile Defense Command and Control, Battle Management & Communication*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	979.554	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
MD01: *Command & Control, Battle Management, Communications (C2BMC)*	784.424	244.238	254.714	277.478	-	277.478	286.650	249.844	269.197	279.424	Continuing	Continuing
MC01: *Cyber Operations*	-	0.655	0.547	0.543	-	0.543	0.557	0.565	0.573	0.594	Continuing	Continuing
MT01: *C2BMC Test*	41.520	34.776	56.237	59.172	-	59.172	53.115	56.069	53.581	55.537	Continuing	Continuing
MX01: *Command & Control, Battle Management, Communications (C2BMC) Development Support*	124.092	91.287	91.111	93.097	-	93.097	99.606	95.659	95.979	99.632	Continuing	Continuing
MD40: *Program-Wide Support*	29.518	19.251	25.668	19.795	-	19.795	21.831	21.706	23.596	24.925	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

The increase from FY 2015 to FY 2016 is attributed to increased requirements in Mid-Term Discrimination and Spiral 8.2-1 hardware/software development integration.

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense Command and Control, Battle Management and Communications (C2BMC) Program establishes the System by linking together the sensors and weapons of separate elements into a layered missile defense system such that the whole is more capable and robust than the sum of its parts -- thus increasing the footprint of the Ballistic Missile Defense System (BMDS) with greater performance and defensive coverage. The C2BMC enables the BMDS to manage complex threats -- near simultaneous enemy missile shots aimed at theater, regional, or homeland assets. The systems linked through C2BMC include Patriot, Terminal High Altitude Area Defense (THAAD), Aegis Ballistic Missile Defense (BMD), Aegis Ashore, Ground Based Midcourse Defense (GMD), Army Integrated Air and Missile Defense Battle Command system (IBCS); and sensors such as the Army Navy/Ground Transportable Radar Surveillance model 2 (AN/TPY-2) radar, Sea-Based X-Band Radar (SBX), Space-Based Infrared System (SBIRS), and BMDS Overhead Persistent Infra-Red (OPIR) Architecture (BOA). In FY 2014, the C2BMC Program shipped a C2BMC Deployable Interface Node (CDIN) in support of a second forward based AN/TPY-2 to the Pacific Command (PACOM). The C2BMC program will install communications, support Hardware-in-the-Loop (HWIL) integration testing, provide operations and sustainment, and training.

Based on the Missile Defense Agency's defined architectures and system specifications, the C2BMC program will provide the warfighter the capability to plan the Ballistic Missile Defense (BMD) fight while concurrently tracking all potential ballistic missile threats, and pairing any sensor with any shooter to defeat ballistic missile threats at any range, in all theaters. C2BMC battle management will deliver full AN/TPY-2 X-Band radar sensor control and capabilities for improved threat object correlation which calculates a common threat track from multiple sensors through data fusion, with sufficient data accuracy and timeliness for Ballistic Missile Defense

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0603896C *I Ballistic Missile Defense Command and Control, Battle Management & Communication*

System (BMDS) weapon elements to enable successful engagements via Link-16 and satellite communications. The C2BMC program also works to increase coalition partners' capabilities.

This Program Element includes support for the Discrimination Improvements for Homeland Defense (DIHD) effort. The goal of this effort is to develop and field an integrated set of Element capabilities to improve BMDS effectiveness and resilience against the evolving threat. The end result will be a future BMDS architecture more capable of discriminating and destroying a re-entry vehicle with a high degree of confidence, improving Warfighter shot doctrine and preserving inventory. This effort encompasses a Near-term, Mid-term, and Far-term DIHD capability fielding. DIHD is a combined effort between Systems Engineering, Ground-based Midcourse Defense (PE 0603882C), BMD Sensors (PE 0603884C), C2BMC (PE 0603896C), Aegis BMD (PE 0603892C) and Advanced C4ISR (PE 0603179C).

The C2BMC will integrate the Long Range Discrimination Radar (LRDR) into the BMDS by performing sensor management of the LRDR and fusion of LRDR sensor data into the C2BMC system tracking capability. C2BMC will provision Military Satellite Communications (MILSATCOM) and redundant terrestrial communication services from C2BMC to the LRDR. C2BMC will update interfaces to provide appropriate LRDR-based information to Ground Based Missile Defense (GMD) Fire Control (GFC) and other BMDS elements.

The C2BMC Program will expand defense of the United States, allies, and deployed forces by continuing work that enables a coordinated missile defense against short- to long- range threats in multiple regions/theaters. C2BMC capability is developed and delivered incrementally. The FY 2017 delivery (Spiral 8.2-1) supports Enhanced Homeland Defense capability by providing increased Ground-based Midcourse Defense (GMD) battlespace, Link 16 track reporting of additional sensors, enhanced sensor tasking to meet track quality and discrimination timeliness requirements to support GMD engagements, and space situational awareness tasking support. The FY 2019 delivery (Spiral 8.2-3) supports Presidential mandate EPAA Phase 3 capability declaration by providing critical sensor management and track reporting improvements to Aegis BMD Engage-on-Remote functionality, as well as integration with the new Army IAMD Battle Command System (IBCS).

One of the best ways to dissuade, deter, and defeat ballistic missile threats is through integrated ballistic missile defense capabilities: weapons; sensors; and command and control, battle management, and communications. A potential or actual attack may cross regions and may fly higher and faster than stand-alone, autonomous capabilities operated by a single Military Service can defend against. Integrated Ballistic Missile Defense (BMD) capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide the best sensor information about the enemy missiles location and track a more diverse and effective set of weapon options to be used by the Combatant Commander to defeat the attack; with all connected by a unifying Command and Control, Battle Management and Communications (C2BMC) system. As a result, an effort funded in a program element may be critical to the success of efforts in other program elements. These connections are referred to as interdependencies.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency					Date: February 2015
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 0603896C *I Ballistic Missile Defense Command and Control, Battle Management & Communication*		
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	405.319	443.484	456.182	-	456.182
Current President's Budget	390.207	428.277	450.085	-	450.085
Total Adjustments	-15.112	-15.207	-6.097	-	-6.097
• Congressional General Reductions	-	-0.207			
• Congressional Directed Reductions	-	-15.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-8.762	-			
• SBIR/STTR Transfer	-6.350	-			
• Other Adjustment	-	-	-6.097	-	-6.097

Change Summary Explanation

FY 2015 changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

FY 2016 adjustments reflect realignment to Department of Defense priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD01: *Command & Control, Battle Management, Communications (C2BMC)*	784.424	244.238	254.714	277.478	-	277.478	286.650	249.844	269.197	279.424	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

RDT&E Articles are defined as major Command and Control, Battle Management and Communications (C2BMC) capability increments (identified as a specific Spiral) which are fielded at multiple locations including Combatant Commands and other operational sites. Budget Project MD01 includes a phased progression of RDT&E articles. First, Spiral 6.4, which was successfully fielded in FY 2011/FY 2012 in NORTHCOM, PACOM, CENTCOM, and EUCOM to support multi-TPY-2 sensor management, BMDS situational awareness and battle management, and European Phased Adaptive Approach (EPAA) Phase 1 capability declaration. Spiral 6.4 is also the basis of support to EPAA Phase 2 and near-term discrimination improvements to support Homeland Defense (DIHD-N). Second, Spiral 8.2-1, which is currently in development and expected to be fielded to NORTHCOM/PACOM in FY 2017 to support Enhanced Homeland Defense. Spiral 8.2-1 provides an overall hardware and architecture refresh, new OPIR-based sensor cueing capability to provide increased Ground-based Midcourse Defense (GMD) battlespace, Link 16 track reporting of additional sensors, enhanced sensor tasking to meet track quality and discrimination timeliness requirements to support GMD engagements, and space situational awareness tasking support. The S8.2-1 infrastructure also provides significant enhancements in Information Assurance and communications robustness. Third, Spiral 8.2-3 is scheduled for a Developmental Baseline Review (DBR) in 2Q FY 2015 and is expected to be fielded to EUCOM, CENTCOM, NORTHCOM, and PACOM to support the Presidential mandate EPAA Phase 3 capability declaration in FY 2019. Spiral 8.2-3 provides critical sensor management and track reporting improvements to Aegis BMD Engage-on-Remote functionality, as well as integration with the new Army IAMD Battle Command System (IBCS). Future spirals are planned to increase robustness of sensor management, tracking, discrimination, and battle management capabilities.

Development activities culminate in three key test events: Simulation-based Verification, Site Activation Testing, and Ballistic Missile Defense System (BMDS)-wide Ground Testing. Simulation-based verification focuses on integration testing with other Ballistic Missile Defense System (BMDS) Elements. Site Activation Testing and successful participation in BMDS Ground Test campaigns verify delivery of fully functioning operational software, which is then made available for deployment.

Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests (MIPRs), and civilian salaries on the R-3.

A. Mission Description and Budget Item Justification

The Command and Control, Battle Management and Communications (C2BMC) Program will provide the warfighter the capability to develop the plan for placement of Ballistic Missile Defense (BMD) assets. During engagement, C2BMC provides the warfighter with situational awareness of all potential ballistic missile threats, and enables engagement coordination by pairing any sensor with any shooter to defeat ballistic missile threats at any range, in all theaters. The C2BMC Program will also work to increase coalition partners' capabilities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

The Command and Control, Battle Management and Communications (C2BMC) Program will provide the warfighter the capability to develop the plan for placement of Ballistic Missile Defense (BMD) assets. During engagement, C2BMC provides the warfighter with situational awareness of all potential ballistic missile threats, and enables engagement coordination by pairing any sensor with any shooter to defeat ballistic missile threats at any range, in all theaters. The C2BMC Program will also work to increase coalition partners' capabilities.

The C2BMC Program will expand defense of the United States, allies, and deployed forces by continuing work that enables a coordinated missile defense against short- to long-range threats in multiple regions/theaters.

The Discrimination Improvements for Homeland Defense (DIHD) effort will develop and field integrated Element capabilities to improve BMD System ability to identify lethal and non-lethal objects. Command and Control, Battle Management and Communications will update C2BMC sensor tasking to support the capabilities of the Near-term phase, mature advanced discrimination and battle management techniques in support of the Mid-term and Far-term capabilities, and conduct element and system level testing to support Near, and Mid-term phases.

C2BMC delivers the following capabilities: BMDS planning, situational awareness, sensor management, and engagement coordination built to the approved BMDS specifications. The C2BMC program of work:

- Fully integrates BMD Planner and situational awareness displays with integrated intelligence information and defended asset priority schemes
- Incorporates BMDS Overhead Persistent Infra-Red (OPIR) Architecture (BOA) and Space Based Infra-Red System (SBIRS) sensor data for radar and shooter (Aegis, Terminal High Altitude Area Defense (THAAD)) cueing, allowing for earlier track acquisition for the shooters.
- Updates the C2BMC model (BCM) for system-level performance assessments that have been validated against operational C2BMC performance
- Provides the Distributed Training System to provide Combatant Command (COCOM) exercise and training capabilities without scheduling downtime.
- Provides the Training Support System to provide COCOMs and schoolhouses with a flexible and small footprint training capability
- Installs more effective network monitoring, vulnerability scanning, and computer network defense software and hardware within the C2BMC Control Center (including the BMDS Network Operations and Security Center (BNOSC))
- Implements Risk Management (RM) / Information Assurance (IA) monitoring, real time analysis, and modifications of BMD devices at all C2BMC locations
- Supports system flight and ground testing in accordance with the MDA Integrated Master Test Plan (IMTP).

C2BMC ELEMENT

The Ballistic Missile Defense System (BMDS) Command and Control, Battle Management and Communications (C2BMC) provides a regional situational awareness and battle management capability at Pacific Command (PACOM), Northern Command (NORTHCOM), European Command (EUCOM), Central Command (CENTCOM), and Strategic Command (STRATCOM). C2BMC will move to a blade-based computing architecture in Spiral 8.2-1 and beyond to improve reliability, maintainability, and modularity.

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The long-term plan for the Ballistic Missile Defense (BMD) Planner is to evolve to a network enabled capability designed to interface with joint service and allied planning components. Improvements include support for rapid re-planning, enhanced mapping products and services, enhancing the interface with the Army's Air and Missile Defense Workstation (AMDWS) planner, the Navy's Maritime Integrated Air and Missile Defense Planning System (MIPS), the future Air Force Integrated Air and Missile Defense (IAMD) planner, and the North Atlantic Treaty Organization (NATO) planning systems.

C2BMC will evolve networked interfaces to expose data over the Secret Internet Protocol Router Network (SIPRNET) providing for display of individual weapon system engagement and coordination information resulting in an integrated common operating picture across the Combatant Commands (COCOMs). C2BMC will also implement network security hardware, software, and configuration management designed to meet Global Information Grid (GIG) SIPRNET connection security requirements.

C2BMC battle management will deliver full Army Navy/Ground Transportable Radar Surveillance model 2 (AN/TPY-2) Forward Based Mode (FBM) X-Band radar sensor control and capabilities:

- Improved threat object correlation which calculates a common threat track from multiple sensors through data fusion, with sufficient data accuracy and timeliness for BMDS weapon Elements to enable successful engagements via Link-16 and Extremely High Frequency (EHF) satellite communications
- Improved Interface with AN/TPY-2 Forward Based Mode (FBM) to provide greater flexibility in meeting C2BMC and Weapons System needs for Engagement Quality Data supporting Remote Engagements (EOR) with Aegis Ballistic Missile Defense (BMD).
- Incorporation of BMDS Overhead Persistent Infra-Red (OPIR) Architecture (BOA) and upgraded Space Based Infra-Red System (SBIRS) sensor data to enable much earlier cueing, improve threat tracking, and source information for discrimination processing.
- Improved BMD system discrimination logic using multiple sensors' discrimination results, selecting the best result, and assigning object type to common threat tracks
- Sensor management and weapons engagement coordination aids for Remote Engagements to direct the BMDS fight and make more efficient use of limited inventory, extending the depth of fire and increasing raid defensive capabilities

C2BMC Spirals 8.2-1 and 8.2-3 Distributed Training System (DTS) planning and development enables Combatant Commands (COCOMs) to support large-scale exercises and training events without scheduling downtime of operations. The DTS will stimulate C2BMC operational screens at COCOM Air Operations Center (AOC), Maritime Operations Center (MOC), and Headquarters. Capabilities will support training with theater/regional assets and coalition partners, and updated simulations to represent current BMDS system capabilities. C2BMC Spiral 8.2-1 and Spiral 8.2-3 Training Support System (TSS) planning and development provides a flexible scenario and small footprint training system for small scale COCOM training events and schoolhouses. The TSS will integrate with Missile Warning and Air Operations Center training systems to provide an integrated training system.

The Ballistic Missile Defense (BMD) Communications Network ties together an expanding set of sensors and weapons systems enabling the National Command Authority and the commanders at the strategic, theater and tactical levels to optimally engage ballistic missile threats including near simultaneous theater, regional and homeland attacks. The BMD Communications Network provides a robust, end-to-end, high availability, operational communications network (COMNET) infrastructure

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with diverse paths that quickly and unambiguously shares information across the global Ballistic Missile Defense System (BMDS). This sharing of information is performed securely with special emphasis on preventing cyber attack via the C2BMC Control Center (including the BMDS Network Operations and Security Center (BNOSC)). The C2BMC system and networks are protected by layered defenses that start with circuits comprising the BMDS Communications Network (BCN) that are isolated from the known networks. Where the BCN and the known networks meet, layers of firewalls, encryption devices, routers and switches each with specific access control lists (ACLs), further protect the internal systems and allow only identified and approved users and systems access to the C2BMC data. Effective network management will coordinate and integrate across diverse equipment platforms, interface with other DoD communications systems, evolve information standards and capabilities, and adhere to the DoD Risk Management Framework (RMF). Defense Information Systems Agency (DISA) services are also leveraged in providing world-wide communications. Planned improvements such as dynamic real-time network management and monitoring will enable the warfighter to monitor the connection to BMDS weapons and anticipate and remedy issues as they occur.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: C2BMC Development and Deployment	182.821	190.536	229.269
Articles:	-	-	-

Description: N/A

FY 2014 Accomplishments:
- Funding executed for Spirals include Prime contractor development, C2BMC Communications, C2BMC Experimentation Lab (X-Lab), and Enterprise Sensors Lab (ESL). (Spiral 6.4 $82.213M, Spiral 8.2-1 $83.386M, Spiral 8.2-3 $5.184M)
- Conducted Spiral 6.4 operation in the Areas of Responsibility (AORs) using BMD Planner, Situational Awareness, Global Engagement Manager (GEM), and BMD Communications Network
-Completed development and fielding of Spiral 6.4 maintenance releases to support warfighter improvements in all AORs
- Delivered a C2BMC Deployable Interface Node (CDIN) in support of a second forward based AN/TPY-2 deployment to PACOM.
- Initiated development of Discrimination Improvements for Homeland Defense (DIHD) Near-term capability development and Element-level testing of BMDS sensor management improvements in the Command, Controls, Battle Management and Communications.
- Continued Spiral 8.2 development engineering and design for BMD Planner, Situational Awareness, Global Engagement Manager (GEM), and BMD Communications Network software development, coding, and integration
- Established a C2BMC-BOA Enterprise Government Reference Architecture (GRA) and Capability Evolution Roadmap to define future system enhancements in coordination with STRATCOM's Prioritized Capability List
- Updated C2BMC model, validated by Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs), for system-level performance assessments. CEC/EMEs are the conditions and events where data is obtained from flight and ground tests in order to anchor system models and simulations
- Continued to upgrade the BMD Communications Network capability (development, integration and test) to support European Phase Adaptive Approach (EPAA)

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Upgraded DoD teleports to enhance satellite communications (SATCOM) connectivity - Acquired and installed Enterprise Work Stations (EWS), web browsers, and BMD Planners - Continued Cyber Net Defense (CND) requirements for EPAA Phases 1 and 2 - Continued development of the BMDS C2BMC Model for Spiral 8.2 modeling and simulation - Continued development of Spiral 8.2 software, hardware, and network capability - Designed, procured, and integrated Spiral 8.2 test infrastructure and tools at Missile Defense Integration and Operations Center (MDIOC) to support Spiral 8.2 verification testing and distributed testing support - Participated in and analyzed results of ground and flight tests, wargames, and exercises in accordance with the Ballistic Missile Defense System (BMDS) Integrated Master Test Plan (IMTP). - Continued development and testing of new BMDS Overhead Persistent Infrared Architecture (BOA) baseline release to support Spiral 8.2 integration and testing -Prototyped and delivered the Two-Factor Authentication (Smart-card) capability for Spiral 8.2 on a classified weapons system. Additional improvements to remote administration of the systems, remote monitoring and event response will improve the security configuration management of this growing architecture. Automated anti-virus and patch management will allow for faster deployment of critical patches and anti-virus signatures keeping the systems secured in a timely manner. - Conducted C2BMC and NATO planning demonstrations - Supported 1 NATO live fire events - Documented international interfaces and traceability to BMDS requirements - Initiated EPAA 2 situational awareness display with Romania in accordance with bi-lateral agreements - Conducted a Systems Requirements Review (SRR) for the BMDS OPIR Architecture(BOA) Spiral 6.1 in support of extended tracking of threat missiles with new sensors contributing to EPAA Phase 3 requirements - Continued development of capabilities addressing EPAA Phase 3 requirements resulting in an upgraded Spiral with protection capability (PROCAP) functionality, record and playback and Engage on Remote support with Aegis 5.1. Development activities are scheduled for completion to support GTX-07b (FY 2018).			
FY 2015 Plans: - Funding for Spirals includes Prime contractor development, C2BMC Communications, C2BMC Experimentation Lab (X-Lab), and Enterprise Sensors Lab (ESL). (Spiral 6.4 $61.018M, Spiral 8.2-1 $97.569M, Spiral 8.2-3 $13.802M). - Continue Spiral 8.2 engineering and design and BMD Planner, Situational Awareness, Global Engagement Manager (GEM), and BMD Communications Network software development, coding, and integration - Update C2BMC model, validated by Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs), for system-level performance assessments. CEC/EMEs are the conditions and events where data is obtained from flight and ground tests in order to anchor system models and simulations			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Continue development of Spiral 8.2 software, network capability, and hardware procurement in support of Enhanced Homeland Defense and an overall hardware and architecture refresh, new OPIR-based sensor cueing capability to provide increased Ground-based Midcourse Defense (GMD) battlespace. Spiral 8.2-1 infrastructure is required to host the Spiral 8.2-3 Engage on Remote (EOR) software which supports EPAA Phase 3. - Design, procure, and integrate Spiral 8.2 test infrastructure and tools at Missile Defense Integration and Operations Center (MDIOC) to support Spiral 8.2 verification testing and distributed testing support which provides significant enhancements in Information Assurance and communications robustness and Link 16 track reporting of additional sensors, enhanced sensor tasking to meet track quality and discrimination timeliness requirements to support GMD weapon system engagements, and space situational awareness tasking support. - Participated in and analyzed results of ground and flight tests, wargames, and exercises in accordance with the Ballistic Missile Defense System (BMDS) Integrated Master Test Plan (IMTP). - Continued development and testing of new BMDS Overhead Persistent Infrared Architecture (BOA) baseline release to support Spiral 8.2 integration and testing. -Prototyped and delivered the Two-Factor Authentication (Smart-card) capability for Spiral 8.2 on a classified - Continue to upgrade the BMD Communications Network capability (development, integration and test) to support European Phase Adaptive Approach (EPAA) - Upgrade DoD teleports to enhance satellite communications (SATCOM) connectivity - Acquire and install Enterprise Work Stations (EWS), web browsers, and BMD Planners - Continue Cyber Net Defense (CND) requirements for EPAA Phases 1 and 2 - Continue development of the BMDS C2BMC Model for Spiral 8.2 modeling and simulation - Continue development of Spiral 8.2 software, hardware, and network capability - Design, procure, and integrate Spiral 8.2 test infrastructure and tools at Missile Defense Integration and Operations Center (MDIOC) to support Spiral 8.2 verification testing and distributed testing support - Participate in and analyze results of ground and flight tests, wargames, and exercises in accordance with the Ballistic Missile Defense System (BMDS) Integrated Master Test Plan (IMTP). - Continue development and testing of new BMDS Overhead Persistent Infrared Architecture (BOA) baseline release to support Spiral 8.2 integration and testing - Complete development and fielding of new Spiral 6.4 maintenance release to support warfighter improvements - Spiral 8.2 will develop the Two-Factor Authentication (Smart-card) capability on a classified weapon system. Additional improvements to remote administration of the systems, remote monitoring and event response will improve the security configuration management of this growing architecture. Automated anti-virus and patch management will allow for faster deployment of critical patches and anti-virus signatures keeping the systems secured in a timely manner. - Continue to document international interfaces and traceability to BMDS requirements			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Continue EPAA Phase 2 situational awareness displays project IAW bi-lateral agreements - Initiate C2BMC and NATO planning demonstrations - Continue to support NATO live fire events - Continue development of capabilities addressing EPAA Phase 3 requirements resulting in an upgraded Spiral with plan load during operations, protection capability (PROCAP) functionality, record and playback, a BOA release (6.1 or later), and Engage on Remote support with Aegis 5.1. - Continue requirements allocation and specification for advanced C2BMC technologies to exploit space-based data -Continue site planning, scheduling and hardware acquisition to support planned FY 2017 deployment of C2BMC Spiral 8.2-1 capability. - Complete Discrimination Improvements for Homeland Defense (DIHD) Near-term capability development and Element-level testing of BMDS sensor management improvements in the Command, Controls, Battle Management and Communications. - Complete integration phase of DIHD Near-term testing via GTI-06. - Conduct data collection and analysis for final assessment of discrimination technology candidates planned for DIHD Mid-term improvements. - Continue system maturation and performance characterization of the Simultaneous Correlation of Unambiguous Tracks (SCOUT) Algorithm and the Advanced SCOUT Prototype (ASP) node, a selected component of the MDA initiative for Mid-Term DIHD initiated in FY14 within PE 06031719C, Advanced C4ISR.			
FY 2016 Plans: - Funding for Spirals includes Prime contractor development, C2BMC Communications, C2BMC Experimentation Lab (X-Lab), and Enterprise Sensors Lab (ESL). (Spiral 6.4 $55.022M, Spiral 8.2-1 $83.301M, Spiral 8.2-3 $53.959M). The increase from FY 2015 to FY 2016 is attributed to allocated increased threat requirements in Mid-Term Discrimination, increased DIHD effort to include maturing advanced discrimination and battle management techniques in support of the Mid-term and Far-term capabilities and Spiral 8.2-1 hardware/software development integration. C2BMC International Partner System Engineering - Continue to document international interfaces and traceability to BMDS requirements - Continue to conduct C2BMC and North Atlantic Treaty Organization (NATO) planning demonstrations - Continue to support NATO live fire events - Continue EPAA Phase 2 situational awareness displays project in accordance with bi-lateral agreements C2BMC Spiral 6.4 Maintenance			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Complete development and fielding of new Spiral 6.4 maintenance release to support warfighter improvements and required security updates and vulnerability corrective actions C2BMC Spiral 8.2 Development, Verification Testing, and Deployment - Spiral 8.2-1 was baselined at a Developmental Baseline Review (DBR) in August 2012 - Continue Spiral 8.2-1 product development to include BMD Planner, Situational Awareness, Global Engagement Manager (GEM), Boost Phase Cue and BMD Communications Network software. - Continue development of Spiral 8.2 software, hardware, and network capability - Enhance Spiral 8.2-1 through prototyping and delivery of critical RMF requirements to include Two-Factor Authentication (Smart-card) capability on a classified weapon system, remote administration of the systems, remote scanning, monitoring and event response, and automated anti-virus and patch management - Continue the design, procurement, and integration of Spiral 8.2-1 test infrastructure and tools at Missile Defense Integration and Operations Center (MDIOC) to support Spiral 8.2-1 verification testing and distributed testing support - Provide pre-test engineering and analyze results of ground and flight tests, wargames, and cyber range / other exercises in accordance with the Ballistic Missile Defense System (BMDS) Integrated Master Test Plan (IMTP) - Continue site planning, scheduling and hardware acquisition to support planned FY 2017 Northern Command (NORTHCOM)/ Pacific Command (PACOM) deployment of the C2BMC Spiral 8.2-1 capability - Initiate Spiral 8.2-3 engineering and design for the development of capabilities addressing European Phased Adaptive Approach (EPAA) Phase 3 requirements for Engage-on-Remote (EOR), integration of BOA 6.1 wideband extended tracking, integration of the Army IBCS program, and two Warfighter Improvement Process upgrades (NORTHCOM protection capability (PROCAP) functionality and record and playback functionality). Capability improvements will include modifications to C2BMC track processing, Link-16 track reporting, sensor resource management, and mission planning. Engineering efforts will include planning for initial Spiral 8.2 infrastructure deployment to CENTCOM and EUCOM areas of responsibility (AOR). C2BMC Modeling and Simulation - Continue development of the BMDS C2BMC Model for Spiral 8.2 modeling and simulation - Update C2BMC model, validated by Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs), for system-level performance assessments. CEC/EMEs are the conditions and events where data is obtained from flight and ground tests in order to anchor system models and simulations - Complete development of S8.2-1 C2BMC Model (BCM 8.2-1) - Perform initial Verification and Validation of S8.2-1 C2BMC Model with BC-generated referent data - Begin the initial development of S8.2-3 C2BMC Model (BCM 8.2-3)			

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Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
BMDS Overhead Persistent Infrared Architecture (BOA) - Continue testing of new BMDS Overhead Persistent Infrared Architecture (BOA) 5.1 baseline release to support Spiral 8.2-1 integration and testing - Demonstrate BOA 5.1 capabilities with BMDS elements in the GTX-07 ground test as a pre-condition for operational fielding in FY 2019 - Complete BOA 6.1 development to extend Overhead Persistent Infrared Radar (OPIR) tracks and complete the requirements verification test and analysis - Install BOA 6.1 in an operationally relevant environment to conduct soak testing with live OPIR feeds - Conduct BOA 6.1 requirements verification and performance characterization to support readiness for operational installation in FY 2019. - - Evaluate Enterprise Sensors Lab (ESL) prototypes that extract dimmer targets from sensor data for inclusion in future BOA spirals - Conduct BOA 7.1 system requirements review to incorporate wideband sensor data capabilities yielding improved threat tracking - Continue requirements allocation and specification for advanced C2BMC technologies to exploit space-based data Discrimination Improvements for Homeland Defense (DIHD) - Complete Near-term DIHD capability development and Element-level testing of Ballistic Missile Defense System (BMDS) sensor management improvements in the Command and Control, Battle Management and Communications - Complete integration phase of Near-term DIHD testing via the GTI-06 ground test campaign - Conduct data collection and analysis for final assessment of discrimination technology candidates planned for DIHD Mid-term improvements - Continue system maturation and performance characterization of the Simultaneous Correlation of Unambiguous Tracks (SCOUT) Algorithm and the Advanced SCOUT Prototype (ASP) node, a selected component of the MDA initiative for Mid-Term DIHD DIHD Mid-term improvements - Participate in Far-term DIHD threat models specification. - Develop model/prototype of Far-term DIHD System Level Discrimination in support of the Far-term DIHD capabilities. - Participate in planning and conduct technology trades and analysis to refine capabilities to mitigate the Far-term DIHD threats. - Conduct System Requirements Review for Far-term DIHD C2BMC capabilities. Long Range Discrimination Radar (LRDR)			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Integrate the Long Range Discrimination Radar (LRDR) into the BMDS by performing sensor management of the LRDR and fusion of LRDR sensor data into the C2BMC system tracking capability - Provision Military Satellite Communications (MILSATCOM) and redundant terrestrial communication services from C2BMC to the LRDR - Update interfaces to provide appropriate LRDR-based information to Ground Based Missile Defense (GMD) Fire Control (GFC) and other BMDS elements			
Title: C2BMC Experimentation Lab (X-Lab) ***Articles:*** ***Description:*** N/A ***FY 2014 Accomplishments:*** The C2BMC Experimentation Lab (X-Lab) prototypes and demonstrates new C2BMC capabilities. The FY 2014 development accomplishments are noted below and were supported with test events funded through Project MT01: - Evaluated algorithms and data distribution architectures for transmitting system tracks that included features in simulations, experiments, and associated operations during test events, this enabled weapon systems to form Target Object Maps that allowed an engagement beyond line of sight of the organic radar to utilize the full extent of the physical range of the interceptor (Engage-on-Remote) - Developed interfaces and data distribution architectures that implemented a common cueing protocol with the Joint Overhead Persistent Infra-Red (OPIR) Ground (JOG), Space Based Infra-Red System (SBIRS), and MDA system architectures. Experimentation analysis indicates BMDS benefits to include improved efficiency in cueing - Characterized the performance of engineering releases of C2BMC Spiral 8.2 providing risk mitigation throughout the Spiral development activities. ***FY 2015 Plans:*** The C2BMC Experimentation Lab (X-Lab) prototypes and demonstrates new C2BMC capabilities. The FY 2015 focus will be: -Demonstrate algorithms and data distribution architectures for transmitting system tracks that include features. This will enable weapon systems to form Target Object Maps that allow an engagement beyond line of sight of the organic radar to utilize the full extent of the physical range of the interceptor (Engage-on-Remote) - Evaluate interfaces and data distribution architectures that implement a common cueing protocol with the Joint Overhead Persistent Infra-Red (OPIR) Ground (JOG), Space Based Infra-Red System (SBIRS), and MDA system architectures to improve efficiency in cueing, increase battlespace for Homeland Defense, and decrease C2BMC sustainment costs - Characterize the performance of engineering releases of C2BMC Spiral 8.2 to mitigate risks early in the development and integration processes	4.733 -	6.416 -	5.051 -

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Advanced C4ISR technology products completed in FY 2014 will transition to C2BMC and Sensors Program Elements. The Agency will continue to investigate enabling technology for the integration of the Services command and sensor networks into the Ballistic Missile Defense System (BMDS) in the C2BMC Program Element. ***FY 2016 Plans:*** The decrease in funding from FY 2015 to FY 2016 is attributed to transition of SBIRS Increment 2 from development to operations. The C2BMC Experimentation Lab (X-Lab) prototypes and demonstrates new C2BMC capabilities. The FY 2016 focus will be: - Evaluate the efficacy of virtualization when applied to the C2BMC mission node, in terms of mission performance and the potential for reduction of Operations and Sustainment (O&S) costs - Evaluate Engage-on Remote performance in a series of flight and ground tests - Evaluate prototype advanced sensor and hit assessment technologies - Evaluate multi-sensor source track fusion to improve efficiency in cueing, increase battlespace for Homeland Defense, and decrease C2BMC performance risks - Evaluate interfaces and data distribution architectures that implement a common cueing protocol with the Joint Overhead Persistent Infra-Red (OPIR) Ground (JOG), Space Based Infra-Red System (SBIRS), and MDA system architectures to improve efficiency in cueing, increase battlespace for Homeland Defense, and decrease C2BMC sustainment costs - Assess Link-16 engagement coordination capabilities for planning and managing the execution of Link-16 remote engagements, to include Engage-on Remote - Assess alternative approaches for coordinating strategic sensor task planning, execution and coordination with missile defense regional COCOM tasking priorities - Characterize the performance of engineering releases of C2BMC Spiral 8.2-1 to mitigate risks early in the development and integration processes - Implement systems and network connection security requirements to mitigate connectivity risks early in the development process			
Title: C2BMC Communications	39.223	42.859	30.836
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Designed redundant fiber path in support of Clear Air Force Station (AFS) Upgraded Early Warning Radar (UEWR) integration into the Ballistic Missile Defense System (BMDS) - Provided Ground-Based Midcourse Defense (GMD) Communications Network (GCN) Long Haul Communications Transport (LHCT) Services - Installed and tested AN/GSC-52B SATCOM terminal, Modernization Enterprise Terminal #1 (MET#1), at Ramstein AFB for connectivity via Indian Ocean Defense Satellite Communication System (DSCS) - Continued support for C2BMC 6.4 in the European Command (EUCOM), Strategic Command (STRATCOM), Northern Command (NORTHCOM), Pacific Command (PACOM), and Central Command (CENTCOM) - Completed and deployed the C2BMC Deployable Interface Node (CDIN) (C2BMC Element funded software capability and project management) and associated Long Haul Communications Transport (LHCT) in support of 2nd Radar deployment to Japan. - Participated in and analyzed results of ground and flight tests, wargames, and exercises in accordance with the BMDS Integrated Master Test Plan (IMTP) - Resolved real-time operational issues through the C2BMC Control Center (CCC) (includes BMDS Network Operations and Security Center (BNOSC)) - Provided global BMDS communications via leased Defense Information Systems Agency (DISA) circuit - Provided SME support to fielded C2BMC locations to ensure continued performance and operations - Provided sustaining engineering support for fielded network equipment - Provided support of AN/TPY-2 radar communications nodes to ensure continued performance and operations - Upgraded LHCT services at AN/TPY-2 locations in CENTCOM and EUCOM to provide redundant and diverse paths - Designed and implemented changes at C2BMC suite locations to accommodate changes to the Navy's Automated Digital Network System (ADNS) INC III			
FY 2015 Plans: - Provide Ground-Based Midcourse Defense (GMD) Communications Network (GCN) Long Haul Communications Transport (LHCT) Services - Continue engineering support to AN/GSC-52B SATCOM terminal, Modernization Enterprise Terminal (MET), at Ramstein AFB for connectivity via Indian Ocean Defense Satellite Communication System (DSCS) - Continue network and communications support for C2BMC 6.4 in the European Command (EUCOM), Strategic Command (STRATCOM), Northern Command (NORTHCOM), Pacific Command (PACOM), and Central Command (CENTCOM) - Continue engineering and deployment support of C2BMC Deployable Interface Nodes (CDINs) (C2BMC Element funded software capability and project management)			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Participate in and analyze results of ground and flight tests, wargames, and exercises in accordance with the BMDS Integrated Master Test Plan (IMTP) - Resolve real-time operational issues through the C2BMC Control Center (CCC) (includes BMDS Network Operations and Security Center (BNOSC)) - Provide global BMDS communications via leased Defense Information Systems Agency (DISA) circuit - Provide SME support to fielded C2BMC locations to ensure continued performance and operations - Provide sustaining engineering support for fielded network equipment - Provide support of AN/TPY-2 radar communications nodes to ensure continued performance and operations including installation of new AN/TPY-2 radar communications node at a site in Japan and installation and support of AN/GSC-52B SATCOM terminals, Modernization of Enterprise Terminal-Transportable (MET-T), at a site in Japan - Acquisition of network circuits to support planned FY 2017 S8.2 capability deployment - Fielding of protected Anti-Jam (AJ) /Anti-Scintillation (AS) Wideband Network System (PAAWNS) to missile defense locations worldwide - Install improved LHCT at 2nd AN/TPY-2 radar location in Japan			
FY 2016 Plans: The decrease between FY 2015 and FY 2016 funding was due to the planned FY 2015 completion of the following: Site K SATCOM installation and checkout, Site KCS deployment and activation, Aegis Ashore (Romania) terrestrial fiber communication trunks, Japanese Host Nation Interface (HNI) changes to add a connection to Commander, Naval Forces Japan (CNFJ), Shariki transition from ATM to optical network interface, and the Shariki circuit leases transfer to the Army. - Provide Ground-Based Midcourse Defense (GMD) Communications Network (GCN) Long Haul Communications Transport (LHCT) Services - Continue engineering support to AN/GSC-52B SATCOM terminal, Modernization Enterprise Terminal (MET), at Ramstein Air Force Base (AFB) for connectivity via Indian Ocean Defense Satellite Communication System (DSCS) - Continue network, communications and risk management support for C2BMC Spiral 6.4 in the European Command (EUCOM), Strategic Command (STRATCOM), Northern Command (NORTHCOM), Pacific Command (PACOM), and Central Command (CENTCOM) - Continue engineering and deployment support of C2BMC Deployable Interface Nodes (CDINs) (C2BMC Element funded software capability and project management) - Participate in and analyze results of ground and flight tests, wargames, cyber range /other exercises in accordance with the BMDS Integrated Master Test Plan (IMTP)			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Resolve real-time operational issues through the C2BMC Control Center (CCC) (includes BMDS Network Operations and Security Center (BNOSC)) - Provide global BMDS communications via leased Defense Information Systems Agency (DISA) circuit - Provide Subject Matter Expert (SME) support to fielded C2BMC locations to ensure continued performance and operations - Provide sustaining engineering support for fielded network equipment to include required security maintenance - Provide support of Army Navy/Ground Transportable Radar Surveillance model 2 (AN/TPY-2) radar communications nodes to ensure continued performance and operations including installation of new AN/TPY-2 radar communications node at a site in Japan and installation and support of AN/GSC-52B SATCOM terminals, Modernization of Enterprise Terminal-Transportable (MET-T), at a site in Japan - Acquire network circuits to support planned FY 2017 Spiral 8.2 capability deployment - Continue fielding of Protected Anti-Jam (AJ) / Anti-Scintillation (AS) Wideband Network System (PAAWNS) to missile defense locations worldwide - Continue to upgrade the BMD Communications Network capability (development, integration and test) to support European Phase Adaptive Approach (EPAA) - Continue to upgrade DoD teleports to enhance satellite communications (SATCOM) connectivity - Continue Cyber Net Defense (CND) requirements for Homeland Defense EPAA Phases 1 and 2			
Title: Enterprise Sensors Lab (ESL)	17.461	14.903	12.322
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** The Enterprise Sensors Lab (ESL) prototypes and demonstrates algorithms that fuse space, airborne, and terrestrial-based sensor data to provide three-dimensional (3-D) tracks of threat missiles to enable sensor cueing and Launch/Engage-on-Remote (LOR/EOR) using all sensors. Additionally, ESL extracts features in support of hit assessment with a goal of enabling a shoot-look-shoot capability. During FY 2014 the ESL: : - Developed prototype and pathfinder software incorporating the Space Based Infra-Red System (SBIRS) Geosynchronous Earth Orbit (GEO) Starer, other new Overhead Persistent Infra-Red (OPIR) sensors, and SBIRS Highly Elliptical Orbit (HEO) Wideband Data to extend and enhance the accuracy of 3-D tracks and provide a foundation for future BMDS OPIR Architecture (BOA) builds - Initiated a joint Infrared/Radio Frequency algorithm library to enable sensor data fusion to be incorporated into multiple systems with improved efficiency and reduced maintenance costs			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Prototyped algorithms to extract dimmer targets from sensor data to extend the length of the track and enable additional sensor cueing opportunities - Developed a prototype interface for integrating the Discrimination Sensor Technology (DST) MQ-9 Reaper hosted sensor into the Ballistic Missile Defense System (BMDS) and supported the first airborne data collect, performed ad hoc on an Atlas V launch, to reduce risk for an accelerated test schedule commencing in the 1st quarter FY 2015. - NOTE: FY 2013 $12.5 million from PE0604883C executed in FY 2014 in support of ESL			
FY 2015 Plans: The Enterprise Sensors Lab (ESL) prototypes and demonstrates algorithms that fuse space, airborne, and terrestrial-based sensor data to provide three-dimensional (3-D) tracks of threat missiles to enable sensor cueing and Launch/Engage-on-Remote (LOR/EOR) using all sensors. Additionally, ESL extracts features in support of hit assessment with a goal of enabling a shoot-look-shoot capability. - Execute deferred FY 2014 efforts including critical independent analysis, algorithm development and source data product tasks - Incorporate the Space Based Infra-Red System (SBIRS) Geosynchronous Earth Orbit Scanner Wideband Data and other new Overhead Persistent Infra-Red (OPIR) sensors data feeds to form a more accurate 3-D track - Demonstrate joint Infrared/Radio Frequency algorithms in playbacks of prior flight test to assess sensor data fusion of multiple systems with improved efficiency and reduced maintenance costs - Enhance prototype algorithms to extract dimmer targets from sensor data to extend the length of the track and enable additional sensor cueing opportunities			
FY 2016 Plans: The Enterprise Sensors Lab (ESL) and supporting activities prototype and demonstrate algorithms that fuse space, airborne, and terrestrial-based sensor data to provide three-dimensional (3-D) tracks of threat missiles to enable sensor cueing and Launch/ Engage-on-Remote (LOR/EOR) using all sensors. Additionally, ESL extracts features in support of hit assessment with a goal of enabling a shoot-look-shoot capability - Continue to incorporate the Space Based Infra-Red System (SBIRS) Geosynchronous Earth Orbit (GEO) Scanner Wideband and other new Overhead Persistent Infra-Red (OPIR) sensors data feeds to form a more accurate 3-D track - Initiate integration of SBIRS GEO Starer Wideband sensor data to form a more accurate 3-D track - Prototype hit assessment algorithms based on a fusion of enterprise sensor data to enable a shoot-look-shoot capability - Prototype algorithms for fusing joint Infrared/Radio Frequency systems measurement data real-time to enhance 3-D tracking of threat missiles			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Continue to enhance prototype algorithms to extract dimmer targets from sensor data to extend the length of the track and enable additional sensor cueing opportunities			
Accomplishments/Planned Programs Subtotals	244.238	254.714	277.478

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	251.899	163.892	228.021	-	228.021	230.306	257.014	218.533	247.707	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing
• 0603893C: *Space Tracking and Surveillance System*	41.618	31.331	31.632	-	31.632	17.917	23.937	28.789	30.344	Continuing	Continuing
• 0603895C: *Ballistic Missile Defense System Space Programs*	6.412	6.389	23.289	-	23.289	21.433	16.108	11.933	11.952	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	501.170	455.068	513.256	-	513.256	585.727	484.242	442.202	460.945	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

The Command and Control, Battle Management and Communications (C2BMC) acquisition strategy is consistent with the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, incremental development, evolutionary acquisition, and knowledge-based funding. Lockheed Martin Mission Systems is the C2BMC prime contractor via an Other Transaction Agreement contract vehicle, which ended 1st quarter FY 2012. A sole source C2BMC follow-on contract to Lockheed Martin for Spiral Development, Operation and Sustainment, and Testing was awarded 1st quarter FY 2012 for an ordering period of 2nd quarter 2012 through 1st quarter 2017. Major team members to Lockheed are Northrop-Grumman, Boeing, Raytheon, and General Dynamics. They are charged with the development, testing, fielding, training, and operations and sustainment support of the C2BMC system. They perform development and testing of C2BMC products in Arlington, VA; Huntsville, AL; and Colorado Springs, CO; and provide worldwide on-site operations and maintenance support. Additionally, the Defense Information Systems Agency (DISA) supports C2BMC worldwide long-haul communications. C2BMC Program Office government, Federally Funded Research and Development Center/University Affiliated Research Center (FFRDC/UARC), and Contract Support Services (CSS) personnel are also fully integrated as part of the Prime contractor`s team to function in an Integrated Product Team environment.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C2BMC Development and Deployment - BOA Development	SS/CPAF	Northrop Grumman Space and Mission Systems : Colorado Springs, CO	0.000	-		6.573	Oct 2014	6.221		-		6.221	Continuing	Continuing	Continuing
C2BMC Development and Deployment - C2BMC Hardware/Software Development, Integration & Test (I&T)	SS/IDIQ	Lockheed Martin Team : Arlington, VA	226.340	99.750		104.884		135.468		-		135.468	Continuing	Continuing	Continuing
C2BMC Development and Deployment - C2BMC Integration	Various	Services DISA Agency : -	127.760	19.789		6.549		-		-		-	Continuing	Continuing	Continuing
C2BMC Development and Deployment - C2BMC Mid-Term DIHD-SCOUT	SS/CPFF	Northrop Grumman Space and Mission Systems : Colorado Springs, CO	0.000	-		9.751	Oct 2014	19.377		-		19.377	Continuing	Continuing	Continuing
C2BMC Development and Deployment - C2BMC Mid-Term DIHD-SCOUT OGA	MIPR	Aviation and Missile Research Development and Engineering Center : Huntsville, AL	0.000	-		1.200	Oct 2014	1.200		-		1.200	Continuing	Continuing	Continuing
C2BMC Development and Deployment - Contract Support Services	SS/FFP	Cobham Analytic Solutions, Paradigm, CACI, CSC : Arlington, VA/ Huntsville, AL	156.463	24.338		22.561		24.505		-		24.505	Continuing	Continuing	Continuing
C2BMC Development and Deployment - Federally Funded Research & Development Centers / University Affiliated Research Center	MIPR	MITRE, IDA, ORNL, Aerospace, JHU/APL, GTRI : Arlington, VA/ Huntsville, AL/ Colorado Springs, CO	92.709	16.140		16.470		14.891		-		14.891	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C2BMC Development and Deployment - IT User Services	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	-		-		4.898	Oct 2015	-		4.898	Continuing	Continuing	Continuing
C2BMC Development and Deployment - MDA Civilian, Travel & PCS	Various	- : Arlington, VA/ Huntsville, AL/ Colorado Springs, CO	59.983	22.804		22.548		22.709		-		22.709	Continuing	Continuing	Continuing
C2BMC Experimentation Lab (X-Lab) - X-Lab	SS/CPAF	Various / Northrop Grumman Mission Systems : Colorado Springs, CO	31.408	4.733		6.416		5.051		-		5.051	Continuing	Continuing	Continuing
C2BMC Communications - Communication Equipment and Fielding	SS/CR	DISA, PMDCATS, SPAWAR : Various	56.031	25.250		28.988		20.071		-		20.071	Continuing	Continuing	Continuing
C2BMC Communications - BNOSC	SS/CPAF	Lockheed Martin Team / JRDC : Colorado Springs, CO	13.167	3.224		3.353		3.071		-		3.071	Continuing	Continuing	Continuing
C2BMC Communications - Communication Leases	SS/CR	DISA : Arlington, VA	12.343	8.949		7.993		7.194		-		7.194	Continuing	Continuing	Continuing
C2BMC Communications - EUCOM Communications	MIPR	USAFE : Ramstein, DE	8.220	1.800		2.525		0.500		-		0.500	Continuing	Continuing	Continuing
Enterprise Sensors Lab (ESL) - Enterprise Sensor Lab	SS/CPAF	Northrop Grumman Space and Mission Systems : Colorado Springs, CO	0.000	17.461		14.903		12.322		-		12.322	Continuing	Continuing	Continuing
		Subtotal	784.424	244.238		254.714		277.478		-		277.478	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	784.424	244.238		254.714		277.478		-		277.478	-	-	-

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

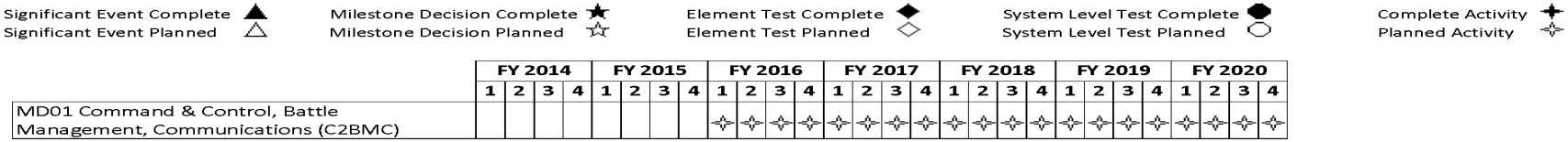


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD01 / *Command & Control, Battle Management, Communications (C2BMC)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD01 Command & Control, Battle Management, Communications (C2BMC)	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	Project (Number/Name) MC01 / *Cyber Operations*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MC01: *Cyber Operations*	-	0.655	0.547	0.543	-	0.543	0.557	0.565	0.573	0.594	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project MC01 is a new Defensive Cyber Operations Project established in this Program Element (PE) for PB 2014. Funds were previously reported in Project MD01 of this PE

A. Mission Description and Budget Item Justification

The funds in this project sustain Missile Defense Agency (MDA) Risk Management Framework (RMF) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for MDA Command and Control, Battle Management and Communications (C2BMC) mission systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the RMF documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&M on all MDA information systems.

This project supports the monitoring and tracking of Cybersecurity mitigations detailed in Information Technology security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA Senior Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation (IV&V) 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 (FISMA).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Network/System Certification and Accreditation (C&A)	0.655	0.547	0.543
Articles:	-	-	-
Description: The funds in this project sustain Missile Defense Agency (MDA) Risk Management Framework (RMF) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/ Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for MDA Command and Control, Battle Management and Communications (C2BMC) mission systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the RMF documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&M on all MDA information systems. This project supports the monitoring and tracking of Cybersecurity mitigations detailed in Information Technology security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA Senior			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MC01 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation (IV&V) 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 (FISMA). ***FY 2014 Accomplishments:*** - Conducted cyber security / information assurance engineering and architecture planning for C2BMC information technology systems. - Planned and tested the IA controls for Ballistic Missile Defense System (BMDS) C2BMC systems. - Developed C2BMC DIACAP certification and accreditation packages. - Conducted Controls Validation Testing (CVT) of C2BMC mission systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies. - Conducted annual information assurance reviews on the C2BMC enclaves to assess compliance in implementing and maintaining IA controls. - Conducted enterprise cyber range environment cybersecurity experiments to assess and improve network defense. ***FY 2015 Plans:*** -Conduct cyber security / information assurance engineering and architecture planning for C2BMC information technology systems. -Plan and test the IA controls for Ballistic Missile Defense System (BMDS) C2BMC systems. -Develop C2BMC DIACAP certification and accreditation packages. -Conduct Controls Validation Testing (CVT) of C2BMC mission systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies. -Conduct annual information assurance reviews on the C2BMC enclaves to assess compliance in implementing and maintaining IA controls. ***FY 2016 Plans:*** -Conduct cyber security / information assurance (IA) engineering and architecture planning for C2BMC information technology systems. -Plan and test the information assurance (IA) controls for Ballistic Missile Defense System (BMDS) C2BMC systems. -Develop C2BMC Risk Management Framework (RMF) certification and accreditation packages. -Conduct Controls Validation Testing (CVT) of C2BMC mission systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MC01 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Conduct annual information assurance reviews on the C2BMC enclaves to assess compliance in implementing and maintaining IA controls.			
Accomplishments/Planned Programs Subtotals	0.655	0.547	0.543

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Command and Control, Battle Management and Communications (C2BMC) acquisition strategy is consistent with the Missile Defense Agency`s capability-based acquisition strategy that emphasizes testing, incremental development, evolutionary acquisition, and knowledge-based funding. Lockheed Martin Mission Systems is the C2BMC prime contractor via an Other Transaction Agreement contract vehicle, which ended 1st quarter FY 2012. A sole source C2BMC follow-on contract to Lockheed Martin for Spiral Development, Operation and Sustainment, and Testing was awarded 1st quarter FY 2012 for an ordering period of 2nd quarter 2012 through 1st quarter 2017. Major team members to Lockheed are Northrop-Grumman, Boeing, Raytheon, and General Dynamics. They are charged with the development, testing, fielding, training, and operations and sustainment support of the C2BMC system. They perform development and testing of C2BMC products in Arlington, VA; Huntsville, AL; and Colorado Springs, CO; and provide worldwide on-site operations and maintenance support. Additionally, the Defense Information Systems Agency (DISA) supports C2BMC worldwide long-haul communications. C2BMC Program Office government, Federally Funded Research and Development Center/University Affiliated Research Center (FFRDC/UARC), and Contract Support Services (CSS) personnel are also fully integrated as part of the Prime contractor`s team to function in an Integrated Product Team environment.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MC01 / *Cyber Operations*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network/System Certification and Accreditation (C&A) - IA/ CND Network/System C&A	C/CPFF	Torch Technologies : Various	0.000	0.655		0.547		0.543		-		0.543	Continuing	Continuing	Continuing
		Subtotal	0.000	0.655		0.547		0.543		-		0.543	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.655		0.547		0.543		-		0.543	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MC01 / *Cyber Operations*

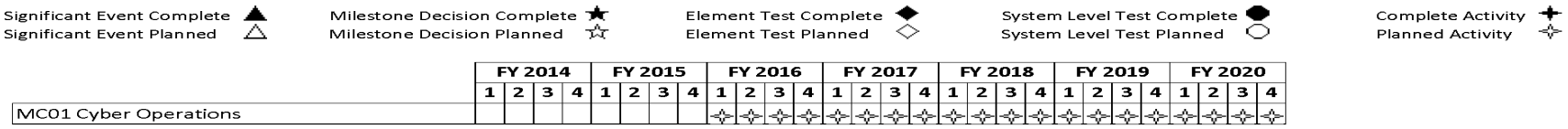


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MC01 / *Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MC01 Cyber Operations	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT01: *C2BMC Test*	41.520	34.776	56.237	59.172	-	59.172	53.115	56.069	53.581	55.537	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

TESTING

To ensure Command and Control, Battle Management and Communications (C2BMC) capabilities delivered are consistent with the Prioritized Capabilities List and are interoperable with other Ballistic Missile Defense System (BMDS) components, C2BMC will support system flight and ground testing, and wargames and exercises as detailed in the MDA Integrated Master Test Plan (IMTP).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Integrated Master Test Plan	34.776	56.237	59.172
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: - Participated in and analyzed results of ground and flight tests, wargames, and exercises in accordance with the BMDS Integrated Master Test Plan (IMTP) - Planned, collected data, assessed, examined, and reported on C2BMC spiral integration testing - Supported interoperability and integration of the BMDS program elements - Supported the field testing of the European and Central Command Deployments - Supported European Phased Adaptive Approach (EPAA) Phase 2-3 Situational Awareness (SA) Node deployments - Provided infrastructure, network, and troubleshooting support to: -- C2BMC Command Center (CCC) (Includes BMDS Network Operations and Security Center (BNOSC)) -- System Test and Operations Center (STOC) -- Ballistic Missile Defense System (BMDS) Communications Network (BCN) -- Distributed Multi-Echelon Distributed Training system (DMETS) -- Distributed Training system (DTS) - Completed build-out of Spiral 8.2 EUCOM Testbed in preparation for Verification Testing - Continued BMD Overhead Persistent Infra-Red (OPIR) Architecture (BOA) performance assessments, integration, and testing			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conducted concept development test for virtualized C2BMC services, service oriented architectures - Conducted Exercise Rapid Arrow 2014 German/Dutch Live Fire Event - Completed Cyber Testing modification to the C2BMC Testbed (CTB) and accomplished 3 events Enterprise Sensors Laboratory (ESL): Project MT01 funds test operations for the capabilities established in the Enterprise Sensors Laboratory and described in Project MD01. In FY14, the ESL accomplished the following: - Participated in three major Missile Defense Agency (MDA) flight tests, one MDA ground test, and collected real-word data on numerous targets of opportunity (TOO) to support advanced processing prototyping, to anchor modeling & simulation (M&S) capabilities, and to provide data for assessment activities - Compiled and provided test and demonstration results back to the algorithm and software development activity in Project MD01 to enable algorithm refinement C2BMC Experimentation Lab (X-Lab): - Demonstrated maturing C2BMC technologies and software builds through two flight tests, one ground test and three real-world targets of opportunities before incorporation into formal C2BMC spiral builds. Project MT01 funded the test operations for the capabilities established in the X-Lab facility and described in Project MD01. - Planned, coordinated, and provided test operations utilizing maturing C2BMC technologies to produce data that enabled evaluation of architecture schemas for system track data distribution and common cueing protocols across the Joint OPIR Ground (JOG), Space Based Infra-Red System (SBIRS), and MDA system architectures. - Hosted and tested Spiral 8.2 engineering releases then compiled and provided test and demonstration results back to the development activity in Project MD01 for architecture refinement activities and Spiral 8.2 performance evaluation and characterization analysis ***FY 2015 Plans:*** Participate in and analyze results of ground and flight tests, wargames, and exercises in accordance with the BMDS Integrated Master Test Plan (IMTP) - Plan, collect data, assess, examine, and report on C2BMC spiral integration testing - Support interoperability and integration of the BMDS program elements - Support the field testing of the European and Central Command Deployments - Support European Phased Adaptive Approach (EPAA) Phase 2-3 Situational Awareness (SA) Node deployments - Provide infrastructure, network, and troubleshooting support to: -- C2BMC Command Center (CCC) (Includes BMDS Network Operations and Security Center (BNOSC))			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-- System Test and Operations Center (STOC) -- Ballistic Missile Defense System (BMDS) Communications Network (BCN) -- Distributed Multi-Echelon Distributed Training system (DMETS) Infrastructure -- Distributed Training system (DTS) - Complete build-out of Spiral 8.2 Testbed for IMTP scheduled events - Continue C2BMC and NATO planning demonstrations - Continue to support NATO live fire events - Continue development and upgrades for Cyber Testing in the C2BMC Testbed (CTB) Enterprise Sensors Laboratory (ESL): -Demonstrate prototype algorithms for track and measurement level sensor data fusion and feature extraction through flight tests, ground tests and real-world targets of opportunities before incorporation into formal C2BMC spiral builds. Project MT01 funds test operations for the capabilities established in the Enterprise Sensors Laboratory and described in Project MD01. -Plan, coordinate, and provide test operations utilizing ESL prototypes to produce data to enable assessments of track accuracy improvements resulting from incorporation of Space Based Infra-Red System (SBIRS) Geosynchronous Earth Orbit Scanner Wideband and other new Overhead Persistent Infra-Red (OPIR) sensor data feeds -Plan, coordinate, and provide test operations utilizing ESL prototypes to produce data to enable effectiveness evaluations of sensor data fusion enabled through the incorporation of radio frequency data into the existing ESL Infrared three-dimension track formulation processes. -Plan, coordinate, and provide test operations utilizing ESL prototypes to produce data to enable characterization of the capability to extract information from observations of dim upper stages of threat systems and the ability to exploit features extracted from available sensor resource data. -Compile and provide test and demonstration results back to the algorithms development activity in Project MD01 to enable algorithm refinement C2BMC Experimentation Lab (X-Lab): - Demonstrate maturing C2BMC technologies and software builds through flight tests, ground tests and real-world targets of opportunities before incorporation into formal C2BMC spiral builds. Project MT01 funds the test operations for the capabilities established in the X-Lab facility and described in Project MD01. -Plan, coordinate, and provide test operations utilizing maturing C2BMC technologies to produce data to enable evaluation of architecture schemas for system track data distribution and common cueing protocols across the Joint OPIR Ground (JOG), Space Based Infra-Red System (SBIRS), and MDA system architectures. -Host and test Spiral 8.2 engineering releases			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Compile and provide test and demonstration results back to the development activity in Project MD01 for architecture refinement activities and Spiral 8.2 performance evaluation Wargames Participate in and analyze results of ground and flight tests, wargames, and exercises in accordance with the BMDS Integrated Master Test Plan (IMTP) Program, Planning & Operations M&S participation in System Test Events -Support and analyze models and simulation in accordance with the BMDS IMTP Integrated Master Assessment Plan (IMAP): - Continue development of Spiral 8.2 assessment requirements (Assessment Objectives, Assessment Sub-Objectives, and Critical Assessment Conditions) to capture engineering, test, and analysis data to support S8.2 Technical Capability Declaration, and drive BMDS system test objectives and test resourcing in the BMDS Integrated Master Test Plan (IMTP). ***FY 2016 Plans:*** Flight Test Execution: Participate in and analyze results of flight tests in accordance with the BMDS Integrated Master Test Plan (IMTP) Enterprise Sensors Laboratory (ESL) and supporting activities: -Demonstrate prototype algorithms for track and measurement level sensor data fusion and feature extraction through flight tests, ground tests and real-world targets of opportunities before incorporation into formal C2BMC spiral builds. -Plan, coordinate, and provide test operations utilizing ESL prototypes to produce data to enable assessments of track accuracy improvements resulting from incorporation of Space Based Infra-Red System (SBIRS) Geosynchronous Earth Orbit (GEO) Scanner Wideband, SBIRS GEO Starer Wideband, and other new Overhead Persistent Infra-Red (OPIR) sensor data feeds -Plan, coordinate, and provide test operations utilizing ESL prototypes to produce data to enable effectiveness evaluations of sensor data fusion enabled through the incorporation of radio frequency data into the existing ESL Infrared three-dimension (3-D) track formulation processes. -Plan, coordinate, and provide test operations utilizing ESL prototypes to produce data to enable characterization of the capability to extract information from observations of dim upper stages of threat systems and the ability to exploit features extracted from available sensor resource data. -Compile and provide test and demonstration results back to the algorithms development activity in Project MD01 to enable algorithm refinement			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
C2BMC Experimentation Lab (X-Lab): - Demonstrate maturing C2BMC technologies and software builds through flight tests, ground tests and real-world targets of opportunity before incorporation into formal C2BMC spiral builds. -Plan, coordinate, and provide test operations utilizing maturing C2BMC technologies to produce data to enable evaluation of architecture schemas for system track data distribution and common cueing protocols across the Joint OPIR Ground (JOG), Space Based Infra-Red System (SBIRS), and Missile Defense Agency (MDA) system architectures. -Host and test Spiral 8.2 engineering releases -Compile and provide test and demonstration results back to the development activity in Project MD01 for architecture refinement activities and Spiral 8.2 performance evaluation Ground Test Execution: Participate in and analyze results of ground tests in accordance with the BMDS Integrated Master Test Plan (IMTP) Enterprise Sensors Laboratory (ESL): -Demonstrate prototype algorithms for track and measurement level sensor data fusion and feature extraction through flight tests, ground tests and real-world targets of opportunities before incorporation into formal C2BMC spiral builds. -Plan, coordinate, and provide test operations utilizing ESL prototypes to produce data to enable assessments of track accuracy improvements resulting from incorporation of Space Based Infra-Red System (SBIRS) Geosynchronous Earth Orbit (GEO) Scanner Wideband and other new Overhead Persistent Infra-Red (OPIR) sensor data feeds -Plan, coordinate, and provide test operations utilizing ESL prototypes to produce data to enable effectiveness evaluations of sensor data fusion enabled through the incorporation of radio frequency data into the existing ESL Infrared three-dimension track formulation processes. -Plan, coordinate, and provide test operations utilizing ESL prototypes to produce data to enable characterization of the capability to extract information from observations of dim upper stages of threat systems and the ability to exploit features extracted from available sensor resource data. -Compile and provide test and demonstration results back to the algorithms development activity in Project MD01 to enable algorithm refinement C2BMC Experimentation Lab (X-Lab): - Demonstrate maturing Command and Control, Battle Management and Communications (C2BMC) technologies and software builds through flight tests, ground tests and real-world targets of opportunities before incorporation into formal C2BMC spiral builds.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Plan, coordinate, and provide test operations utilizing maturing C2BMC technologies to produce data to enable evaluation of architecture schemas for system track data distribution and common cueing protocols across the Joint OPIR Ground (JOG), Space Based Infra-Red System (SBIRS), and Missile Defense Agency (MDA) system architectures. -Host and test Spiral 8.2 engineering releases -Compile and provide test and demonstration results back to the development activity in Project MD01 for architecture refinement activities and Spiral 8.2 performance evaluation Resources: Participate in and analyze results of ground and flight tests, wargames, and exercises in accordance with the BMDS Integrated Master Test Plan (IMTP) - Plan, collect data, assess, examine, and report on Command and Control, Battle Management and Communications (C2BMC) spiral integration testing - Support interoperability and integration of the BMDS program elements - Support European Phased Adaptive Approach (EPAA) Phase 2 Situational Awareness (SA) Node deployments - Provide infrastructure, network, and troubleshooting support to: -- C2BMC Command Center (CCC) (Includes BMDS Network Operations and Security Center (BNOSC)) -- System Test and Operations Center (STOC) -- C2BMC System Support Center (CSSC) -- Ballistic Missile Defense System (BMDS) Communications Network (BCN) -- Distributed Multi-Echelon Distributed Training system (DMETS) Infrastructure -- Distributed Training system (DTS) - Continue C2BMC and North Atlantic Treaty Organization (NATO) planning demonstrations - Continue to support NATO live fire events - Continue development and upgrades for Cyber Testing in the C2BMC Testbed (CTB) Wargames & Exercises: Participate in and analyze results of wargames and exercises in accordance with the BMDS Integrated Master Test Plan (IMTP) Program, Planning & Operations: - Complete definition of Key Test Points for C2BMC Model (BCM 8.2-1) Verification and Validation			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Allocate C2BMC Modeling and Simulation (M&S) data collection requirements of Critical Engagement Conditions (CEC) and Key Test Points (KTP) to Flight and Ground Test events - Perform initial development of S8.2-3 CEC and KTP for inclusion in IMTP			
Accomplishments/Planned Programs Subtotals	34.776	56.237	59.172

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing
• 0603893C: *Space Tracking and Surveillance System*	41.618	31.331	31.632	-	31.632	17.917	23.937	28.789	30.344	Continuing	Continuing
• 0603895C: *Ballistic Missile Defense System Space Programs*	6.412	6.389	23.289	-	23.289	21.433	16.108	11.933	11.952	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	501.170	455.068	513.256	-	513.256	585.727	484.242	442.202	460.945	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

The Command and Control, Battle Management and Communications (C2BMC) acquisition strategy is consistent with the Missile Defense Agency`s capability-based acquisition strategy that emphasizes testing, incremental development, evolutionary acquisition, and knowledge-based funding. Lockheed Martin Mission Systems is the C2BMC prime contractor via an Other Transaction Agreement contract vehicle, which ended 1st quarter FY 2012. A sole source C2BMC follow-on contract to Lockheed Martin for Spiral Development, Operation and Sustainment, and Testing was awarded 1st quarter FY 2012 for an ordering period of 2nd quarter 2012 through 1st quarter 2017. Major team members to Lockheed are Northrop-Grumman, Boeing, Raytheon, and General Dynamics. They are charged with the development, testing, fielding, training, and operations and sustainment support of the C2BMC system. They perform development and testing of C2BMC products in Arlington, VA; Huntsville, AL; and Colorado Springs, CO; and provide worldwide on-site operations and maintenance support. Additionally, the Defense Information Systems Agency (DISA) supports C2BMC worldwide long-haul communications. C2BMC Program Office government, Federally Funded Research and Development Center/University Affiliated Research Center (FFRDC/UARC), and Contract Support Services (CSS) personnel are also fully integrated as part of the Prime contractor`s team to function in an Integrated Product Team environment.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Master Test Plan - Enterprise Sensors Lab Infrastructure	SS/CPAF	Northrop-Grumman Corporation : Colorado Springs, CO	0.000	1.100		5.435		6.687		-		6.687	Continuing	Continuing	Continuing
Integrated Master Test Plan - Enterprise Sensors Lab Infrastructure Support	MIPR	Various : VA; OH; AL;NM; CA	0.000	4.570		1.591		2.085		-		2.085	Continuing	Continuing	Continuing
Integrated Master Test Plan - Integrated Master Test Plan BMDS Level Testing	SS/IDIQ	Lockheed Martin Team : Arlington, VA; Huntsville, AL;Colorado Springs, CO	12.899	19.909		23.257		24.258		-		24.258	Continuing	Continuing	Continuing
Integrated Master Test Plan - Integrated Master	SS/CPAF	Northrop-Grumman Corporation :	28.621	9.197		25.954		26.142		-		26.142	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Plan BMDS level Testing (Element/System Test Lab Facilities)		Colorado Springs, CO													
		Subtotal	41.520	34.776		56.237		59.172		-		59.172	-	-	-

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	41.520	34.776		56.237		59.172		-		59.172	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*

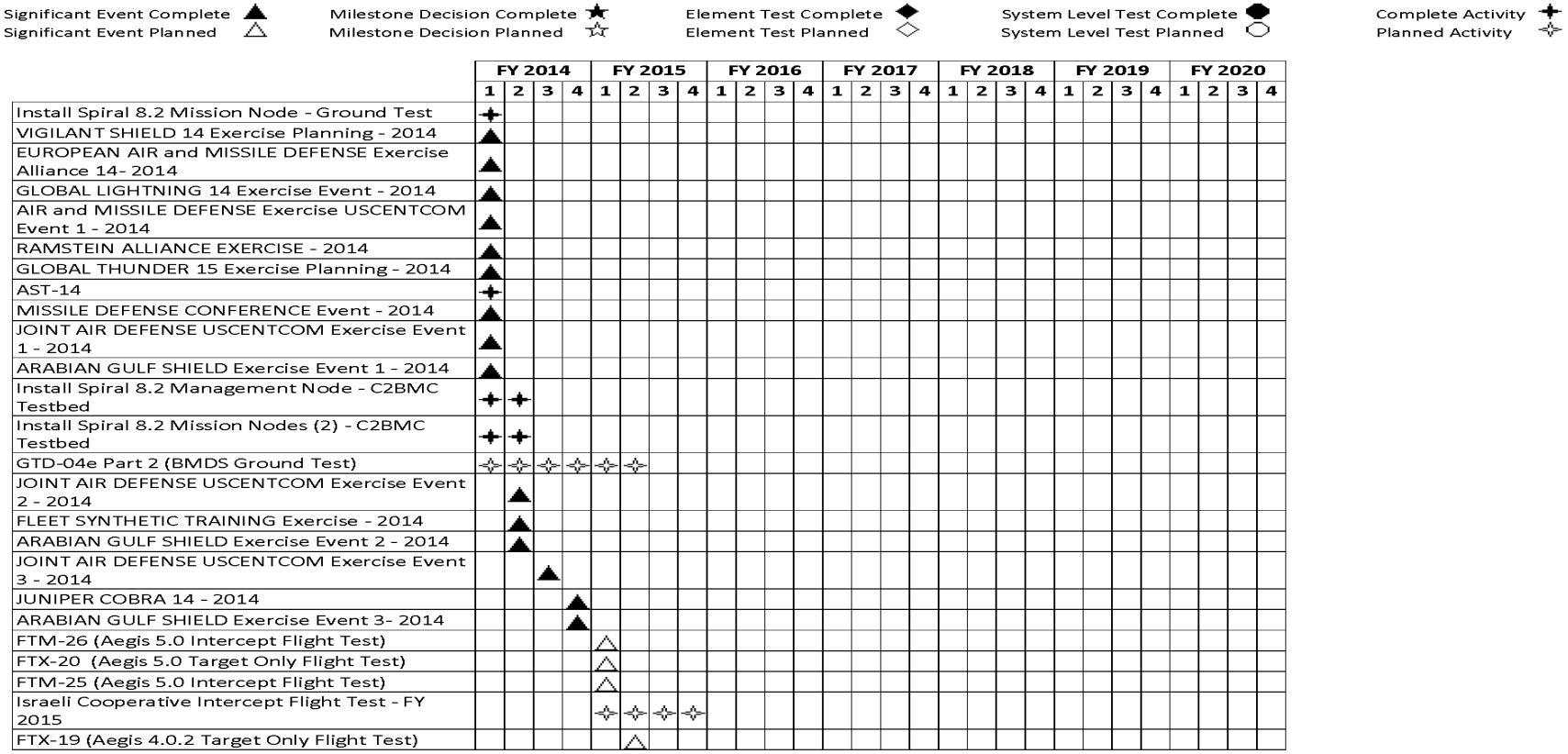
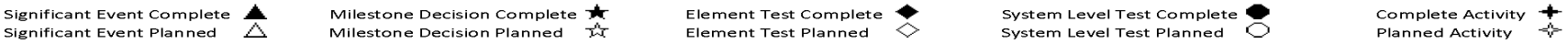


Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
FTP-09 (8-3) (LTPO Intercept Flight Test)						△																						
GTI-06 Part 2 (BMDS Ground Test)							✧																					
FTG-09 (GM Intercept Flight Test)							△																					
GTI-06 Part 1 (BMDS Ground Test)							✧																					
GDEx 06 Part 2 (BMDS Ground Test)							✧																					
FTP-10 (8-4) (LTPO Intercept Flight Test)							△																					
FTO-02 E1 (OTA Intercept Flight Test)							△																					
SCD CTV-01 (AEGIS SCD Intercept Only Flight Test)							△																					
FTO-02 E2 (OTA Intercept Flight Test)								△																				
FTT-18 (TH Intercept Flight Test)								△																				
VIGILANT SHIELD 16 Exercise Event - 2016									△																			
AIR and MISSILE DEFENSE Exercise Series - 2016									△																			
GLOBAL THUNDER 16 Exercise Event - 2016									△																			
EPOCH PLANEX Exercise - 17									△																			
ARABIAN GULF SHIELD 16 Exercise Event 1 - 2016									△																			
GM CTV-02+ (GM Flight Test)									△																			
KEY RESOLVE 16 Exercise - 2016										△																		
FLEET SYNTHETIC TRAINING Exercise - 2016										△																		
ARABIAN GULF SHIELD 16 Exercise Event 2- 2016										△																		
GLOBAL LIGHTNING 16 Exercise Event - 2016										✧	✧																	
JUNIPER COBRA 16 Exercise - 2016										✧	✧																	
TERMINAL FURY 16 Exercise - 2016										✧	✧																	
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 16 - 2016											△																	
SFTM-01 E2 (AEGIS 5.1 Intercept Flight Test)											✧																	
GTI-ISR (BMDS Ground Test)											✧																	
ULCHI FREEDOM GUARD 16 Event - 2016											✧	✧																
BMDS Wargame 2017 Event - 2017											✧	✧	✧	✧														
JOINT AIR DEFENSE Exercise Series - 2016												✧																
EAGLE RESOLVE 16 Exercise Event - 2016												△																

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
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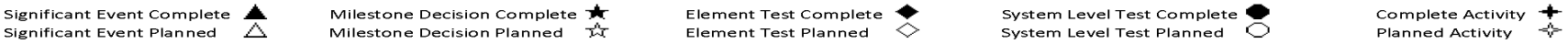

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
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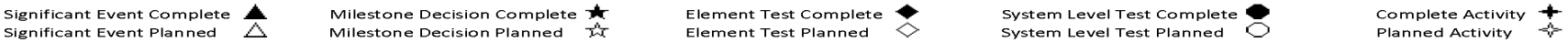
ARABIAN GULF SHIELD 16 Exercise Event 3 - 2016												△																
GTD-06 Part 2 (BMDS Ground Test)												✧																
FTG-15 (GM Intercept Flight Test)												△																
RAMSTEIN ALLIANCE Exercise - 2016												✧	✧															
NIMBLE TITAN 18 Wargame Year 1 - 18												✧	✧	✧	✧													
VIGILANT SHIELD 17 Exercise Event - 2017													△															
AIR and MISSILE DEFENSE Exercise Series - 2017													△															
EPOCH PLANEX Exercise - 18													△															
ARABIAN GULF SHIELD 17 Exercise Event 1 - 2017													△															
FTM-27 (AEGIS SBT Intercept Flight Test)													✧															
SFTM-02 (AEGIS 5.1 Intercept Flight Test)													△															
GLOBAL RESPONSE Exercise Event - 2016													△															
GLOBAL THUNDER 17 Exercise Event - 2017													△															
AUSTERE CHALLENGE 17 Exercise - 2017													✧	✧	✧	✧												
Israeli Cooperative Intercept Flight Test - FY 2017													✧	✧	✧	✧												
KEY RESOLVE 17 Exercise - 2017														△														
FLEET SYNTHETIC TRAINING Exercise - 2017														△														
ARABIAN GULF SHIELD 17 Exercise Event 2 - 2017														△														
GTI-07a (BMDS Ground Test)														✧														
FTT-15 (TH Intercept Flight Test)														△														
GLOBAL LIGHTNING 17 Exercise Event - 2017														✧	✧													
TERMINAL FURY 17 Exercise - 2017														✧	✧													
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 17 - 2017															△													
FTX-22 (SN Target Only Flight Test)															△													
GTD-07a Part 1 (BMDS Ground Test)															✧													
ULCHI FREEDOM GUARDIAN 17 Event - 2017															✧	✧												
GTD-07a Part 2 (BMDS Ground Test)															✧	✧												
KEEN SWORD 17 Exercise - 2017															✧	✧	✧											

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Spiral 8.2-1 NORTHCOM/PACOM Capability Declaration																△												
JOINT AIR DEFENSE Exercise Series - 2017																△												
ARABIAN GULF SHIELD 17 Exercise Event 3 - 2017																△												
FTG-11 (GM Salvo Intercept Flight Test)																△												
RAMSTEIN ALLIANCE Exercise - 2017																✧	✧											
KEEN EDGE 18 Exercise Event - 2018																✧	✧	✧										
NIMBLE TITAN 18 Wargame Event 2 - 2018																✧	✧	✧	✧									
AIR and MISSILE DEFENSE Exercise Series - 2018																	△											
GLOBAL THUNDER 18 Exercise Event - 2018																	△											
VIGILANT SHIELD 18 Exercise Event - 2018																	△											
EPOCH PLANEX Exercise - 19																	△											
ARABIAN GULF SHIELD 18 Exercise Event 1 - 2018																	△											
FTM-29 (AEGIS 5.1 Intercept Flight Test)																	△											
GTX-07b (BMDS Ground Test)																	✧											
EAGLE RESOLVE 18 Exercise Event - 2018																		△										
KEY RESOLVE 18 Exercise - 2018																		△										
FLEET SYNTHETIC TRAINING Exercise - 2018																		△										
ARABIAN GULF SHIELD 18 Exercise Event 2 - 2018																		△										
FTM-31 (AEGIS SBT Intercept Flight Test)																		△										
FTM-33 (AEGIS SBT Intercept Flight Test)																		△										
GLOBAL RESPONSE (GREx) Exercise Event - 2018																		△										
GLOBAL LIGHTNING 18 Exercise Event - 2018																		✧	✧									
JUNIPER COBRA 18 Exercise - 2018																		✧	✧									
TERMINAL FURY 18 Exercise - 2018																		✧	✧									
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 18 - 2018																			△									
FTO-03 E1 (OTA Intercept Flight Test)																			△									
ULCHI FREEDOM GUARDIAN 18 Event - 2018																			✧	✧								
GTI-07b (BMDS Ground Test)																			✧	✧								
JOINT AIR DEFENSE Exercise Series- 2018																				△								

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
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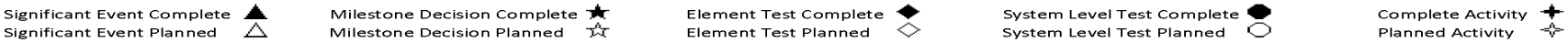
Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬡ | Complete Activity ✦ Planned Activity ✧

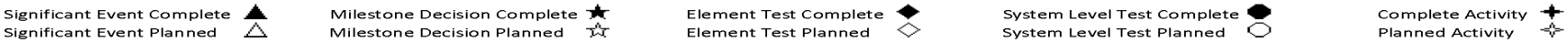
	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ARABIAN GULF SHIELD 18 Exercise Event 3 - 2018																				△								
FTM-32 (AEGIS SBT Intercept Flight Test)																				△								
GTD-07b Part 2 (BMDS Ground Test)																				✧								
FTO-03 E2 (OTA Intercept Flight Test)																				△								
RAMSTEIN ALLIANCE Exercise - 2018																				✧	✧							
BMDS WARGAME 2019 Event - 2019																				✧	✧	✧						
NIMBLE TITAN 20 Wargame Event 1 - 2020																				✧	✧	✧	✧					
Spiral 8.2-1/Spiral 8.2-3 CENTCOM Capability Declaration																					△							
Spiral 8.2-1/Spiral 8.2-3 EUCOM Capability Declaration																					△							
AIR and MISSILE DEFENSE Exercise Series- 2019																					△							
GLOBAL THUNDER 19 Exercise Event - 2019																					△							
VIGILANT SHIELD 19 Exercise Event - 2019																					△							
EPOCH PLANEX Exercise - 20																					△							
ARABIAN GULF SHIELD 19 Exercise Event 1 - 2019																					△							
GTD-07b Part 1 (BMDS Ground Test)																					✧							
EPOCH PLANEX Exercise - 21																					✧	✧	✧	✧	✧			
KEY RESOLVE 19 Exercise - 2019																						△						
FLEET SYNTHETIC TRAINING Exercise - 2019																						△						
ARABIAN GULF SHIELD 19 Exercise Event 2 - 2019																						△						
GLOBAL LIGHTNING 19 Exercise Event - 2019																						✧	✧					
TERMINAL FURY 19 Exercise - 2019																						✧	✧					
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 19 - 2019																							△					
FTG-17 (GM Intercept Flight Test)																							△					
GTX-08 Part 1 (BMDS Ground Test)																							✧					
Spiral 8.2-3 NORTHCOM/PACOM Installation																							△					
ULCHI FREEDOM GUARD 19 Event - 2019																							✧	✧				
KEEN SWORD 19 Exercise - 2019																							✧	✧	✧			
KEEN EDGE 20 Exercise Event - 2020																							✧	✧	✧	✧		

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
EAGLE RESOLVE 19 Exercise Event - 2019																								△				
FTM-35 (AEGIS 5.1 Intercept Flight Test)																								△				
FTT-19 (TH Intercept Flight Test)																								✧				
FTX-23 (AEGIS 5.1 Target Only Flight Test)																								△				
GTX-08 Part 2(BMDS Ground Test)																								✧				
ARABIAN GULF SHIELD 19 Exercise Event 3 - 2019																								△				
RAMSTEIN ALLIANCE Exercise - 2019																								✧	✧			
NIMBLE TITAN 20 Wargame Event 2- 2020																								✧	✧	✧	✧	
AIR and MISSILE DEFENSE Exercise Series - 2020																									△			
GLOBAL THUNDER 20 Exercise Event - 2020																									△			
VIGILANT SHIELD 20 Exercise Event - 2020																									△			
ARABIAN GULF SHIELD 20 Exercise Event 1 - 2020																									△			
KEY RESOLVE 20 Exercise - 2020																										△		
FLEET SYNTHETIC TRAINING Exercise - 2020																										△		
ARABIAN GULF SHIELD 20 Exercise Event 2 - 2020																										△		
GLOBAL RESPONSE Exercise Event - 2020																										△		
GLOBAL LIGHTNING 20 Exercise Event - 2020																										✧	✧	
TERMINAL FURY 20 Exercise - 2020																										✧	✧	
EAGLE RESOLVE 21 Exercise Event - 2020																										✧	✧	✧
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 20- 2020																											△	
JUNIPER COBRA 20 Exercise - 2020																											✧	
FTO-04 (OTA Intercept Flight Test)																											△	
FTX-26 (SN Target Only Flight Test)																											△	
KEEN SWORD 21 Exercise - 2021																											✧	✧
ULCHI FREEDOM GUARDIAN 20 Event - 2020																												△
ARABIAN GULF SHIELD 20 Exercise Event 3 - 2020																												△
FTM-30 (AEGIS 5.1 Intercept Flight Test)																												△
FTT-16 (TH Intercept Flight Test)																												△
GTD-08 Part 1 (BMDS Ground Test)																												✧

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MT01 / *C2BMC Test*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RAMSTEIN ALLIANCE Exercise - 2020																												✧
BMDS WARGAME 2021 Event - 2021																												✧
NIMBLE TITAN 21 Wargame Event 1 - 2021																												✧
NIMBLE TITAN 21 Wargame Event 2 - 2021																												✧

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Install Spiral 8.2 Mission Node - Ground Test	1	2014	1	2014
VIGILANT SHIELD 14 Exercise Planning - 2014	1	2014	1	2014
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 14- 2014	1	2014	1	2014
GLOBAL LIGHTNING 14 Exercise Event - 2014	1	2014	1	2014
AIR and MISSILE DEFENSE Exercise USCENTCOM Event 1 - 2014	1	2014	1	2014
RAMSTEIN ALLIANCE EXERCISE - 2014	1	2014	1	2014
GLOBAL THUNDER 15 Exercise Planning - 2014	1	2014	1	2014
AST-14	1	2014	1	2014
MISSILE DEFENSE CONFERENCE Event - 2014	1	2014	1	2014
JOINT AIR DEFENSE USCENTCOM Exercise Event 1 - 2014	1	2014	1	2014
ARABIAN GULF SHIELD Exercise Event 1 - 2014	1	2014	1	2014
Install Spiral 8.2 Element and User Gateway Nodes (5) - C2BMC Testbed	1	2014	2	2014
Install Spiral 8.2 Management Node - C2BMC Testbed	1	2014	2	2014
Install Spiral 8.2 Mission Nodes (2) - C2BMC Testbed	1	2014	2	2014
GTD-04e Part 2 (BMDS Ground Test)	1	2014	2	2015
JOINT AIR DEFENSE USCENTCOM Exercise Event 2 - 2014	2	2014	2	2014
FLEET SYNTHETIC TRAINING Exercise - 2014	2	2014	2	2014
ARABIAN GULF SHIELD Exercise Event 2 - 2014	2	2014	2	2014
JOINT AIR DEFENSE USCENTCOM Exercise Event 3 - 2014	3	2014	3	2014
JUNIPER COBRA 14 - 2014	4	2014	4	2014
ARABIAN GULF SHIELD Exercise Event 3- 2014	4	2014	4	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTM-26 (Aegis 5.0 Intercept Flight Test)	1	2015	1	2015
FTX-20 (Aegis 5.0 Target Only Flight Test)	1	2015	1	2015
FTM-25 (Aegis 5.0 Intercept Flight Test)	1	2015	1	2015
Israeli Cooperative Intercept Flight Test - FY 2015	1	2015	4	2015
FTX-19 (Aegis 4.0.2 Target Only Flight Test)	2	2015	2	2015
FTP-09 (8-3) (LTPO Intercept Flight Test)	2	2015	2	2015
GTI-06 Part 2 (BMDS Ground Test)	3	2015	3	2015
FTG-09 (GM Intercept Flight Test)	3	2015	3	2015
GTI-06 Part 1 (BMDS Ground Test)	3	2015	3	2015
GDEx 06 Part 2 (BMDS Ground Test)	3	2015	3	2015
FTP-10 (8-4) (LTPO Intercept Flight Test)	3	2015	3	2015
FTO-02 E1 (OTA Intercept Flight Test)	3	2015	3	2015
SCD CTV-01 (AEGIS SCD Intercept Only Flight Test)	3	2015	3	2015
FTO-02 E2 (OTA Intercept Flight Test)	4	2015	4	2015
FTT-18 (TH Intercept Flight Test)	4	2015	4	2015
VIGILANT SHIELD 16 Exercise Event - 2016	1	2016	1	2016
AIR and MISSILE DEFENSE Exercise Series - 2016	1	2016	1	2016
GLOBAL THUNDER 16 Exercise Event - 2016	1	2016	1	2016
EPOCH PLANEX Exercise - 17	1	2016	1	2016
ARABIAN GULF SHIELD 16 Exercise Event 1 - 2016	1	2016	1	2016
GM CTV-02+ (GM Flight Test)	1	2016	1	2016
KEY RESOLVE 16 Exercise - 2016	2	2016	2	2016
FLEET SYNTHETIC TRAINING Exercise - 2016	2	2016	2	2016
ARABIAN GULF SHIELD 16 Exercise Event 2- 2016	2	2016	2	2016
GLOBAL LIGHTNING 16 Exercise Event - 2016	2	2016	3	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JUNIPER COBRA 16 Exercise - 2016	2	2016	3	2016
TERMINAL FURY 16 Exercise - 2016	2	2016	3	2016
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 16 - 2016	3	2016	3	2016
SFTM-01 E2 (AEGIS 5.1 Intercept Flight Test)	3	2016	3	2016
GTI-ISR (BMDS Ground Test)	3	2016	3	2016
ULCHI FREEDOM GUARD 16 Event - 2016	3	2016	4	2016
BMDS Wargame 2017 Event - 2017	3	2016	2	2017
JOINT AIR DEFENSE Exercise Series - 2016	4	2016	4	2016
EAGLE RESOLVE 16 Exercise Event - 2016	4	2016	4	2016
ARABIAN GULF SHIELD 16 Exercise Event 3 - 2016	4	2016	4	2016
GTD-06 Part 2 (BMDS Ground Test)	4	2016	4	2016
FTG-15 (GM Intercept Flight Test)	4	2016	4	2016
RAMSTEIN ALLIANCE Exercise - 2016	4	2016	1	2017
NIMBLE TITAN 18 Wargame Year 1 - 18	4	2016	3	2017
VIGILANT SHIELD 17 Exercise Event - 2017	1	2017	1	2017
AIR and MISSILE DEFENSE Exercise Series - 2017	1	2017	1	2017
EPOCH PLANEX Exercise - 18	1	2017	1	2017
ARABIAN GULF SHIELD 17 Exercise Event 1 - 2017	1	2017	1	2017
FTM-27 (AEGIS SBT Intercept Flight Test)	1	2017	1	2017
SFTM-02 (AEGIS 5.1 Intercept Flight Test)	1	2017	1	2017
GLOBAL RESPONSE Exercise Event - 2016	1	2017	1	2017
GLOBAL THUNDER 17 Exercise Event - 2017	1	2017	1	2017
AUSTERE CHALLENGE 17 Exercise - 2017	1	2017	4	2017
Israeli Cooperative Intercept Flight Test - FY 2017	1	2017	4	2017
KEY RESOLVE 17 Exercise - 2017	2	2017	2	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FLEET SYNTHETIC TRAINING Exercise - 2017	2	2017	2	2017
ARABIAN GULF SHIELD 17 Exercise Event 2 - 2017	2	2017	2	2017
GTI-07a (BMDS Ground Test)	2	2017	2	2017
FTT-15 (TH Intercept Flight Test)	2	2017	2	2017
GLOBAL LIGHTNING 17 Exercise Event - 2017	2	2017	3	2017
TERMINAL FURY 17 Exercise - 2017	2	2017	3	2017
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 17 - 2017	3	2017	3	2017
FTX-22 (SN Target Only Flight Test)	3	2017	3	2017
GTD-07a Part 1 (BMDS Ground Test)	3	2017	3	2017
ULCHI FREEDOM GUARDIAN 17 Event - 2017	3	2017	4	2017
GTD-07a Part 2 (BMDS Ground Test)	3	2017	4	2017
KEEN SWORD 17 Exercise - 2017	3	2017	1	2018
Spiral 8.2-1 NORTHCOM/PACOM Capability Declaration	4	2017	4	2017
JOINT AIR DEFENSE Exercise Series - 2017	4	2017	4	2017
ARABIAN GULF SHIELD 17 Exercise Event 3 - 2017	4	2017	4	2017
FTG-11 (GM Salvo Intercept Flight Test)	4	2017	4	2017
RAMSTEIN ALLIANCE Exercise - 2017	4	2017	1	2018
KEEN EDGE 18 Exercise Event - 2018	4	2017	2	2018
NIMBLE TITAN 18 Wargame Event 2 - 2018	4	2017	3	2018
AIR and MISSILE DEFENSE Exercise Series - 2018	1	2018	1	2018
GLOBAL THUNDER 18 Exercise Event - 2018	1	2018	1	2018
VIGILANT SHIELD 18 Exercise Event - 2018	1	2018	1	2018
EPOCH PLANEX Exercise - 19	1	2018	1	2018
ARABIAN GULF SHIELD 18 Exercise Event 1 - 2018	1	2018	1	2018
FTM-29 (AEGIS 5.1 Intercept Flight Test)	1	2018	1	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GTX-07b (BMDS Ground Test)	1	2018	1	2018
EAGLE RESOLVE 18 Exercise Event - 2018	2	2018	2	2018
KEY RESOLVE 18 Exercise - 2018	2	2018	2	2018
FLEET SYNTHETIC TRAINING Exercise - 2018	2	2018	2	2018
ARABIAN GULF SHIELD 18 Exercise Event 2 - 2018	2	2018	2	2018
FTM-31 (AEGIS SBT Intercept Flight Test)	2	2018	2	2018
FTM-33 (AEGIS SBT Intercept Flight Test)	2	2018	2	2018
GLOBAL RESPONSE (GREx) Exercise Event - 2018	2	2018	2	2018
GLOBAL LIGHTNING 18 Exercise Event - 2018	2	2018	3	2018
JUNIPER COBRA 18 Exercise - 2018	2	2018	3	2018
TERMINAL FURY 18 Exercise - 2018	2	2018	3	2018
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 18 - 2018	3	2018	3	2018
FTO-03 E1 (OTA Intercept Flight Test)	3	2018	3	2018
ULCHI FREEDOM GUARDIAN 18 Event - 2018	3	2018	4	2018
GTI-07b (BMDS Ground Test)	3	2018	4	2018
JOINT AIR DEFENSE Exercise Series- 2018	4	2018	4	2018
ARABIAN GULF SHIELD 18 Exercise Event 3 - 2018	4	2018	4	2018
FTM-32 (AEGIS SBT Intercept Flight Test)	4	2018	4	2018
GTD-07b Part 2 (BMDS Ground Test)	4	2018	4	2018
FTO-03 E2 (OTA Intercept Flight Test)	4	2018	4	2018
RAMSTEIN ALLIANCE Exercise - 2018	4	2018	1	2019
BMDS WARGAME 2019 Event - 2019	4	2018	2	2019
NIMBLE TITAN 20 Wargame Event 1 - 2020	4	2018	3	2019
Spiral 8.2-1/Spiral 8.2-3 CENTCOM Capability Declaration	1	2019	1	2019
Spiral 8.2-1/Spiral 8.2-3 EUCOM Capability Declaration	1	2019	1	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AIR and MISSILE DEFENSE Exercise Series- 2019	1	2019	1	2019
GLOBAL THUNDER 19 Exercise Event - 2019	1	2019	1	2019
VIGILANT SHIELD 19 Exercise Event - 2019	1	2019	1	2019
EPOCH PLANEX Exercise - 20	1	2019	1	2019
ARABIAN GULF SHIELD 19 Exercise Event 1 - 2019	1	2019	1	2019
GTD-07b Part 1 (BMDS Ground Test)	1	2019	1	2019
EPOCH PLANEX Exercise - 21	1	2019	1	2020
KEY RESOLVE 19 Exercise - 2019	2	2019	2	2019
FLEET SYNTHETIC TRAINING Exercise - 2019	2	2019	2	2019
ARABIAN GULF SHIELD 19 Exercise Event 2 - 2019	2	2019	2	2019
GLOBAL LIGHTNING 19 Exercise Event - 2019	2	2019	3	2019
TERMINAL FURY 19 Exercise - 2019	2	2019	3	2019
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 19 - 2019	3	2019	3	2019
FTG-17 (GM Intercept Flight Test)	3	2019	3	2019
GTX-08 Part 1 (BMDS Ground Test)	3	2019	3	2019
Spiral 8.2-3 NORTHCOM/PACOM Installation	3	2019	3	2019
ULCHI FREEDOM GUARD 19 Event - 2019	3	2019	4	2019
KEEN SWORD 19 Exercise - 2019	3	2019	1	2020
KEEN EDGE 20 Exercise Event - 2020	3	2019	2	2020
EAGLE RESOLVE 19 Exercise Event - 2019	4	2019	4	2019
FTM-35 (AEGIS 5.1 Intercept Flight Test)	4	2019	4	2019
FTT-19 (TH Intercept Flight Test)	4	2019	4	2019
FTX-23 (AEGIS 5.1 Target Only Flight Test)	4	2019	4	2019
GTX-08 Part 2(BMDS Ground Test)	4	2019	4	2019
ARABIAN GULF SHIELD 19 Exercise Event 3 - 2019	4	2019	4	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
RAMSTEIN ALLIANCE Exercise - 2019	4	2019	1	2020
NIMBLE TITAN 20 Wargame Event 2- 2020	4	2019	3	2020
AIR and MISSILE DEFENSE Exercise Series - 2020	1	2020	1	2020
GLOBAL THUNDER 20 Exercise Event - 2020	1	2020	1	2020
VIGILANT SHIELD 20 Exercise Event - 2020	1	2020	1	2020
ARABIAN GULF SHIELD 20 Exercise Event 1 - 2020	1	2020	1	2020
KEY RESOLVE 20 Exercise - 2020	2	2020	2	2020
FLEET SYNTHETIC TRAINING Exercise - 2020	2	2020	2	2020
ARABIAN GULF SHIELD 20 Exercise Event 2 - 2020	2	2020	2	2020
GLOBAL RESPONSE Exercise Event - 2020	2	2020	2	2020
GLOBAL LIGHTNING 20 Exercise Event - 2020	2	2020	3	2020
TERMINAL FURY 20 Exercise - 2020	2	2020	3	2020
EAGLE RESOLVE 21 Exercise Event - 2020	2	2020	2	2021
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 20- 2020	3	2020	3	2020
JUNIPER COBRA 20 Exercise - 2020	3	2020	3	2020
FTO-04 (OTA Intercept Flight Test)	3	2020	3	2020
FTX-26 (SN Target Only Flight Test)	3	2020	3	2020
KEEN SWORD 21 Exercise - 2021	3	2020	2	2021
ULCHI FREEDOM GUARDIAN 20 Event - 2020	4	2020	4	2020
ARABIAN GULF SHIELD 20 Exercise Event 3 - 2020	4	2020	4	2020
FTM-30 (AEGIS 5.1 Intercept Flight Test)	4	2020	4	2020
FTT-16 (TH Intercept Flight Test)	4	2020	4	2020
GTD-08 Part 1 (BMDS Ground Test)	4	2020	4	2020
RAMSTEIN ALLIANCE Exercise - 2020	4	2020	1	2021
BMDS WARGAME 2021 Event - 2021	4	2020	2	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NIMBLE TITAN 21 Wargame Event 1 - 2021	4	2020	3	2021
NIMBLE TITAN 21 Wargame Event 2 - 2021	4	2020	3	2021

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
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COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MX01: *Command & Control, Battle Management, Communications (C2BMC) Development Support*	124.092	91.287	91.111	93.097	-	93.097	99.606	95.659	95.979	99.632	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

OPERATIONS AND SUSTAINMENT

Command and Control, Battle Management and Communications (C2BMC) Program Operations and Sustainment (O&S) consists of 1) sustaining C2BMC operational capability worldwide; 2) on-site sub-systems maintenance for all C2BMC including Combatant Commanders (COCOM) suites, Global Engagement Manager (GEM) suites, planners, remote Enterprise Work Stations (EWS), and GEM Work Stations (GWS), web browsers, and communication site(s) associated with the Army Navy/ Ground Transportable Radar Surveillance model 2 (AN/TPY-2) radar(s); 3) the C2BMC Control Center that provides real-time resolution of operational issues; 4) vendor support which includes coordination and resolution of problems that occur with Commercial-off-the-Shelf (COTS) equipment; 5) training of operator, maintenance personnel, and testers (approximately 700 per year); 6) hardware and software maintenance and upgrade installation to ensure continuity of C2BMC operations.

On-site support provides:
- Assistance to the System Administrator of each Combatant Command (COCOM)
- Prime contractor support to operational users
- Maintenance of hardware and software
- Security support for the C2BMC equipment, hardware and software and auxiliary communication capabilities 24 hours a day, 7 days a week, 365 days a year through network and equipment operations monitoring
- Support to operators and testers during test, exercises, and wargames

Off-site support provides:
- Integrated logistics support planning and management
- Hardware and software maintenance and logistics functions that are beyond the capability of on-site support personnel
- Inventory and spares management
- Sustaining engineering support from the prime contractor and government activities

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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- Maintenance of software licenses and vendor support agreements
- Hardware and software maintenance agreements
- Vendor depot support services

C2BMC Control Center (CCC) (help desk) in Colorado Springs, CO provides:
- Real-time resolution of operational issues
- The schedule for maintenance, systems upgrades, tests, exercises, and wargames, coordinated across all users
- Collection of data regarding system/sub-system failures and prioritization of corrective actions
- Review of hardware/software problems and coordination of Commercial-Off-the-Shelf (COTS) developer/vendor service calls

Training support includes:
- Developing and maintaining operator, maintenance personnel, and testers training material for C2BMC components/capabilities
- Training tailored to each deployment and/or test
- Training curriculum/courses provided for Ballistic Missile Defense (BMD) Planner, Situational Awareness, Global Engagement Manager (GEM), and the C2BMC Executive Course
- Warfighter sustainment training and skill proficiency
- Assistance to warfighter in development and execution of the Radar Management Course
- New equipment training to end-users and training organizations

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Operations and Support	69.763	70.018	71.192
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: - Maintained C2BMC training suites - Sustained Global Engagement Manager (GEM) trainers - Developed curriculum for and trained operators, maintenance personnel, and testers - Resolved real-time operational issues through the C2BMC Control Center (CCC) (includes Ballistic Missile Defense System (BMDS) Network Operation and Security Center (BNOSC)) - Provided and supported communications circuits for fielded C2BMC locations - Provided integrated logistics support planning and management and sustaining engineering support for fielded hardware and software, including support to Navy Maritime Operations Centers where C2BMC equipment resides - Provided operations support of Army Navy/Ground Transportable Radar Surveillance model 2 (AN/TPY-2) radar communications nodes			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provided operations and sustainment personnel to support test and special operations for AN/TPY-2 at 5 deployed operational and test sites - Supported Host Nation operations, demonstrations, and tests - Provided sustainment training/skills proficiency to C2BMC operators - Upgraded and maintained computer network defense and network monitoring in the CCC (including the BNOSC) - Operated the CCC (including the BNOSC) 24 hours a day, 7 days a week, 365 days a year - Provided sustainment of the BCN Teleport Gateway (BTG) at the DoD teleports: Lago Patria, IT; Ramstein, DE; Fort Buckner, JP; Camp Roberts, CA; Wahiawa, HI; Northwest, VA - Supported the installation and integration of the second Modernization of Enterprise Terminal (MET) in EUCOM - Continued round-the-clock sustainment for Communications capabilities with Army Navy/Ground Transportable Radar Surveillance model 2 (AN/TPY-2) - Continued on-site C2BMC support of fielded sites for hardware and software - Continued C2BMC operator training for fielded capabilities - Continued sustaining engineering support and integrated logistics support for fielded hardware and software - Planned, engineered, deployed, and sustained C2BMC Deployable Interface Node (CDIN) (and all other required network communications equipment, and shelters) to support the deployment of an AN/TPY-02 Radar to the second site in PACOM			
FY 2015 Plans: Maintain C2BMC training suites - Sustain Global Engagement Manager (GEM) trainers - Develop curriculum for and train operators, maintenance personnel, and testers - Resolve real-time operational issues through the C2BMC Control Center (CCC) (includes Ballistic Missile Defense System (BMDS) Network Operation and Security Center (BNOSC)) - Provide global BMDS communications via leased Defense Information Systems Agency (DISA) circuit lines - Provide and support communications circuits for fielded C2BMC locations - Provide integrated logistics support planning and management and sustaining engineering support for fielded hardware and software, including support to Navy Maritime Operations Centers where C2BMC equipment resides - Provide operations support of Army Navy/Ground Transportable Radar Surveillance model 2 (AN/TPY-2) radar communications nodes - Provide operations and sustainment personnel to support test and special operations for AN/TPY-2 at 6 deployed operational and test sites - Support Host Nation operations, demonstrations, and tests - Provide sustainment training/skills proficiency to C2BMC operators			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Upgrade and maintain computer network defense and network monitoring in the CCC (including the BNOSC) - Operate the CCC (including the BNOSC) 24 hours a day, 7 days a week, 365 days a year - Provide sustainment of the BCN Teleport Gateway (BTG) at the DoD teleports: Lago Patria, IT; Ramstein, GE; Fort Buckner, JP; Camp Roberts, CA; Wahiawa, HI; Northwest, VA - Support the installation and integration of the second Modernization of Enterprise Terminal (MET) in EUCOM - Continue round-the-clock sustainment for Communications capabilities with Army Navy/Ground Transportable Radar Surveillance model 2 (AN/TPY-2) - Continue on-site C2BMC support of fielded sites for hardware and software - Continue C2BMC operator training for fielded capabilities - Continue sustaining engineering support and integrated logistics support for fielded hardware and software - Provide engineering support to the SBIRS Increment 2 interface to ensure continued communications between the BMDS and GMD			
FY 2016 Plans: -Maintain C2BMC training suites - Sustain Global Engagement Manager (GEM) trainers - Develop curriculum for and train operators, maintenance personnel, and testers - Resolve real-time operational issues through the C2BMC Control Center (CCC) (includes Ballistic Missile Defense System (BMDS) Network Operation and Security Center (BNOSC)) - Provide global BMDS communications via leased Defense Information Systems Agency (DISA) circuit lines - Provide and support communications circuits for fielded C2BMC locations - Provide integrated logistics support planning and management and sustaining engineering support for fielded hardware and software, including support to Navy Maritime Operations Centers where C2BMC equipment resides - Provide operations support of Army Navy/Ground Transportable Radar Surveillance model 2 (AN/TPY-2) radar communications nodes - Provide operations and sustainment personnel to support test and special operations for AN/TPY-2 at deployed operational and test sites - Support Host Nation operations, demonstrations, and tests - Provide sustainment training/skills proficiency to C2BMC operators - Upgrade and maintain computer network defense and network monitoring in the CCC (including the BNOSC) - Operate the CCC (including the BNOSC) 24 hours a day, 7 days a week, 365 days a year - Provide sustainment of the BCN Teleport Gateway (BTG) at the DoD teleports: Lago Patria, IT; Ramstein, GE; Fort Buckner, JP; Camp Roberts, CA; Wahiawa, HI; Northwest, VA			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Support the installation and integration of the second Modernization of Enterprise Terminal (MET) in European Command (EUCOM) - Continue round-the-clock sustainment for Communications capabilities with Army Navy/Ground Transportable Radar Surveillance model 2 (AN/TPY-2) - Continue on-site C2BMC support of fielded sites for hardware and software - Continue C2BMC operator training for fielded capabilities - Continue sustaining engineering support and integrated logistics support for fielded hardware and software - Provide engineering support to the SBIRS Increment 2 interface to ensure continued communications between the Ballistic Missile Defense System (BMDS) and Ground Based Midcourse Defense (GMD) - Sustain required monthly cyber security scans and mitigation requirements			
Title: Concurrent, Test, Training, and Operations (CTTO)	21.524	21.093	21.905
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** - Operated and Sustained C2BMC Spiral 6.4 Tri-Node (Tri-Node includes PACOM, NORTHCOM, and STRATCOM) Distributed Training System (DTS) system. Distributed Training System Tri-Node was formerly known as the Distributed Multi-Echelon Training System (DMETS). - Operated and Sustained C2BMC Spiral 6.4 EUCOM and CENTCOM Distributed Training System (DTS) - Deployed C2BMC Spiral 6.4 Training Support System (TSS) to Space Missile Defense Command, C2BMC Sensor Manager Training Facility and to Strategic Command (STRATCOM) - Sustained Spiral 6.4 TSS for Space Missile Defense Command, C2BMC Sensor Manager Training Facility and STRATCOM - Continued providing BMD training events across the Unified Combatant Commands while maintaining the existing architecture - Monitored and coordinated the execution of Agency Modeling and Simulation development efforts; key dependencies for the successful execution of CTTO - Continued development of C2BMC Spiral 8.2 Training Systems ***FY 2015 Plans:*** - Sustain deployed C2BMC Spiral 6.4 Training Support System (TSS). - Operate and Sustain C2BMC Spiral 6.4 Tri-Node (Tri-Node includes PACOM, NORTHCOM, and STRATCOM) Distributed Training System (DTS) system. Distributed Training System Tri-Node was formerly known as the Distributed Multi-Echelon Training System (DMETS). - Operate and Sustain C2BMC Spiral 6.4 EUCOM and CENTCOM Distributed Training System (DTS).			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Continue providing BMD training events across the Unified Combatant Commands while maintaining the existing architecture. - Monitor and coordinate the execution of Agency Modeling and Simulation development efforts; key dependencies for the successful execution of CTTO. - Development of C2BMC Spiral 8.2 Training Systems. ***FY 2016 Plans:*** - Sustain deployed C2BMC Spiral 6.4 Training Support System (TSS) - Operate and Sustain C2BMC Spiral 6.4 Tri-Node (Tri-Node includes PACOM, NORTHCOM, and STRATCOM) Distributed Training System (DTS) system. Distributed Training System Tri-Node was formerly known as the Distributed Multi-Echelon Training System (DMETS). - Operate and Sustain C2BMC Spiral 6.4 European Command (EUCOM) and Central Command (CENTCOM) Distributed Training System (DTS) - Continue providing BMD training events across the Unified Combatant Commands while maintaining the existing architecture - Development of C2BMC Spiral 8.2 Training Systems			
Accomplishments/Planned Programs Subtotals	91.287	91.111	93.097

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	251.899	163.892	228.021	-	228.021	230.306	257.014	218.533	247.707	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603893C: *Space Tracking and Surveillance System*	41.618	31.331	31.632	-	31.632	17.917	23.937	28.789	30.344	Continuing	Continuing
• 0603895C: *Ballistic Missile Defense System Space Programs*	6.412	6.389	23.289	-	23.289	21.433	16.108	11.933	11.952	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	501.170	455.068	513.256	-	513.256	585.727	484.242	442.202	460.945	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Command and Control, Battle Management and Communications (C2BMC) acquisition strategy is consistent with the Missile Defense Agency`s capability-based acquisition strategy that emphasizes testing, incremental development, evolutionary acquisition, and knowledge-based funding. Lockheed Martin Mission Systems is the C2BMC prime contractor via an Other Transaction Agreement contract vehicle, which ended 1st quarter FY 2012. A sole source C2BMC follow-on contract to Lockheed Martin for Spiral Development, Operation and Sustainment, and Testing was awarded 1st quarter FY 2012 for an ordering period of 2nd quarter 2012 through 1st quarter 2017. Major team members to Lockheed are Northrop-Grumman, Boeing, Raytheon, and General Dynamics. They are charged with the development, testing, fielding, training, and operations and sustainment support of the C2BMC system. They perform development and testing of C2BMC products in Arlington, VA; Huntsville, AL; and Colorado Springs, CO; and provide worldwide on-site operations and maintenance support. Additionally, the Defense Information Systems Agency (DISA) supports C2BMC worldwide long-haul communications. C2BMC Program Office government, Federally Funded Research and Development Center/University Affiliated Research Center (FFRDC/UARC), and Contract Support Services (CSS) personnel are also fully integrated as part of the Prime contractor`s team to function in an Integrated Product Team environment.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operations and Support - Indirect Support	MIPR	DISA DECC/DISA TECC : Various	13.761	7.650		7.803		7.959		-		7.959	Continuing	Continuing	Continuing
Operations and Support - Teleport Sustainment	MIPR	SPAWAR : San Diego, CA	4.844	-		-		-		-		-	-	4.844	-
Operations and Support - Unit Personnel, Control System Improvement Sustaining Support	SS/IDIQ	Lockheed Martin Team : Arlington, VA	84.457	62.113		62.215		63.233		-		63.233	Continuing	Continuing	Continuing
Operations and Support - Warfighter Training	IA	Lockheed Martin Team : Arlington, VA	2.661	-		-		-		-		-	2.661	5.322	2.661
Concurrent, Test, Training, and Operations (CTTO) - Concurrent Test, Training And Operations	SS/CPAF	Northrop Grumman : Boeing	3.175	-		0.700		0.735		-		0.735	Continuing	Continuing	Continuing
Concurrent, Test, Training, and Operations (CTTO) - Concurrent Test, Training And Operations/Training Enhancements	SS/IDIQ	Lockheed Martin Team Arlington,VA : Huntsville, Al, Colorado Springs, CO	15.194	21.524		16.743		17.337		-		17.337	Continuing	Continuing	Continuing
Concurrent, Test, Training, and Operations (CTTO) - Concurrent Test, Training, Test and Operations	SS/FPAF	COLSA ARC : Huntsville, AL	0.000	-		3.650	Oct 2014	3.833		-		3.833	Continuing	Continuing	Continuing
		Subtotal	124.092	91.287		91.111		93.097		-		93.097	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	Project (Number/Name) MX01 / *Command & Control, Battle Management, Communications (C2BMC) Development Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	124.092	91.287		91.111		93.097		-		93.097	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MX01 / *Command & Control, Battle Management, Communications (C2BMC) Development Support*

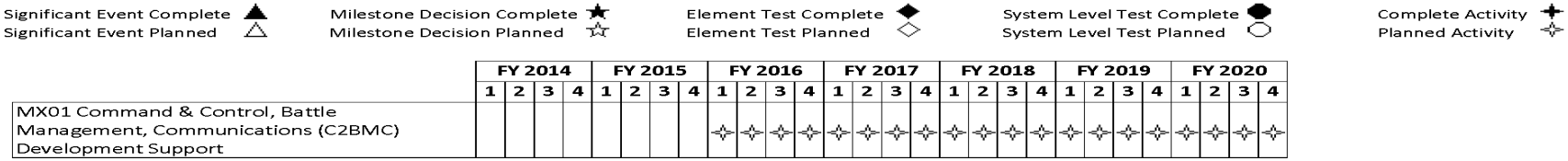

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MX01 / *Command & Control, Battle Management, Communications (C2BMC) Development Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MX01 Command & Control, Battle Management, Communications (C2BMC) Development Support	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	29.518	19.251	25.668	19.795	-	19.795	21.831	21.706	23.596	24.925	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015, Program Wide Support reflects a proportional change as a result of an increase and in FY 2016, reflects a proportional decrease as a result of a decrease to theBallistic Missile Defense Command and Control, Battle Management & Communication program.
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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	19.251	25.668	19.795
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD40 / *Program-Wide Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	19.251	25.668	19.795

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, CA, CO, VA	1.880	0.075		2.164		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (MIPRs)	MIPR	Various : Multi: AK/ AL/CA/CO/HI/MD/ VA/NJ/NY/OCONUS	0.013	-		-		-		-		-	0.015	0.028	-
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AK, AL, CA, CO, HI, VA	2.088	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services (FFP)	C/FFP	Various : Multi: AK, AL, CA, CO, HI, VA	22.388	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services (Reqn)	Reqn	Various : Multi: AK, AL, CA, CO, VA	0.349	19.176		22.062		6.218	Nov 2015	-		6.218	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services Civilian Salaries, Travel, Training	Allot	Various : Multi: AL, CA, CO, VA	2.800	-		-		13.577	Nov 2015	-		13.577	2.800	19.177	-
Program Wide Support - Agency Operations, Sustainment and GPC	Allot	Various : Multi: AL, CO, VA etc.	0.000	-		1.442		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Facilities Maintenance SRM	MIPR	Various : Multi: AK, CA, CO, AL, MD, NJ, VA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	29.518	19.251		25.668		19.795		-		19.795	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	Project (Number/Name) MD40 / *Program-Wide Support*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.518	19.251		25.668		19.795		-		19.795	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD40 / *Program-Wide Support*

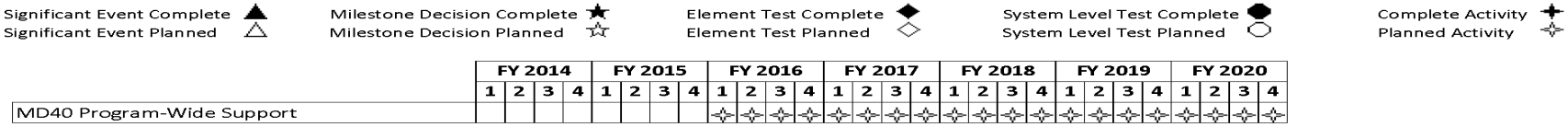

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603896C / *Ballistic Missile Defense Command and Control, Battle Management & Communication*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
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 0603898C *I Ballistic Missile Defense Joint Warfighter Support*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	155.314	41.051	46.387	49.570	-	49.570	50.533	51.363	52.217	54.247	Continuing	Continuing
MD03: *Joint Warfighter Support*	151.182	38.601	14.569	16.241	-	16.241	16.405	16.580	16.811	17.441	Continuing	Continuing
MT03: *Joint Warfighter Support Test*	-	-	29.134	31.149	-	31.149	31.739	32.153	32.624	33.867	Continuing	Continuing
MD40: *Program-Wide Support*	4.132	2.450	2.684	2.180	-	2.180	2.389	2.630	2.782	2.939	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

In FY 2015, $29.134 million of the Joint Warfighter Support cost will transfer from budget project MD03 to budget project MT03.

A. Mission Description and Budget Item Justification

The Joint Warfighter Support Program (JWSP) is MDA's primary means for providing direct technical support to Combatant Commands (CCMDs), the Military Services and the Joint Staff on Ballistic Missile Defense System (BMDS) development, testing, and operational support. It enables delivery of BMDS capabilities to Warfighters and ensures their participation in the identification and development of new Ballistic Missile Defense (BMD) capabilities via the Warfighter Involvement Process (WIP). The JWSP allows the Warfighter and MDA to work together to identify gaps, seams, and needs in war fighting capability and enhance BMDS attributes by submitting modification and fielding requests. It also provides 24/7 BMD operational support to Warfighters worldwide. The program enables rapid response to Warfighter Requests for Information (RFIs) and Requests for Analyses (RFAs), which are especially critical to mission success in protecting U.S. forces and other defended assets during "Real World" threat events. The program supports improving products delivered to Warfighters through technical reviews and technical analyses supporting development of shot doctrine. The JWSP also enables the inclusion of both CCMD and MDA BMD objectives in CCMD/Joint Staff-sponsored wargames and exercises, which are used to sharpen and enhance joint BMD warfighting skills.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0603898C *I Ballistic Missile Defense Joint Warfighter Support*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	42.619	46.387	52.619	-	52.619
Current President's Budget	41.051	46.387	49.570	-	49.570
Total Adjustments	-1.568	-	-3.049	-	-3.049
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.904	-			
• SBIR/STTR Transfer	-0.664	-			
• Other Adjustment	-	-	-3.049	-	-3.049

Change Summary Explanation

FY 2014 adjustments due to high priority Missile Defense Agency (MDA) realignments.

FY 2016 adjustments reflect realignment to Department of Defense priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	Project (Number/Name) MD03 / *Joint Warfighter Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD03: *Joint Warfighter Support*	151.182	38.601	14.569	16.241	-	16.241	16.405	16.580	16.811	17.441	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Funding in the All Prior Years column represents prior year total costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3. In FY 2015, the cost for Warfighter operational support and wargames and exercises will transfer from budget project MD03 to budget project MT03.

A. Mission Description and Budget Item Justification

There are five primary functions in Joint Warfighter Support (MD03): (1) CCMD support, including United States Strategic Command (USSTRATCOM) and United States Northern Command (USNORTHCOM); (2) Joint Staff engagement; (3) Military Services engagement; (4) current operations support; and (5) Warfighter training support.

CCMD engagement entails: supporting the WIP; assisting Warfighters with the annual BMDS Prioritized Capabilities List (PCL) and Modification and Fielding Request List (MFRL); sharing information and knowledge with CCMDs to help develop common BMDS operational procedures; coordinating with USSTRATCOM regarding the Operations Forces Standing Committee (OFSC) and Departmental Corporate Boards (e.g., the Missile Defense Executive Board); supporting Assistants to the Director (ATDs) and Liaison Officers (LNOs) in communication with CCMD staffs on BMDS capabilities and deployments; supporting Joint Functional Component Command for Integrated Missile Defense (JFCC-IMD) integration efforts; and coordinating the CCMD inquiries into RFA/RFIs. In FY 2015, CCMD engagement activities supporting Warfighter operational support; Geographic Combatant Command (GCC) engagement, integration, and synchronization; MDA senior leadership engagement with GCCs; and wargames and exercise support will transfer from budget project MD03 to budget project MT03.

Joint Staff engagement support entails: facilitating and coordinating Joint Staff interactions with the MDA; responding to BMDS capability delivery process inquiries and transition and transfer actions from the Military Services; maintaining daily, strategic-level interfaces with the Joint Staff; providing critical information required to plan for fielding and operation of BMDS capabilities; and coordinating Joint Staff inquiries into RFA/RFIs.

Military Services engagement entails: facilitating and coordinating the Service Boards of Directors (BODs); supporting the BMDS capability delivery process and transition and transfer to the Military Services; establishing and updating annexes for transitioned and transitioning BMDS capabilities; maintaining daily, strategic-level interfaces with the Military Services to provide critical information required to plan for the delivery, fielding, and operation of Lead Service BMDS capabilities; and coordinating Military Service inquiries into RFA/RFIs.

The current operations support function entails: operating the MDA Operations Support Center (OSC) on a 24/7 basis; staffing and operating two MDA Operations Centers (MOCs) in VA and in AL five days per week; serving as the office of primary responsibility for MDA participation in the BMDS asset management (BAM) scheduling and execution process; collecting and reporting BMDS operational availability and readiness data; leading the MDA operations support task force to support real-world contingencies, crisis events, and exercises; and leading the staffing and processing of Warfighter RFA/RFIs.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD03 / *Joint Warfighter Support*

Warfighter training support entails: providing technical and programmatic updates on BMD systems; providing Missile Defense Space Warning tool (MDST) support; coordinating Command and Control, Battle Management, and Communications (C2BMC) training; coordinating Distributed Multi-Echelon Training System (DMETS) and other BMD training; and developing the BMDS Handbook.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Warfighter Operational Support / Wargames and Exercises	26.227	-	-
Articles:	-	-	-

Description: N/A

FY 2014 Accomplishments:
CCMD engagement:
-Managed MDA and CCMD interface activities.
-Developed and updated the BMD portions of CCMD Operation Plans and Contingency Plans.
-Supported the BMDS Capability Delivery process and transition and transfer to the Military Services.
-Coordinated and integrated CCMD requirements into the BMDS Integrated Master Test Plan.
-Integrated and provided information to the Global Deployment Program Office.
-Synchronized MDA integrated fielding plans with Warfighter operational readiness and acceptance (OR&A) efforts.
-Served as liaison between internal MDA organizations and the JFCC-IMD across all functional areas (e.g. operations, plans, and resources) to facilitate GCC participation in the BMDS capability definition, design, development, integration, and delivery processes.
-Engaged in GCC interface and synchronized information regarding capabilities and security cooperation strategies.
-Supported the GCC ATDs/LNOs.
-Developed responses and coordinated actions and taskings, including RFIs on BMDS operations and programmatic inquiries.
-Conducted, coordinated, and participated in meetings and working groups in response to real-world events and associated MDA tasks.
-Planned and coordinated activities during real-world contingencies, including senior-level status briefings.
-Assisted with BMD planning, analysis, and activation of MDA assets for operational use.
-Provided surge support to the Huntsville MDA Operation Center (HMOC) during Operation DYNAMIC VIEW, enabling the HMOC to achieve 24/7 operations. Also provided surge support to the HMOC during the April/May period of interest.
-Supported multiple Flag Officer/General Officer and 0-6 level planning and execution engagements supporting Army-Navy/ Ground Transportable Radar Surveillance and Control-Series 2 (AN/TPY-2) deployments in the United States European Command (USEUCOM), United States Central Command (USCENTCOM), and United States Pacific Command (USPACOM) Areas of Responsibility (AORs).
-Supported over ten BMDS wargame events, including the capstone event, Nimble Titan 2014. This event was a JFCC-IMD sponsored campaign with interactive BMD simulation. It provided situational awareness to individuals responsible for the political

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD03 / *Joint Warfighter Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
ramifications and decisions surrounding BMD scenarios. MDA supported all events, developing multiple BMD scenarios with limited integrated air and missile defense (IAMD) involvement using International Simulation (I-Sim) to immerse participants in the scenario and provide a valuable learning experience. -Supported USNORTHCOM/USSTRATCOM BMD exercises, including Global Thunder/Vigilant Shield 14 (GT/VS-14). This event was a Tier 1 exercise to train and certified the staffs of USSTRATCOM, North American Aerospace Defense Command (NORAD)-USNORTHCOM (N-NC), and Canada Command in their Unified Command Plan (UCP) assigned nuclear command, control, and communications (NC3); homeland defense; and homeland security missions. MDA provided BMD modeling and simulation (M&S) support to the GT/VS-14 Tier 1 activities. The MDA provided the simulation threat driver; Tactical Data Analysis and Connectivity System (TDACS); Open System Architecture Sensor Model for AN/TPY-2 and Sea-Based X-Band Radar; Discrete Event Simulation (DESIM) for Patriot, Terminal High Altitude Area Defense (THAAD), and Aegis; Ground-Based Midcourse Defense System Trainer (GST) simulations; and BMDS Integration and Test Center-4 lab for C2BMC. -Supported USEUCOM for Juniper Cobra 2014, an exercise that integrated U.S. and Host Nation command and control of coalition BMD forces where Warfighters exercised their shot doctrine and tactics, techniques, and procedures (TTPs). The MDA provided the simulation threat driver, TDACS, DESIM for AN/TPY-2, and Extended Air Defense Simulation for THAAD and Aegis for U.S. Army and Navy Forces in Europe to operate. MDA integrated two live Aegis BMD ships and, for the first time, the U.S. Army Patriot Reconfigurable Table Top Trainer. -Supported USPACOM BMD exercises, including the first MDA support to Key Resolve (KR). KR is an annual Tier 2, USPACOM directed, U.S. Combined Forces Command led, combined United States-Republic of Korea Field Training Exercise. Its primary objective is to assess the future command structure headquarters, staff, and combined components to complete initial operational capability certification and increase readiness. MDA provided BMD M&S to the participating elements. -MDA provided subject matter expert support to the BMD operational information sharing working group to resolve issues related to sharing BMD data between the United States and Japan. -Supported USCENTCOM BMD exercises, including a first-time series named Arabian Gulf Shield (AGS). AGS occurs 3 times a year and is a United States Air Force Central Command (USAFCENT) led air and missile defense exercise including live and simulated air and BMD systems. AGS provides a venue for regional cooperation and interoperability between the USAFCENT Combined Air and Space Operations Center (CAOC) and Gulf Cooperation Council (GCC) nations, which include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates. The MDA played a vital role in the three AGS exercises executed in FY 2014, providing the threat theater ballistic missile simulation scenario with space-based infrared early warning and AN/TPY-2 blue force representations supporting USAFCENT objectives and key milestones in the GCC Air Defense Liaison Team program. MDA aided completion of mission objectives, including developing shared procedures, improving United States-GCC interoperability, increasing defense posture of GCC air defenses, and building a cadre of experienced officers, all while honoring bilateral relations.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD03 / *Joint Warfighter Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- The MDA provided Models and Simulation (M&S) support for 25 wargame and exercise events worldwide in FY 2014. ***FY 2015 Plans:*** -Beginning in FY2015, Joint Warfighter Support Test transfers from Budget Project MD03 to Budget Project MT03. ***FY 2016 Plans:*** N/A			
Title: Strategic Warfighter Integration	12.374	14.569	16.241
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** The MDA made significant strides in Warfighter support by increasing its focus on providing a strategic-level interface to USSTRATCOM, USNORTHCOM, the Joint Staff, OSD, and the Military Services to facilitate increased Warfighter involvement in the transition and deployment of future BMD capabilities. Several of the key Warfighter interface activities include: USSTRATCOM Engagement: -Supported the Warfighter Involvement Process (WIP) and other MDA Warfighter engagement efforts by assisting Warfighters to update the annual BMDS Prioritized Capabilities List (PCL) and Modification and Fielding Request List (MFRL) reflecting changes in Combatant Command and Military Service priorities for needed BMDS enhancements. -Shared BMDS operational information and knowledge to help CCMDs develop common BMDS operational procedures. -Planned and executed a quarterly tag-up between the MDA Deputy Director and the USSTRATCOM Deputy Commander regarding the Operations Forces Standing Committee (OSFC) and Departmental Corporate Boards (such as the Missile Defense Executive Board). -Coordinated the MDA process for responding to USSTRATCOM RFA/RFIs. -Provided reach-back support to the USSTRATCOM ATD in all USSTRATCOM BMDS-related activities requiring visibility by the MDA Director. -Supported Joint Functional Component Command Integrated Missile Defense (JFCC-IMD) Integration efforts. USNORTHCOM Engagement: -Assisted USNORTHCOM leadership in their efforts to broaden homeland defense planning to address the full range of USNORTHCOM threats and integration of allies into BMD. -Assisted in the plans of incorporating additional BMDS related homeland defense capabilities. -Assisted in planning to incorporate additional BMDS homeland defense capabilities.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD03 / *Joint Warfighter Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Applied developmental and fielding expertise to support allied development of common operational procedures. -Coordinated the MDA process for responding to USNORTHCOM Requests for Analysis and Requests for Information (RFA/RFI). -Expanded Military Service cooperation and influence in acquisition and BMDS capability transfer decisions. -Supported BMD senior leader forums and asset management, test, training, and exercises. Joint Staff Engagement: -Facilitated/coordinated Joint Staff interactions with the MDA. -Provided answers about the BMDS capability delivery process and transition and transfer actions to the Military Services. -Provided the MDA`s planner-level coordination for Joint Staff and interagency staff actions. -Maintained daily, strategic-level interfaces with the Joint Staff and provided critical information to plan for fielding and operation of BMDS capabilities. -Coordinated the MDA process for responding to Joint Staff Requests for Analysis and Requests for Information (RFA/RFI). Military Services Engagement: -Facilitated/coordinated Service Boards of Directors (BoDs). -Supported the BMDS capability delivery process and transition and transfer to the Military Services via program offices to establish transition annexes for BMDS capabilities. -Maintained daily, strategic-level interfaces with the Military Services and provided critical information to plan for the delivery, fielding, and operation of respective Lead Service BMDS capabilities. -Coordinated the MDA process for responding to Military Service RFA/RFIs. Current Operations Support -Staffed/operated the MDA Operations Support Center (OSC) 24/7 to control the configuration of the operational BMDS, coordinate the execution of daily scheduled BMDS activities through the Asset Management System, capture scheduled and unscheduled outage start and stop times through the BMDS Operational Readiness Reporting System (BORRS), monitored the “Health and Status” of BMDS assets deployed worldwide, and supported MDA senior leadership with prompt and accurate critical information reporting. -Took rapid corrective action to remediate system and support equipment faults, maximizing system availability and effectiveness against threat missiles. -Gathered, developed, fused, documented, and communicated BMDS operational data to all BMDS stakeholders. -Provided certification training BMDS watch officers (BWO), assistant BWOs, BMDS Safety Officers (BSO), and other Operations Support Center staff. -Supported MDA continuity of operations program planning and execution activities.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD03 / *Joint Warfighter Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Staffed and operated the two MDA Operations Centers (MOCs) in VA and in AL (HMOC) five days per week to provide MDA senior leadership with command, control, and communications capability for activities worldwide. -Served as the fusion center for MDA's Warfighter Strategic Integration efforts supporting OSD, Joint Staff, CCMDs, and Military Services. -Served as the office of primary responsibility for MDA participation in the BAM Process defined by USSTRATCOM. -Developed and maintained the integrated scheduling tool, information technology infrastructure, and tailored applications which facilitate BMDS planning, scheduling, and execution management supporting Homeland and Theater/Regional BMDS. -Coordinated with CCMDs to develop the BMDS Annual Plan, BMDS operating schedules, and synchronized BMDS execution schedules. -Published Asset Management user and system administrator guides and developed and conducted Asset Management training courses. -Coordinated and aligned BMDS scheduled maintenance to maximize operational and developmental availability. -Collected and reported BMDS operational availability and readiness data through the network-based BMDS Operational Readiness Reporting System (BORRS). -Led the MDA Operations Support Planning Team (OSPT), an MDA-wide task force supporting real-world contingencies, crisis events, and exercises. -Led the staffing and processing of Warfighter Requests for Analysis/Requests for Information (RFA/RFI)s. Warfighter Training Support -Provided technical and programmatic updates on BMD systems supporting Warfighter training. -Provided Missile Defense Space Warning tool (MDST) support for exercises and training for CCMDs and Military Services (up to 24/7). -Coordinated C2BMC, Distributed Multi-Echelon Training System (DMETS), and other BMD training with the Warfighter through the USSTRATCOM, Joint Staff (J-7), and MDA co-chaired BMD Training and Education Working Group. -Developed and published the BMDS Handbook to aid Warfighter understanding of the capabilities and limitations of the fielded BMDS. ***FY 2015 Plans:*** The MDA will continue to make significant strides in Warfighter support by focusing on providing a strategic-level interface to USSTRATCOM, USNORTHCOM, the Joint Staff, OSD, and Military Services to increase Warfighter involvement in the transition and deployment of future BMD capabilities. Several of the key Warfighter interface activities include: USSTRATCOM Engagement:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD03 / *Joint Warfighter Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Support the Warfighter Involvement Process (WIP) and other MDA Warfighter engagement efforts by assisting Warfighters to update the annual BMDS Prioritized Capabilities List (PCL) and Modification and Fielding Request List (MFRL) reflecting changes in Combatant Command and Military Service priorities for needed BMDS enhancements. -Share BMDS operational information / educate CCMD's in development of common BMDS operational procedures. -Plan and execute a quarterly tag-up between the MDA Deputy Director and the USSTRATCOM Deputy Commander regarding the Operations Forces Standing Committee (OSFC) and Departmental Corporate Boards (such as the Missile Defense Executive Board). Coordinate the MDA process for responding to USSTRATCOM Requests for Analysis and Requests for Information (RFA/RFI)s. -Provide reach-back support to the USSTRATCOM Assistant to the Director (ATD) in all USSTRATCOM BMDS-related activities requiring visibility by the MDA Director. -Support Joint Functional Component Command Integrated Missile Defense (JFCC IMD) Integration efforts. USNORTHCOM Engagement: -Assist USNORTHCOM leadership in their efforts to broaden homeland defense planning to address the full range of USNORTHCOM threats and integration of allies into BMD. -Assist in planning to incorporate additional BMDS homeland defense capabilities. -Leverage developmental and fielding expertise to support allied development of common operational procedures. -Coordinate the MDA process for responding to USNORTHCOM Requests for Analysis and Requests for Information (RFA/RFI)s. -Expand Military Service cooperation and influence in acquisition and BMDS capability transfer decisions. -Support BMD senior leader forums, asset management, and training, and exercises. Joint Staff Engagement: -Facilitate/coordinate Joint Staff interactions with the MDA. -Provide answers on the BMDS capability delivery process and transition and transfer actions to the Military Services. -Provide the MDA`s planner-level coordination for Joint Staff and interagency staff actions. -Maintain daily, strategic-level interfaces with the Joint Staff and provide critical information required to plan for the fielding, and operation of BMDS capabilities. -Coordinate the MDA process for responding to Joint Staff Requests for Analysis and Requests for Information (RFA/RFI). Military Services Engagement: -Facilitate/coordinate Service Boards of Directors (BoDs) -Support the BMDS capability delivery process and transition and transfer to the Military Services via program offices to establish transition annexes for BMDS capabilities.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD03 / *Joint Warfighter Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Maintain daily, strategic-level interfaces with the Military Services and provide critical information required to plan for the delivery, fielding, and operation of respective Lead Service BMDS capabilities. -Coordinate the MDA process for responding to Military Service RFA/RFIs. Current Operations Support -Staff/operate the MDA Operations Support Center (OSC) 24/7 to control the configuration of the operational BMDS, coordinate the execution of daily scheduled BMDS activities through the Asset Management System; capture scheduled and unscheduled outage start and stop times through the BMDS Operational Readiness Reporting System; monitor the “Health and Status” of BMDS assets deployed worldwide; support MDA senior leadership with prompt and accurate critical information reporting. -Take rapid corrective action to remediate system and support equipment faults, maximizing system availability and effectiveness against threat missiles. -Gather, develop, fuse, document, and communicate BMDS operational data to all BMDS stakeholders. -Provide certification training to BWOs, ABWOs, BSOs, and other Operations Support Center staff. -Support MDA continuity of operations program planning and execution activities. -Staff and operate MDA Operations Centers (MOC) in VA and in AL, (HMOC), one each location, five days per week to provide MDA Senior Leadership with Agency command, control, and communications capability for activities worldwide. -Serve as the fusion center for MDA's Warfighter Strategic Integration efforts supporting OSD, Joint Staff, CCMDs, and Military Services. -Serve as the office of primary responsibility for MDA participation in the BMDS Asset Management (BAM) Process defined by USSTRATCOM. -Develop and maintain the Integrated Scheduling Tool, information technology infrastructure, and tailored applications which facilitate BMDS planning, scheduling, and execution management supporting homeland and theater/regional BMDS. -Coordinate with CCMDs to develop the BMDS Annual Plan, BMDS operating schedules, and synchronized BMDS execution schedules. -Publish asset management user and system administrator guides and develop and conduct asset management training courses. -Coordinate and align BMDS scheduled maintenance to maximize operational and developmental availability. -Collect and report BMDS operational availability and readiness data through the network-based BMDS Operational Readiness Reporting System (BORRS) -Lead the MDA Operations Support Planning Team (OSPT), an MDA-wide task force supporting real-world contingencies, crisis events, and exercises. -Lead the staffing and processing of Warfighter Requests for Analysis/Requests for Information (RFA/RFI)s. Warfighter Training Support			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD03 / *Joint Warfighter Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Provide technical and programmatic updates on BMD systems supporting Warfighter training.Provide Missile Defense Space Warning tool (MDST) support for exercises and training for CCMDs and Military Services (up to 24/7). -Coordinate C2BMC, Distributed Multi-Echelon Training System (DMETS), and other BMD training with the Warfighter through the USSTRATCOM, Joint Staff (J-7), and MDA co-chaired BMD Training and Education Working Group. -Develop and publish the BMDS Handbook to aid Warfighter understanding of the capabilities and limitations of the fielded BMDS ***FY 2016 Plans:*** The MDA will provide Warfighter support by increasing its focus on strategic-level interface to USSTRATCOM, USNORTHCOM, the Joint Staff, OSD, and Military Services to increase Warfighter involvement in the transition and deployment of future BMD capabilities. Several of the key Warfighter interface activities include: USSTRATCOM Engagement: -Support the Warfighter Involvement Process (WIP) and other MDA Warfighter engagement efforts by assisting Warfighters in their update to the annual BMDS Prioritized Capabilities List (PCL) and Modification and Fielding Request List (MFRL) reflecting changes in Combatant Command and Service priorities for needed BMDS enhancements to address full range of CCMD needs. -Share BMDS operational information / educate CCMD's in development of common BMDS operational procedures. -Plan and execute quarterly tag-ups between MDA Deputy Director and USSTRATCOM Deputy Commander regarding the Operations Forces Standing Committee (OSFC) and Departmental Corporate Boards (such as the Missile Defense Executive Board). -Coordinate DA process for responding to USSTRATCOM Requests for Analysis and Requests for Information (RFA/RFI). -Provide reach-back support to the USSTRATCOM ATD in all USSTRATCOM BMDS related activities requiring visibility by the MDA Director.Support Joint Functional Component Command Integrated Missile Defense (JFCC IMD) Integration efforts. USNORTHCOM Engagement: -Assist USNORTHCOM leadership in their efforts to broaden homeland defense planning to address the full range of USNORTHCOM threats and integration of allies into BMD. -Assist in planning to incorporate additional BMDS homeland defense capabilities. -Leverage developmental and fielding expertise to support allied development of common operational procedures. -Coordinate the MDA process for responding to USNORTHCOM Requests for Analysis and Requests for Information (RFA/RFI)s. -Expand Military Service cooperation and influence in acquisition and BMDS capability transfer decisions. -Support BMD senior leader forums as well as asset management, test, training, and exercises. Joint Staff Engagement: -Facilitate/coordinate Joint Staff interactions with the MDA.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD03 / *Joint Warfighter Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Provide answers to the BMDS capability delivery process and transition and transfer actions to the Military Services. -Provide the MDA's planner-level coordination for Joint Staff and interagency staff actions. -Maintain daily, strategic-level interfaces with the Joint Staff and provide critical information required to plan for the fielding, and operation of the BMDS. -Coordinate the MDA process for responding to Joint Staff Requests for Analysis and Requests for Information (RFA/RFI)s. Military Services Engagement: -Facilitate/coordinate Service Boards of Directors (BoDs) -Support the BMDS capability delivery process and transition and transfer to the Military Services via program offices to establish transition annexes for BMDS capabilities. -Maintain daily, strategic-level interfaces with the Military Services and provide critical information required to plan for the delivery, fielding, and operation of respective Lead Service BMDS capabilities. -Coordinate MDA process for responding to Military Service RFA/RFIs. Current Operations Support: -Operate the MDA Operations Support Center (OSC) 24/7 to control configuration of the operational BMDS, coordinate execution of daily scheduled BMDS activities through the Asset Management System; capture scheduled and unscheduled outage start and stop times through the BMDS Operational Readiness Reporting System; monitor the “Health and Status” of BMDS assets deployed worldwide; support MDA Senior Leadership with prompt and accurate Critical Information Reporting. -Take rapid corrective action to remediate system and support equipment faults, maximizing system availability and effectiveness against threat missiles. -Gather, develop, fuse, document, and communicate BMDS operational data to all BMDS stakeholders. -Provide certification training to BMDS watch officers (BWO), assistant BWOs, BMDS Safety Officers (BSO), and other Operations Support Center staff. -Support MDA continuity of operations program planning and execution activities. -Staff and operate the two MDA Operations Centers (MOC) in VA and in AL, (HMOC), one each location, five days per week to provide MDA senior leadership with command, control, and communications for activities worldwide. -Serve as the fusion center for MDA's Warfighter Strategic Integration efforts in support of OSD, Joint Staff, CCMDs, and Military Services. -Serve as the office of primary responsibility for MDA participation in the BMDS Asset Management (BAM) Process defined by USSTRATCOM. -Maintain and improve the Integrated Scheduling Tool, information technology infrastructure, and tailored applications which facilitate BMDS planning, scheduling, and execution management supporting Homeland and Theater/regional BMDS.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD03 / *Joint Warfighter Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Coordinate with CCMDs to develop the BMDS Annual Plan, coordinate BMDS operating schedules, and synchronize BMDS execution schedules. -Publish Asset Management user and system administrator guides and develop and conduct Asset Management training courses. -Coordinate and align BMDS scheduled maintenance to maximize operational and developmental availability. -Collect and report BMDS operational availability and readiness data through the network-based BMDS Operational Readiness Reporting System (BORRS). -Lead MDA Operations Support Planning Team (OSPT), an MDA-wide task force supporting real-world contingencies, crisis events, and exercises. -Lead staffing and processing of Warfighter Requests for Analysis/Requests for Information (RFA/RFI)s. Warfighter Training Support: -Provide technical and programmatic updates on BMD systems supporting Warfighter training. -Provide Missile Defense Space Warning tool (MDST) support for exercises and training for CCMDs and Military Services (up to 24/7). -Coordinate C2BMC, Distributed Multi-Echelon Training System (DMETS) with the Warfighter. -Coordinate BMD training issues with USSTRATCOM, Joint Staff (J-7), and MDA co-chaired BMD Training and Education Working Group. -Develop and publish the BMDS Handbook to aid Warfighter understanding of the capabilities and limitations of the fielded BMDS.			
Accomplishments/Planned Programs Subtotals	38.601	14.569	16.241

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing
• 0603895C: *Ballistic Missile Defense System Space Programs*	6.412	6.389	23.289	-	23.289	21.433	16.108	11.933	11.952	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD03 / *Joint Warfighter Support*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0901598C: *Management HQ - MDA*	34.712	35.598	35.871	-	35.871	35.187	34.509	33.466	33.992	Continuing	Continuing

Remarks

D. Acquisition Strategy

Missile Defense Agency will continue to enable effective delivery of Ballistic Missile Defense System capabilities to the Warfighter by ensuring their participation in the identification and development of new capabilities via the Warfighter Involvement Process.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	Project (Number/Name) MD03 / *Joint Warfighter Support*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Warfighter Operational Support / Wargames and Exercises - Civilian Salaries/Operations Sustainment	Allot	MDA Headquarters : Colorado Springs, Huntsville, NCR	7.411	1.993		-		-		-		-	Continuing	Continuing	Continuing
Warfighter Operational Support / Wargames and Exercises - Combatant Commanders (COCOM) Support	C/CPAF	Joint National Integration Research & Development Center (JRDC)/ MIPR : Colorado Springs, Huntsville, NCR	85.900	14.254		-		-		-		-	Continuing	Continuing	Continuing
Warfighter Operational Support / Wargames and Exercises - Combatant Commanders (COCOM) Support A&AS	C/CPFF	Missile Defense Agency Engineering & Support Services (MiDAESS) : Colorado Springs, Huntsville, NCR	7.884	1.281		-		-		-		-	Continuing	Continuing	Continuing
Warfighter Operational Support / Wargames and Exercises - Government Travel & Training	Allot	MDA Headquarters : Colorado Springs, Huntsville, NCR	0.350	0.795		-		-		-		-	Continuing	Continuing	Continuing
Warfighter Operational Support / Wargames and Exercises - Support to MDA Leadership A&AS	C/CPFF	MiDAESS : Colorado Springs, Huntsville, NCR	5.484	3.755		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Warfighter Operational Support / Wargames and Exercises - Wargame Support	C/CPAF	JRDC/MIPR : Colorado Springs	1.278	4.149		-		-		-		-	Continuing	Continuing	Continuing
Strategic Warfighter Integration - Administrative HR A&AS	C/CPFF	MiDAESS : Colorado Springs	0.567	0.350		0.300	Oct 2014	0.270	Oct 2015	-		0.270	Continuing	Continuing	Continuing
Strategic Warfighter Integration - Asset Management Server Maintenance	C/CPAF	JRDC : Colorado Springs, Huntsville	1.017	0.622		0.800	Nov 2014	0.800	Nov 2015	-		0.800	Continuing	Continuing	Continuing
Strategic Warfighter Integration - BMDS Training and Education/ MDST	C/CPAF	JRDC : Colorado Springs	11.239	0.497		1.801	Nov 2014	2.450	Nov 2015	-		2.450	Continuing	Continuing	Continuing
Strategic Warfighter Integration - Civilian Salaries/Operations Sustainment	Allot	MDA : Colorado Springs/Huntsville, NCR	15.508	3.460		4.300	Oct 2014	4.280	Oct 2015	-		4.280	Continuing	Continuing	Continuing
Strategic Warfighter Integration - Current Operations	C/CPAF	JRDC : Colorado Springs	5.968	3.000		3.100	Nov 2014	3.105	Nov 2015	-		3.105	Continuing	Continuing	Continuing
Strategic Warfighter Integration - Current Operations/IA A&AS	C/CPFF	MiDAESS : Colorado Springs, Huntsville, NCR	3.548	1.910		2.850	Oct 2014	3.661	Oct 2015	-		3.661	Continuing	Continuing	Continuing
Strategic Warfighter Integration - Joint Staff and Service Interface A&AS	C/CPFF	MiDAESS : NCR	3.548	1.910		0.950	Oct 2014	1.200	Oct 2015	-		1.200	Continuing	Continuing	Continuing
Strategic Warfighter Integration - Training and Education to the Warfighter A&AS	C/CPFF	MiDAESS : Colorado Springs	1.104	0.450		0.300	Oct 2014	0.250	Oct 2015	-		0.250	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	Project (Number/Name) MD03 / *Joint Warfighter Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Strategic Warfighter Integration - Travel and Training	Allot	MDA : Colorado Springs, Huntsville, NCR	0.376	0.175		0.168	Oct 2014	0.225	Oct 2015	-		0.225	Continuing	Continuing	Continuing
		Subtotal	151.182	38.601		14.569		16.241		-		16.241	-	-	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	151.182	38.601		14.569		16.241		-		16.241	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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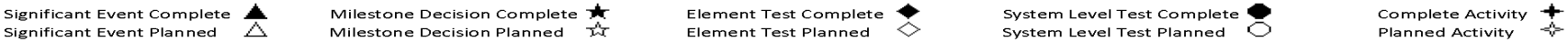
	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD03 / *Joint Warfighter Support*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NIMBLE TITAN Event 1Wargame Event - 2014	▲																											
VIGILANT SHIELD 14 Exercise Planning - 2014	▲																											
ULCHI FREEDOM GUARD 14 Event - 2014	▲																											
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 14- 2014	▲																											
GLOBAL LIGHTNING 14 Exercise Event - 2014	▲																											
AIR and MISSILE DEFENSE Exercise USCENTCOM Event 1 - 2014	▲																											
RAMSTEIN ALLIANCE EXERCISE - 2014	▲																											
KEY RESOLVE Planning Exercise - 2014	▲																											
GLOBAL THUNDER 15 Exercise Planning - 2014	▲																											
EAGLE RESOLVE Exercise 14 - 2014	▲																											
MISSILE DEFENSE CONFERENCE Event - 2014	▲																											
JOINT AIR DEFENSE USCENTCOM Exercise Event 1 - 2014	▲																											
ARABIAN GULF SHIELD Exercise Event 1 - 2014	▲																											
BMDS WARGAME 2015 Event - 2014		▲																										
KEEN EDGE 14 Exercise Event - 2014		▲																										
JOINT AIR DEFENSE USCENTCOM Exercise Event 2 - 2014		▲																										
FLEET SYNTHETIC TRAINING Exercise - 2014		▲																										
ARABIAN GULF SHIELD Exercise Event 2 - 2014		▲																										
NIMBLE FIRE Exercise Event 2 - 2014		▲																										
NIMBLE FIRE Exercise Event 3- 2014		▲																										
JOINT AIR DEFENSE USCENTCOM Exercise Event 3 - 2014			▲																									
GLOBAL DEFENDER Exercise 06 Part 1			▲																									
NIMBLE TITAN Event 2 Wargame Event - 2014			▲																									
JUNIPER COBRA 14 - 2014				▲																								
ARABIAN GULF SHIELD Exercise Event 3- 2014				▲																								

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD03 / *Joint Warfighter Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NIMBLE TITAN Event 1Wargame Event - 2014	1	2014	1	2014
VIGILANT SHIELD 14 Exercise Planning - 2014	1	2014	1	2014
ULCHI FREEDOM GUARD 14 Event - 2014	1	2014	1	2014
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 14- 2014	1	2014	1	2014
GLOBAL LIGHTNING 14 Exercise Event - 2014	1	2014	1	2014
AIR and MISSILE DEFENSE Exercise USCENTCOM Event 1 - 2014	1	2014	1	2014
RAMSTEIN ALLIANCE EXERCISE - 2014	1	2014	1	2014
KEY RESOLVE Planning Exercise - 2014	1	2014	1	2014
GLOBAL THUNDER 15 Exercise Planning - 2014	1	2014	1	2014
EAGLE RESOLVE Exercise 14 - 2014	1	2014	1	2014
MISSILE DEFENSE CONFERENCE Event - 2014	1	2014	1	2014
JOINT AIR DEFENSE USCENTCOM Exercise Event 1 - 2014	1	2014	1	2014
ARABIAN GULF SHIELD Exercise Event 1 - 2014	1	2014	1	2014
BMDS WARGAME 2015 Event - 2014	2	2014	2	2014
KEEN EDGE 14 Exercise Event - 2014	2	2014	2	2014
JOINT AIR DEFENSE USCENTCOM Exercise Event 2 - 2014	2	2014	2	2014
FLEET SYNTHETIC TRAINING Exercise - 2014	2	2014	2	2014
ARABIAN GULF SHIELD Exercise Event 2 - 2014	2	2014	2	2014
NIMBLE FIRE Exercise Event 2 - 2014	2	2014	2	2014
NIMBLE FIRE Exercise Event 3- 2014	2	2014	2	2014
JOINT AIR DEFENSE USCENTCOM Exercise Event 3 - 2014	3	2014	3	2014
GLOBAL DEFENDER Exercise 06 Part 1	3	2014	3	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NIMBLE TITAN Event 2 Wargame Event - 2014	3	2014	3	2014
JUNIPER COBRA 14 - 2014	4	2014	4	2014
ARABIAN GULF SHIELD Exercise Event 3- 2014	4	2014	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	Project (Number/Name) MT03 / *Joint Warfighter Support Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT03: *Joint Warfighter Support Test*	-	-	29.134	31.149	-	31.149	31.739	32.153	32.624	33.867	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015, the cost for Joint Warfighter Support Test will transfer from budget project MD03 to budget project MT03.

A. Mission Description and Budget Item Justification

Joint Warfighter Support Test (MT03) is comprised of two primary responsibilities: wargames and exercises and warfighter operational support.

Wargames and exercises:
-Support the Warfighter to plan and conduct worldwide wargames and exercises supporting BMDS development and fielding.
-Enable the Warfighter to define, test, deploy, and employ new missile defense capabilities.
-Support JFCC-IMD BMDS table top exercises to facilitate the global missile defense capability and to refine the European capability concept of operations through low-fidelity demonstration M&S.
-Examine current and future BMDS operational capabilities for Geographic (i.e., USCENTCOM, USEUCOM, and USPACOM) and Strategic (i.e., USNORTHCOM and USSTRATCOM) CCMDs.
-Complete test planning for BMDS events as shown in the Exhibit R-4 schedule.

Warfighter operational support (program planning and operations):
-Prepare MDA senior leadership for engagements with the GCCs by providing logistical support and developing briefings for the GCC ATDs and MDA Director.
-Interface with the GCCs on BMD operational issues by providing planning and analysis support and capturing/transmitting GCC RFA/RFIs.
-Support GCC contingency activation planning for rea-world contingencies and theater security cooperation programs by supervising the activation of MDA assets to use in the operational BMDS.
-Aid GCC participation in BMDS capability definition, design, development, integration, and delivery processes through the WIP to synchronize capability delivery with operational readiness and acceptance.
-Provide resource management and administration of MT03 personnel and funding.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Wargames and Exercises	-	21.699	24.059
Articles:	-	-	-
Description: Beginning in FY2015, Joint Warfighter Support Test transfers from Budget Project MD03 to Budget Project MT03.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MT03 / *Joint Warfighter Support Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
FY 2014 Accomplishments: N/A ***FY 2015 Plans:*** -Beginning in FY2015, Joint Warfighter Support Test transfers from Budget Project MD03 to Budget Project MT03. -The decrease of $4.5 million from FY 2014 (executed in MD03 budget project) is due to changes in the Combatant Command (COCOM) wargame and exercise schedule to create an executable program. The MDA will continue to make significant strides in Warfighter operational support by increasing its focus on providing operational-level interface to the GCCs and increasing Warfighter participation in development of future missile defense capabilities. Several of the key Warfighter interface activities include: USEUCOM Engagement: -In coordination with USEUCOM, continue planning activities to support the European Phased Adaptive Approach to provide a full range of capabilities to address all threats. -Share operational information and knowledge to help allies develop common operational procedures. -In coordination with MDA program element support, assist in planning and execution activities for USEUCOM's non-NATO partners. -Support BMD training, wargames, and exercises with NATO partners. -Provide reach-back support to the USEUCOM ATD and LNO in USEUCOM activities requiring visibility by the MDA Director and DT. -In coordination with MDA Global Deployment Program Office, plan and execute activities for deployment of BMDS assets and components in the USEUCOM AOR. -Plan and execute a yearly senior leader forum hosted by the MDA Director and USEUCOM Deputy Commander at USEUCOM HQ. -Plan and execute quarterly tag-ups between the MDA and the USEUCOM J-3. USCENTCOM Engagement: -Assist CCMD leadership to develop a regional partner data sharing system supporting USCENTCOM regional IAMD architecture development. -Support all potential BMDS Foreign Military Sale (FMS) activities in the USCENTCOM AOR.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Support MDA leadership and the USCENTCOM ATD and LNO in GCC strategic cooperation forums. -Provide reach-back support to the USCENTCOM ATD and LNO in USCENTCOM activities requiring visibility by the MDA Director and DT. -Plan and execute a yearly senior leader forum hosted by the MDA Director and USCENTCOM Deputy Commander at USCENTCOM HQ. -Plan and execute quarterly tag-ups between the MDA and the USCENTCOM J-3. -Support USCENTCOM wargames and exercises. USPACOM Engagement: -Assist USPACOM leadership to broaden Phased Adaptive Approach planning to address a full range of threats and integration of allies into the BMDS. -Assist in the planning and execution of incorporating an additional AN/TPY-2 in the USPACOM AOR. -Assist with the development, planning, procurement, and installation of a long-range discrimination radar for the USPACOM AOR. -Provide reach-back support to the USPACOM ATD and LNO in USPACOM activities requiring visibility by the MDA Director and DT. -Share operational information and knowledge and help allies develop common operational procedures. -Support BMD test, training, wargames, and exercises. -Plan and execute a yearly senior leader forum hosted by the MDA Director and USPACOM Deputy Commander at USPACOM HQ. -Plan and execute a quarterly tag-up between the MDA and the USPACOM J-3. ***FY 2016 Plans:*** -The increase of $2.3 million from FY 2015 to FY 2016 is due to increased Combatant Command (COCOM) wargame and exercise scheduling. The MDA will continue to focus on providing operational-level interfaces to the GCCs and increasing Warfighter participation to develop future missile defense capabilities. Several of the key Warfighter interface activities include: USEUCOM Engagement: -In coordination with USEUCOM, continue planning activities for the European Phased Adaptive Approach to provide a full range of capabilities to address all threats. -Share operational information and knowledge and help allies develop common operational procedures. -In coordination with MDA program elements, assist in planning and execution activities supporting USEUCOM's non-NATO partners.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Support BMD training, wargames, and exercises with NATO partners. -Provide reach-back support to the USEUCOM ATD and LNO in USEUCOM activities requiring visibility by the MDA Director and DT. -In coordination with MDA Global Deployment Program Office, plan and execute activities required for deployment of BMDS assets and components in the USEUCOM AOR. -Plan and execute a yearly senior leader forum hosted by the MDA Director and USEUCOM Deputy Commander at USEUCOM HQ. -Plan and execute quarterly tag-ups between MDA and USEUCOM J-3. USCENTCOM Engagement: -Assist CCMD leadership to develop a regional partner data sharing system supporting USCENTCOM regional IAMD architecture development. -Support all potential BMDS FMS activities in the USCENTCOM AOR. -Provide reach-back support to the USCENTCOM ATD and LNO in USCENTCOM activities requiring visibility by the MDA Director and DT. -Support all cross-AOR planning and execution activities. -Plan and execute a yearly senior leader forum hosted by the MDA Director and USCENTCOM Deputy Commander at USCENTCOM HQ. -Plan and execute quarterly tag-ups between MDA and USCENTCOM J-3. -Support USCENTCOM wargames and exercises. USPACOM Engagement: -Assist USPACOM leadership to broaden Phased Adaptive Approach planning to address a full range of threats and integration of allies into the BMDS. -Assist with the development, planning, procurement, and installation of a long-range discrimination radar for the USPACOM AOR. -Provide reach-back support to the USPACOM ATD and LNO in USPACOM activities requiring visibility by the MDA Director and DT. -Share operational information and knowledge and help allies develop common operational procedures. -Support BMD test, training, wargames, and exercises. -Plan and execute a yearly senior leader forum hosted by the MDA Director and USPACOM Deputy Commander at USPACOM HQ. -Plan and execute quarterly tag-ups between MDA and USPACOM J-3.			
Title: Program, Planning and Operations	-	7.435	7.090

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Articles:	-	-	-

Description: N/A

FY 2014 Accomplishments:
N/A

FY 2015 Plans:
The decrease from FY 2014 (executed in the MD03 budget project) to FY 2015 was taken from the wargames and exercises accomplishment.

The MDA will continue to make significant strides in Warfighter Operational support by increasing its focus on providing operational-level interface to the GCCs and increasing Warfighter participation in development of future missile defense capabilities. The key Warfighter interface activities include:

MDA Operational Support:
-Support OSPT activation during heightened period of interest.
-Support Warfighters, DoD Agencies, and Military Services in identifying desired missile defense capabilities and characteristics.
-Obtain Warfighter participation and advice on desired operational features and approaches to system fielding throughout development.
-Track analysis and responses for CCMD RFA/RFIs.
-Serve as the immediate link between MDA and the GCCs on all Warfighter activities and requirements.
-Prepare MDA senior leadership for U.S. Army, Navy, and Air Force BOD meetings and Air and Missile Defense (AMD) General Officer Steering Committee meetings.
-Coordinate MDA and GCC participation in BMDS capability definition, design, development, and integration.
-Provide resource management and administration of MT03 personnel and dollars.
-Support and staff the HMOC during surge operations and sustained 24/7 hour operations.
-Manage travel, including travel to support the wargames and exercises and the ATDs and LNOs as MDA representatives at the GCC HQs.

FY 2016 Plans:
The $345 thousand decrease from FY 2015 to FY 2015 was due to continued wargame and exercises effiencies related to scheduling.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
The MDA will continue to focus on providing operational-level interface to the GCCs and increasing Warfighter participation in the development of future missile defense capabilities. The key Warfighter interface activities include: MDA Operational Support: -Support OSPT activation during heightened period of interest. -Support Warfighters, DoD Agencies, and Military Services in identifying desired missile defense capabilities and characteristics. -Obtain Warfighter participation and advice on desired operational features and approaches to system fielding throughout development. -Track analysis and responses for CCMD RFA/RFIs. -Serve as the immediate link between MDA and the GCCs on all Warfighter activities and requirements. -Prepare MDA senior leadership for U.S. Army, Navy, and Air Force BOD meetings and AMD General Officer Steering Committee meetings. -Coordinate MDA and GCC participation in BMDS capability definition, design, development, and integration. -Provide resource management and administration of MT03 personnel and dollars. -Support and staff the HMOC during surge operations and sustained 24/7 hour operations. -Manage travel, including travel to support the wargames and exercises and the ATDs and LNOs as MDA representatives at the GCC HQs.			
Accomplishments/Planned Programs Subtotals	-	29.134	31.149

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

In order to optimize the performance of the Ballistic Missile Defense System (BMDS), MDA leverages Defense Department executive agents as well as the MDA Joint National Integration Center Research and Development (JRDC) contract.

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.

In 2016, the MDA JRDC contract is scheduled to be recompeted and will be called the Integrated Research and Development for Enterprise Solutions (IRES).

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Wargames and Exercises - Combatant Commanders (COCOM) Support	C/CPAF	JRDC/MIPR : Colorado Springs, Huntsville, NCR	0.000	-		15.527		18.240		-		18.240	Continuing	Continuing	Continuing
Wargames and Exercises - Wargame Support	C/CPAF	JRDC/MIPR : Colorado Springs	0.000	-		6.172		5.819		-		5.819	Continuing	Continuing	Continuing
Program, Planning and Operations - Civilian Salaries/Operations Sustainment	Allot	MDA : Colorado Springs, Huntsville, NCR	0.000	-		1.932		2.343		-		2.343	Continuing	Continuing	Continuing
Program, Planning and Operations - Combatant Commanders (COCOM) Support A&AS	C/CPFF	MiDAESS : Colorado Springs, Huntsville, NCR	0.000	-		1.242		1.049		-		1.049	Continuing	Continuing	Continuing
Program, Planning and Operations - Government Travel & Training	Allot	MDA : Colorado Springs, Huntsville, NCR	0.000	-		0.621		0.650		-		0.650	Continuing	Continuing	Continuing
Program, Planning and Operations - Support to MDA Leadership A&AS	C/CPFF	MiDAESS : Colorado Springs, Huntsville, NCR	0.000	-		3.640		3.048		-		3.048	Continuing	Continuing	Continuing
		Subtotal	0.000	-		29.134		31.149		-		31.149	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		29.134		31.149		-		31.149	-	-	-

Remarks

Prior year funding was captured in MD03 budget project.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
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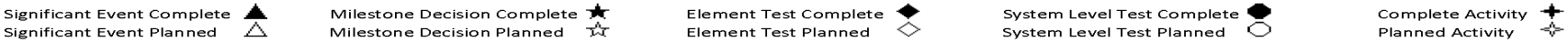
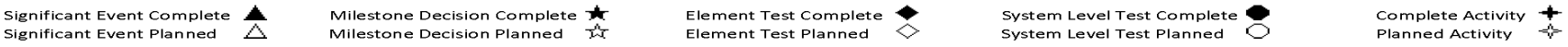


	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GLOBAL THUNDER 15 Exercise Event - 2015					△																							
VIGILANT SHIELD 15 Exercise Event - 2015					△																							
ULCHI FREEDOM GUARD 15 Event - 2015					△																							
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 15 - 2015					△																							
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 1 - 2015					△																							
AIR and MISSILE DEFENSE 15 USCENTCOM Exercise 1 - 2015					△																							
MISSILE DEFENSE CONFERENCE Wargame Event - 2015					△																							
EPOCH PLANEX 15 Exercise - 2015					△																							
RAMSTEIN ALLIANCE EXERCISE - 2015					△																							
ARABIAN GULF SHIELD 15 Exercise Event 1 - 2015					△																							
NIMBLE FIRE 15 Wargame Event 1 - 2015					△																							
AUSTERE CHALLENGE 15 Exercise - 2015					✧	✧	✧	✧																				
BMDS WARGAME 2015 Event - 2015						△																						
KEEN EDGE 15 Exercise Event - 2015						△																						
EAGLE RESOLVE 15 Exercise Event - 2015						△																						
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 2 - 2015						△																						
AIR and MISSILE DEFENSE 15 USCENTCOM Exercise 2 - 2015						△																						
KEEN SWORD 15 Exercise - 2015						△																						
ARABIAN GULF SHIELD 15 Exercise Event 2-2015						△																						
NIMBLE FIRE 15 Wargame Event 2 - 2015						△																						
GLOBAL LIGHTNING 15 Exercise Event - 2015							△																					
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 3 - 2015							△																					
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 4 - 2015							△																					

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MT03 / *Joint Warfighter Support Test*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GLOBAL DEFENDER Exercise 06 Part 2							△																					
KEY RESOLVE 15 Exercise - 2015							△																					
FLEET SYNTHETIC TRAINING Exercise - 2015							△																					
ARABIAN GULF SHIELD 15 Exercise Event 3 - 2015							△																					
NIMBLE FIRE 15 Wargame Event 3 - 2015							△																					
JOINT AIR and MISSILE DEFENSE CENTCOM Exercise Event 5 - 2015								△																				
VIGILANT SHIELD 16 Exercise Event - 2016									△																			
AIR and MISSILE DEFENSE Exercise Series - 2016									△																			
GLOBAL THUNDER 16 Exercise Event - 2016									△																			
EPOCH PLANEX Exercise - 17									△																			
ARABIAN GULF SHIELD 16 Exercise Event 1 - 2016									△																			
KEY RESOLVE 16 Exercise - 2016										△																		
FLEET SYNTHETIC TRAINING Exercise - 2016										△																		
ARABIAN GULF SHIELD 16 Exercise Event 2- 2016										△																		
GLOBAL LIGHTNING 16 Exercise Event - 2016										✧	✧																	
JUNIPER COBRA 16 Exercise - 2016										✧	✧																	
TERMINAL FURY 16 Exercise - 2016										✧	✧																	
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 16 - 2016											△																	
HUNTSVILLE WARGAMES Event - 16											△																	
RONALD REAGAN FORUM Exercise - 16											△																	
ULCHI FREEDOM GUARD 16 Event - 2016											✧	✧																
DEMONSTRATION, TABLE-TOP EXERCISES & EXPERIMENTS Events - 16											✧	✧	✧															
BMDS Wargame 2017 Event - 2017											✧	✧	✧	✧														
JOINT AIR DEFENSE Exercise Series - 2016												△																
EAGLE RESOLVE 16 Exercise Event - 2016												△																
ARABIAN GULF SHIELD 16 Exercise Event 3 - 2016												△																
MISSILE DEFENSE CONFERENCE Wargame Event - 2016												✧	✧															

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
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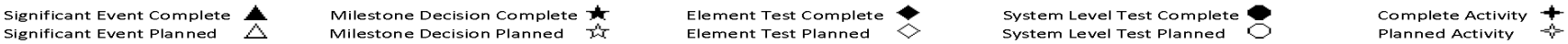


	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RAMSTEIN ALLIANCE Exercise - 2016												✧	✧															
NIMBLE TITAN 18 Wargame Year 1 - 18												✧	✧	✧	✧													
VIGILANT SHIELD 17 Exercise Event - 2017													△															
AIR and MISSILE DEFENSE Exercise Series - 2017													△															
EPOCH PLANEX Exercise - 18													△															
ARABIAN GULF SHIELD 17 Exercise Event 1 - 2017													△															
GLOBAL RESPONSE Exercise Event - 2016													△															
GLOBAL THUNDER 17 Exercise Event - 2017													△															
KEY RESOLVE 17 Exercise - 2017														△														
FLEET SYNTHETIC TRAINING Exercise - 2017														△														
ARABIAN GULF SHIELD 17 Exercise Event 2 - 2017														△														
GLOBAL LIGHTNING 17 Exercise Event - 2017														✧	✧													
TERMINAL FURY 17 Exercise - 2017														✧	✧													
AUSTERE CHALLENGE 17 Exercise - 2017													✧	✧	✧	✧												
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 17 - 2017															△													
HUNTSVILLE WARGAMES Event - 17															△													
RONALD REAGAN FORUM Exercise - 17															△													
ULCHI FREEDOM GUARDIAN 17 Event - 2017															✧	✧												
KEEN SWORD 17 Exercise - 2017															✧	✧	✧											
DEMONSTRATION, TABLE-TOP EXERCISES & EXPERIMENTS Event - 17															✧	✧	✧											
JOINT AIR DEFENSE Exercise Series - 2017																△												
ARABIAN GULF SHIELD 17 Exercise Event 3 - 2017																△												
MISSILE DEFENSE CONFERENCE Wargame Event - 2017																✧	✧											
RAMSTEIN ALLIANCE Exercise - 2017																✧	✧											
KEEN EDGE 18 Exercise Event - 2018																✧	✧	✧										
NIMBLE TITAN 18 Wargame Event 2 - 2018																✧	✧	✧	✧									
AIR and MISSILE DEFENSE Exercise Series - 2018																	△											
GLOBAL THUNDER 18 Exercise Event - 2018																	△											

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MT03 / *Joint Warfighter Support Test*

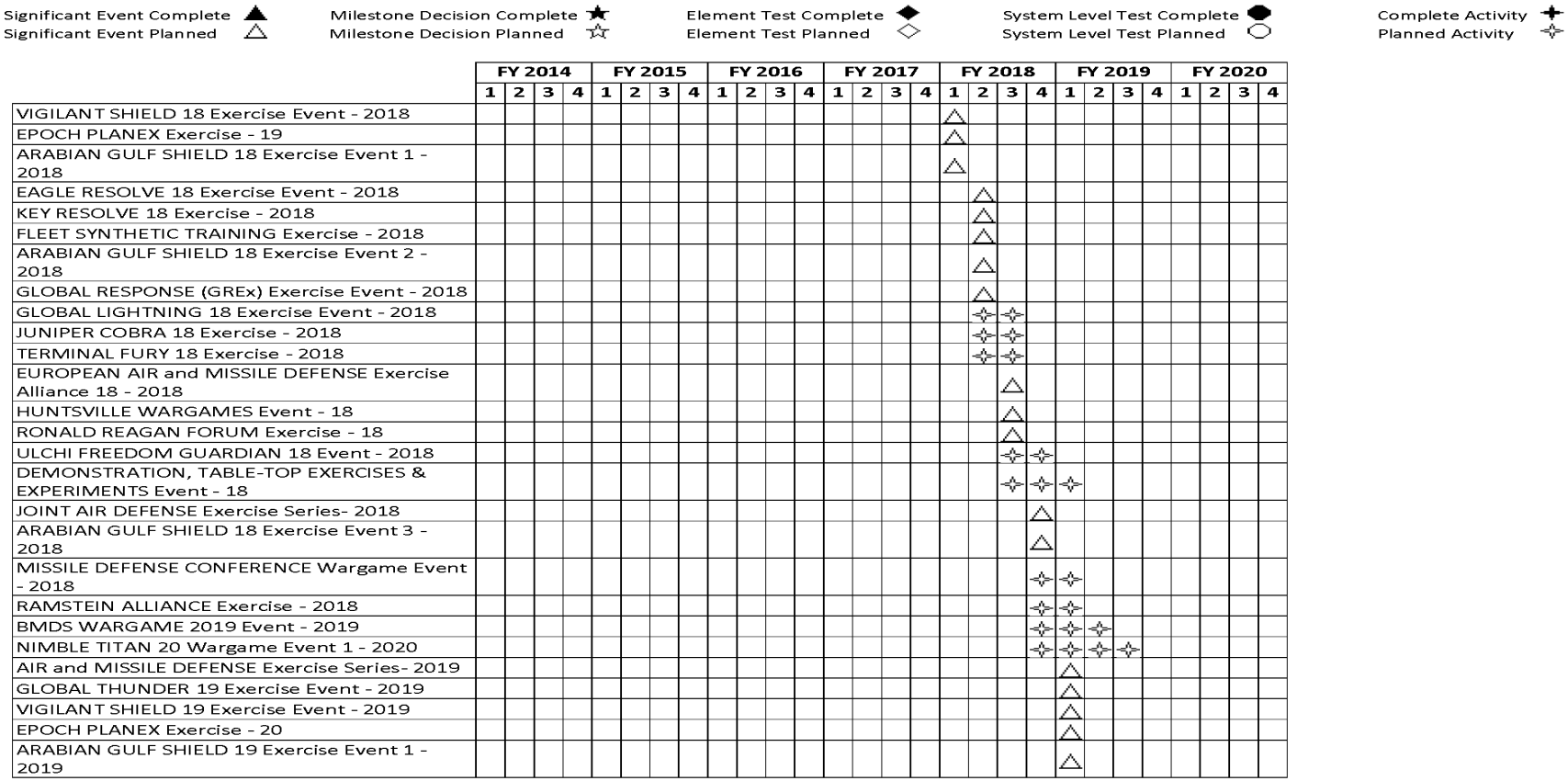
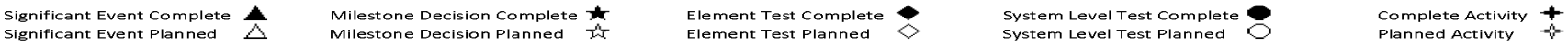


Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MT03 / *Joint Warfighter Support Test*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
EPOCH PLANEX Exercise - 21																					✧	✧	✧	✧	✧			
KEY RESOLVE 19 Exercise - 2019																						△						
FLEET SYNTHETIC TRAINING Exercise - 2019																						△						
ARABIAN GULF SHIELD 19 Exercise Event 2 - 2019																						△						
GLOBAL LIGHTNING 19 Exercise Event - 2019																						✧	✧					
TERMINAL FURY 19 Exercise - 2019																						✧	✧					
AUSTERE CHALLENGE 19 Exercise - 2019																					✧	✧	✧	✧				
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 19 - 2019																							△					
HUNTSVILLE WARGAMES Event - 19																							△					
RONALD REAGAN FORUM Exercise - 19																							△					
ULCHI FREEDOM GUARD 19 Event - 2019																							✧	✧				
KEEN SWORD 19 Exercise - 2019																							✧	✧	✧			
DEMONSTRATION, TABLE-TOP EXERCISES & EXPERIMENTS Event - 19																							✧	✧	✧			
KEEN EDGE 20 Exercise Event - 2020																							✧	✧	✧	✧		
JOINT AIR DEFENSE Exercise Series - 2019																								△				
EAGLE RESOLVE 19 Exercise Event - 2019																								△				
ARABIAN GULF SHIELD 19 Exercise Event 3 - 2019																								△				
MISSILE DEFENSE CONFERENCE Wargame Event - 2019																								✧	✧			
RAMSTEIN ALLIANCE Exercise - 2019																								✧	✧			
NIMBLE TITAN 20 Wargame Event 2- 2020																								✧	✧	✧	✧	
JOINT AIR DEFENSE Exercise Series - 2020																									△			
AIR and MISSILE DEFENSE Exercise Series - 2020																									△			
GLOBAL THUNDER 20 Exercise Event - 2020																									△			
VIGILANT SHIELD 20 Exercise Event - 2020																									△			
ARABIAN GULF SHIELD 20 Exercise Event 1 - 2020																									△			
KEY RESOLVE 20 Exercise - 2020																										△		
FLEET SYNTHETIC TRAINING Exercise - 2020																										△		

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MT03 / *Joint Warfighter Support Test*

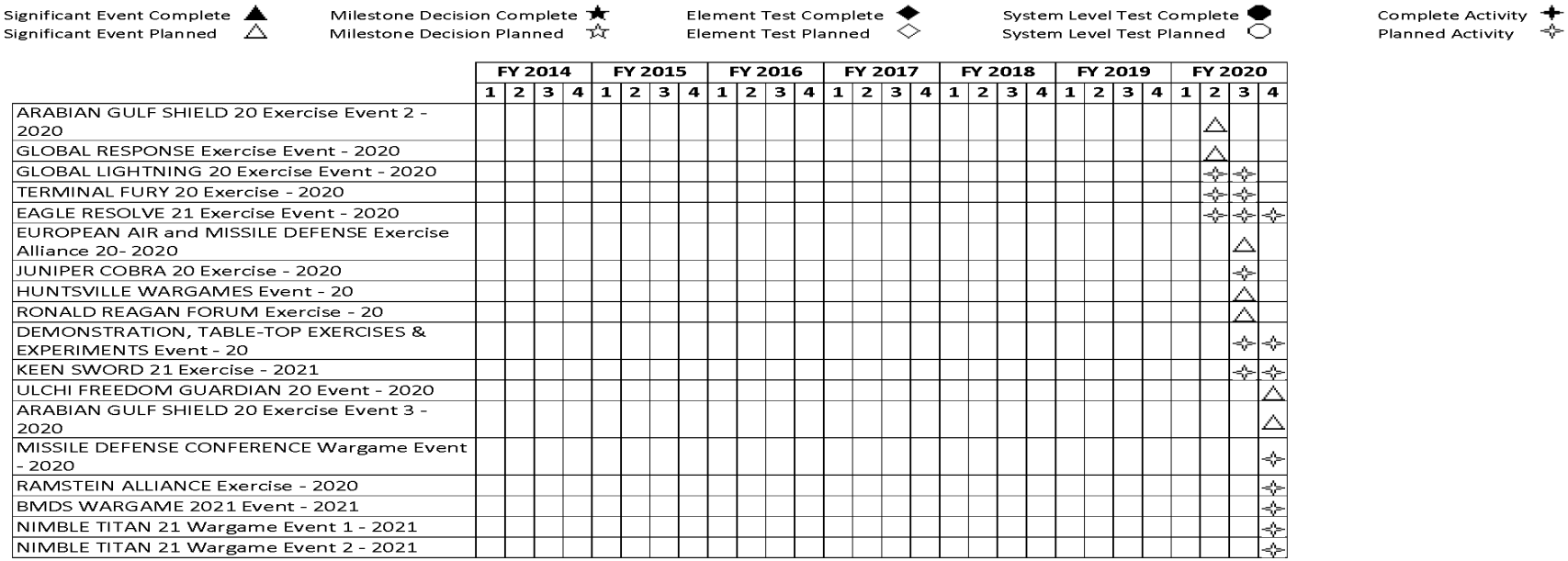


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MT03 / *Joint Warfighter Support Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GLOBAL THUNDER 15 Exercise Event - 2015	1	2015	1	2015
VIGILANT SHIELD 15 Exercise Event - 2015	1	2015	1	2015
ULCHI FREEDOM GUARD 15 Event - 2015	1	2015	1	2015
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 15 - 2015	1	2015	1	2015
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 1 - 2015	1	2015	1	2015
AIR and MISSILE DEFENSE 15 USCENTCOM Exercise 1 - 2015	1	2015	1	2015
MISSILE DEFENSE CONFERENCE Wargame Event - 2015	1	2015	1	2015
EPOCH PLANEX 15 Exercise - 2015	1	2015	1	2015
RAMSTEIN ALLIANCE EXERCISE - 2015	1	2015	1	2015
ARABIAN GULF SHIELD 15 Exercise Event 1 - 2015	1	2015	1	2015
NIMBLE FIRE 15 Wargame Event 1 - 2015	1	2015	1	2015
AUSTERE CHALLENGE 15 Exercise - 2015	1	2015	4	2015
BMDS WARGAME 2015 Event - 2015	2	2015	2	2015
KEEN EDGE 15 Exercise Event - 2015	2	2015	2	2015
EAGLE RESOLVE 15 Exercise Event - 2015	2	2015	2	2015
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 2 - 2015	2	2015	2	2015
AIR and MISSILE DEFENSE 15 USCENTCOM Exercise 2 - 2015	2	2015	2	2015
KEEN SWORD 15 Exercise - 2015	2	2015	2	2015
ARABIAN GULF SHIELD 15 Exercise Event 2- 2015	2	2015	2	2015
NIMBLE FIRE 15 Wargame Event 2 - 2015	2	2015	2	2015
GLOBAL LIGHTNING 15 Exercise Event - 2015	3	2015	3	2015
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 3 - 2015	3	2015	3	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MT03 / *Joint Warfighter Support Test*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JOINT AIR and MISSILE DEFENSE USCENTCOM Exercise Event 4 - 2015	3	2015	3	2015
GLOBAL DEFENDER Exercise 06 Part 2	3	2015	3	2015
KEY RESOLVE 15 Exercise - 2015	3	2015	3	2015
FLEET SYNTHETIC TRAINING Exercise - 2015	3	2015	3	2015
ARABIAN GULF SHIELD 15 Exercise Event 3 - 2015	3	2015	3	2015
NIMBLE FIRE 15 Wargame Event 3 - 2015	3	2015	3	2015
JOINT AIR and MISSILE DEFENSE CENTCOM Exercise Event 5 - 2015	4	2015	4	2015
VIGILANT SHIELD 16 Exercise Event - 2016	1	2016	1	2016
AIR and MISSILE DEFENSE Exercise Series - 2016	1	2016	1	2016
GLOBAL THUNDER 16 Exercise Event - 2016	1	2016	1	2016
EPOCH PLANEX Exercise - 17	1	2016	1	2016
ARABIAN GULF SHIELD 16 Exercise Event 1 - 2016	1	2016	1	2016
KEY RESOLVE 16 Exercise - 2016	2	2016	2	2016
FLEET SYNTHETIC TRAINING Exercise - 2016	2	2016	2	2016
ARABIAN GULF SHIELD 16 Exercise Event 2- 2016	2	2016	2	2016
GLOBAL LIGHTNING 16 Exercise Event - 2016	2	2016	3	2016
JUNIPER COBRA 16 Exercise - 2016	2	2016	3	2016
TERMINAL FURY 16 Exercise - 2016	2	2016	3	2016
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 16 - 2016	3	2016	3	2016
HUNTSVILLE WARGAMES Event - 16	3	2016	3	2016
RONALD REAGAN FORUM Exercise - 16	3	2016	3	2016
ULCHI FREEDOM GUARD 16 Event - 2016	3	2016	4	2016
DEMONSTRATION, TABLE-TOP EXERCISES & EXPERIMENTS Events - 16	3	2016	1	2017
BMDS Wargame 2017 Event - 2017	3	2016	2	2017
JOINT AIR DEFENSE Exercise Series - 2016	4	2016	4	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MT03 / *Joint Warfighter Support Test*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
EAGLE RESOLVE 16 Exercise Event - 2016	4	2016	4	2016
ARABIAN GULF SHIELD 16 Exercise Event 3 - 2016	4	2016	4	2016
MISSILE DEFENSE CONFERENCE Wargame Event - 2016	4	2016	1	2017
RAMSTEIN ALLIANCE Exercise - 2016	4	2016	1	2017
NIMBLE TITAN 18 Wargame Year 1 - 18	4	2016	3	2017
VIGILANT SHIELD 17 Exercise Event - 2017	1	2017	1	2017
AIR and MISSILE DEFENSE Exercise Series - 2017	1	2017	1	2017
EPOCH PLANEX Exercise - 18	1	2017	1	2017
ARABIAN GULF SHIELD 17 Exercise Event 1 - 2017	1	2017	1	2017
GLOBAL RESPONSE Exercise Event - 2016	1	2017	1	2017
GLOBAL THUNDER 17 Exercise Event - 2017	1	2017	1	2017
KEY RESOLVE 17 Exercise - 2017	2	2017	2	2017
FLEET SYNTHETIC TRAINING Exercise - 2017	2	2017	2	2017
ARABIAN GULF SHIELD 17 Exercise Event 2 - 2017	2	2017	2	2017
GLOBAL LIGHTNING 17 Exercise Event - 2017	2	2017	3	2017
TERMINAL FURY 17 Exercise - 2017	2	2017	3	2017
AUSTERE CHALLENGE 17 Exercise - 2017	1	2017	4	2017
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 17 - 2017	3	2017	3	2017
HUNTSVILLE WARGAMES Event - 17	3	2017	3	2017
RONALD REAGAN FORUM Exercise - 17	3	2017	3	2017
ULCHI FREEDOM GUARDIAN 17 Event - 2017	3	2017	4	2017
KEEN SWORD 17 Exercise - 2017	3	2017	1	2018
DEMONSTRATION, TABLE-TOP EXERCISES & EXPERIMENTS Event - 17	3	2017	1	2018
JOINT AIR DEFENSE Exercise Series - 2017	4	2017	4	2017
ARABIAN GULF SHIELD 17 Exercise Event 3 - 2017	4	2017	4	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MT03 / *Joint Warfighter Support Test*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MISSILE DEFENSE CONFERENCE Wargame Event - 2017	4	2017	1	2018
RAMSTEIN ALLIANCE Exercise - 2017	4	2017	1	2018
KEEN EDGE 18 Exercise Event - 2018	4	2017	2	2018
NIMBLE TITAN 18 Wargame Event 2 - 2018	4	2017	3	2018
AIR and MISSILE DEFENSE Exercise Series - 2018	1	2018	1	2018
GLOBAL THUNDER 18 Exercise Event - 2018	1	2018	1	2018
VIGILANT SHIELD 18 Exercise Event - 2018	1	2018	1	2018
EPOCH PLANEX Exercise - 19	1	2018	1	2018
ARABIAN GULF SHIELD 18 Exercise Event 1 - 2018	1	2018	1	2018
EAGLE RESOLVE 18 Exercise Event - 2018	2	2018	2	2018
KEY RESOLVE 18 Exercise - 2018	2	2018	2	2018
FLEET SYNTHETIC TRAINING Exercise - 2018	2	2018	2	2018
ARABIAN GULF SHIELD 18 Exercise Event 2 - 2018	2	2018	2	2018
GLOBAL RESPONSE (GREx) Exercise Event - 2018	2	2018	2	2018
GLOBAL LIGHTNING 18 Exercise Event - 2018	2	2018	3	2018
JUNIPER COBRA 18 Exercise - 2018	2	2018	3	2018
TERMINAL FURY 18 Exercise - 2018	2	2018	3	2018
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 18 - 2018	3	2018	3	2018
HUNTSVILLE WARGAMES Event - 18	3	2018	3	2018
RONALD REAGAN FORUM Exercise - 18	3	2018	3	2018
ULCHI FREEDOM GUARDIAN 18 Event - 2018	3	2018	4	2018
DEMONSTRATION, TABLE-TOP EXERCISES & EXPERIMENTS Event - 18	3	2018	1	2019
JOINT AIR DEFENSE Exercise Series- 2018	4	2018	4	2018
ARABIAN GULF SHIELD 18 Exercise Event 3 - 2018	4	2018	4	2018
MISSILE DEFENSE CONFERENCE Wargame Event - 2018	4	2018	1	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MT03 / *Joint Warfighter Support Test*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
RAMSTEIN ALLIANCE Exercise - 2018	4	2018	1	2019
BMDS WARGAME 2019 Event - 2019	4	2018	2	2019
NIMBLE TITAN 20 Wargame Event 1 - 2020	4	2018	3	2019
AIR and MISSILE DEFENSE Exercise Series- 2019	1	2019	1	2019
GLOBAL THUNDER 19 Exercise Event - 2019	1	2019	1	2019
VIGILANT SHIELD 19 Exercise Event - 2019	1	2019	1	2019
EPOCH PLANEX Exercise - 20	1	2019	1	2019
ARABIAN GULF SHIELD 19 Exercise Event 1 - 2019	1	2019	1	2019
EPOCH PLANEX Exercise - 21	1	2019	1	2020
KEY RESOLVE 19 Exercise - 2019	2	2019	2	2019
FLEET SYNTHETIC TRAINING Exercise - 2019	2	2019	2	2019
ARABIAN GULF SHIELD 19 Exercise Event 2 - 2019	2	2019	2	2019
GLOBAL LIGHTNING 19 Exercise Event - 2019	2	2019	3	2019
TERMINAL FURY 19 Exercise - 2019	2	2019	3	2019
AUSTERE CHALLENGE 19 Exercise - 2019	1	2019	4	2019
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 19 - 2019	3	2019	3	2019
HUNTSVILLE WARGAMES Event - 19	3	2019	3	2019
RONALD REAGAN FORUM Exercise - 19	3	2019	3	2019
ULCHI FREEDOM GUARD 19 Event - 2019	3	2019	4	2019
KEEN SWORD 19 Exercise - 2019	3	2019	1	2020
DEMONSTRATION, TABLE-TOP EXERCISES & EXPERIMENTS Event - 19	3	2019	1	2020
KEEN EDGE 20 Exercise Event - 2020	3	2019	2	2020
JOINT AIR DEFENSE Exercise Series - 2019	4	2019	4	2019
EAGLE RESOLVE 19 Exercise Event - 2019	4	2019	4	2019
ARABIAN GULF SHIELD 19 Exercise Event 3 - 2019	4	2019	4	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MT03 / *Joint Warfighter Support Test*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MISSILE DEFENSE CONFERENCE Wargame Event - 2019	4	2019	1	2020
RAMSTEIN ALLIANCE Exercise - 2019	4	2019	1	2020
NIMBLE TITAN 20 Wargame Event 2- 2020	4	2019	3	2020
JOINT AIR DEFENSE Exercise Series - 2020	1	2020	1	2020
AIR and MISSILE DEFENSE Exercise Series - 2020	1	2020	1	2020
GLOBAL THUNDER 20 Exercise Event - 2020	1	2020	1	2020
VIGILANT SHIELD 20 Exercise Event - 2020	1	2020	1	2020
ARABIAN GULF SHIELD 20 Exercise Event 1 - 2020	1	2020	1	2020
KEY RESOLVE 20 Exercise - 2020	2	2020	2	2020
FLEET SYNTHETIC TRAINING Exercise - 2020	2	2020	2	2020
ARABIAN GULF SHIELD 20 Exercise Event 2 - 2020	2	2020	2	2020
GLOBAL RESPONSE Exercise Event - 2020	2	2020	2	2020
GLOBAL LIGHTNING 20 Exercise Event - 2020	2	2020	3	2020
TERMINAL FURY 20 Exercise - 2020	2	2020	3	2020
EAGLE RESOLVE 21 Exercise Event - 2020	2	2020	2	2021
EUROPEAN AIR and MISSILE DEFENSE Exercise Alliance 20- 2020	3	2020	3	2020
JUNIPER COBRA 20 Exercise - 2020	3	2020	3	2020
HUNTSVILLE WARGAMES Event - 20	3	2020	3	2020
RONALD REAGAN FORUM Exercise - 20	3	2020	3	2020
DEMONSTRATION, TABLE-TOP EXERCISES & EXPERIMENTS Event - 20	3	2020	1	2021
KEEN SWORD 21 Exercise - 2021	3	2020	2	2021
ULCHI FREEDOM GUARDIAN 20 Event - 2020	4	2020	4	2020
ARABIAN GULF SHIELD 20 Exercise Event 3 - 2020	4	2020	4	2020
MISSILE DEFENSE CONFERENCE Wargame Event - 2020	4	2020	1	2021
RAMSTEIN ALLIANCE Exercise - 2020	4	2020	1	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MT03 / *Joint Warfighter Support Test*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BMDS WARGAME 2021 Event - 2021	4	2020	2	2021
NIMBLE TITAN 21 Wargame Event 1 - 2021	4	2020	3	2021
NIMBLE TITAN 21 Wargame Event 2 - 2021	4	2020	3	2021

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	4.132	2.450	2.684	2.180	-	2.180	2.389	2.630	2.782	2.939	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

FY 2016 reflects a proportional change as a result of decreases in Ballistic Missile Defense Joint Warfighter Support.

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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	2.450	2.684	2.180
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD40 / *Program-Wide Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	2.450	2.684	2.180

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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD40 / *Program-Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Facilities and Maintenance (MIPR)	MIPR	Various : Multi: AK, AL,CA, CO, VA	0.000	1.200		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various Multi: AL, CO, CA, VA : Various	0.000	-		0.334		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	MDA : Multi:AK,AL, CA, CO, VA	0.000	-		1.604		1.617	Nov 2015	-		1.617	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	ALATEC , INC, : AL, CO, VA	4.132	0.993		0.746	Nov 2014	0.563	Oct 2015	-		0.563	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services (Reqn)	Reqn	Various : Multi:AK, AL, CA, CO, VA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support, International, and Materiel and Readiness	MIPR	Naval Surface Warfare Center; VA, AL : Various	0.000	0.257		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - FFRDC/UARC	C/CPAF	Various : Multi: AL, VA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	4.132	2.450		2.684		2.180		-		2.180	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.132	2.450		2.684		2.180		-		2.180	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD40 / *Program-Wide Support*

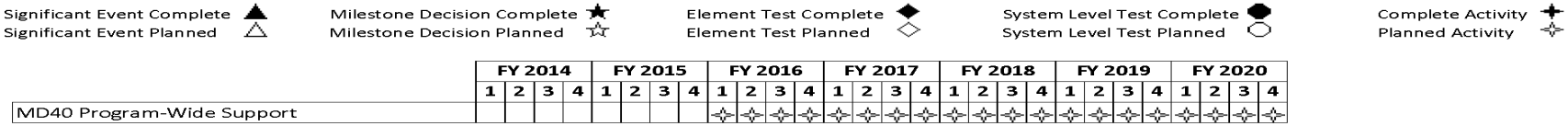


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603898C / *Ballistic Missile Defense Joint Warfighter Support*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	219.045	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
MD22: *Missile Defense Integration and Operations Center (MDIOC)*	213.178	47.064	54.578	46.575	-	46.575	54.869	50.291	51.632	53.420	Continuing	Continuing
MC22: *Cyber Operations*	-	0.514	0.537	0.472	-	0.472	0.459	0.616	0.622	0.645	Continuing	Continuing
MD40: *Program-Wide Support*	5.867	2.693	3.388	2.164	-	2.164	2.746	2.748	2.940	3.097	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

Beginning in FY 2014, Modeling and Simulation Systems Engineering and Integration content transferred to Ballistic Missile Defense Midcourse Sector, Program Element 0603882C (Budget Project MD08).

Project MC22 is a new Defensive Cyber Operations Project established in this Program Element (PE) beginning in FY 2014. Funds were previously reported in Project MD22 of this PE.

A. Mission Description and Budget Item Justification

The Missile Defense Integration and Operations Center (MDIOC) is the Missile Defense Agency's (MDA) field operating activity in Colorado Springs, Colorado. It provides the necessary infrastructure and support services through a mission execution platform for MDA elements/components and designated Combatant Commanders' Ballistic Missile Defense System (BMDS) operations executing missions at the MDIOC. The Integration Center is the organization responsible for providing a single, integrated set of skilled personnel matrixed from across MDA to manage this mission. The MDIOC mission facilities consists of a highly secure research and development complex and a mission support module (area) located within a military installation (Schriever Air Force Base) that is adjacent to North American Aerospace Defense Command (NORAD) and United States Northern Command (USNORTHCOM). The MDA Integration Center provides mission critical system technical capabilities and subject matter expertise in a dedicated and adaptable environment that enables developers, testers, and operators to evolve, assess and deliver the capabilities for layered missile defense execution for homeland defense and theater/regional support. The Missile Defense Integration and Operations Center (MDIOC) interfaces with the Information Technology/Information Assurance Enterprise to provide high availability access to worldwide secure communications, network health and status monitoring, mission critical restoral capability, and technical expertise for all MDA directed activities and events. The MDIOC functions as the mission control for BMDS distributed ground test and system wide flight tests. The mission and test directors for these key tests control both main and associated test operations using secure voice, test, and mission network hubs at the MDIOC. The MDIOC also functions (within MDA's capabilities-based acquisition strategy) as the only system-level integration and interoperability mission execution platform for BMDS fire control; and it provides the physical interface between the developers and the Combatant Command warfighters.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0603904C *I Missile Defense Integration and Operations Center (MDIOC)*

MDIOC mission facilities contribute to the BMDS by directly supporting the concept of Concurrent Test, Training, and Operations (CTTO) for the BMDS. The MDIOC accomplishes this by providing engineering integration, resource scheduling, configuration management, and implementation development support for MDA and BMDS-level test, training, and operational mission execution. The Integration Center provides engineering and operational integration by:

-Implementing the technical event architectures for the models and simulations used to support missile defense planning seminars, wargames, exercises, and analyses
-Supporting BMDS Critical Engagement Conditions (CEC) testing and analysis by operating the Test Execution Control (TEC) for distributed BMDS ground tests, and ensuring the
integrity of their technical system architecture
-Providing network operations and information assurance for all on-site integration activities
-Integrating and sustaining the enabling infrastructure, services, and processes that support the operation of designated elements of the BMDS and resident Combatant Command operations and/or support centers
-Providing technical support for the BMDS Watch Officers, BMDS Safety Officers, and Information Assurance Officers in their efforts to monitor and assess the health and status
of the networks and elements that impact BMDS test and operations
-Operating the Joint Early Warning Laboratory for anomaly resolution
-Supporting the Intelligence Support Center for critical situational awareness intelligence on worldwide ballistic missile developments that could affect the development and/or
operation of the BMDS

Missile Defense Integration and Operations Center (MDIOC) Major Program Goals:

-Provide the capabilities and services necessary to support engineering integration, resource scheduling for ground and flight tests, configuration management, and implementation development support of on-site activities
-Ensure around the clock support and restoral of designated BMDS operational activities
-Improve interface with designated Combatant Command missile defense activities; host/support the headquarters and operations center for United States Strategic Command
Joint Functional Component Command - Integrated Missile Defense
-Continue to achieve cost effectiveness and efficiencies through the leveraging of existing Missile Defense Integration and Operations Center infrastructure, services, processes,
and expertise to support assigned missions
-Maintain and improve as designated the reliability, availability, and maintainability of mission critical systems

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0603904C *I Missile Defense Integration and Operations Center (MDIOC)*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	52.095	58.530	51.738	-	51.738
Current President's Budget	50.271	58.503	49.211	-	49.211
Total Adjustments	-1.824	-0.027	-2.527	-	-2.527
• Congressional General Reductions	-	-0.027			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.005	-			
• SBIR/STTR Transfer	-0.819	-			
• Other Adjustment	-	-	-2.527	-	-2.527

Change Summary Explanation

FY 2015 change reflects Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

FY 2016 adjustments reflect realignment to Department of Defense priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	Project (Number/Name) MD22 / *Missile Defense Integration and Operations Center (MDIOC)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD22: *Missile Defense Integration and Operations Center (MDIOC)*	213.178	47.064	54.578	46.575	-	46.575	54.869	50.291	51.632	53.420	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

The Missile Defense Integration and Operations Center (MDIOC) sustains and operates a 24 hours a day, 7 days a week, 365 days a year mission complex for critical research, development, testing, training, and operations for BMDS activities. The MDIOC supports the Ground-based Midcourse Missile Defense Mission Control Center Facility, as well as the Command, Control, Battle Management, and Communications (C2BMC) Integration and Test Centers and the C2BMC Experimentation Laboratories. It provides infrastructure support for the Satellite Tracking and Surveillance System's (STSS) Missile Defense Space Center (MDSC); and the Targets and Countermeasures' (TC) Joint Target Operations Center (JTOC). The MDIOC also provides developmental support to the Enterprise Sensors Laboratory (ESL) composed of a common satellite ground station and sensor netting test bed for designated Ballistic Missile Defense System (BMDS) elements. Support to Missile Defense Agency test events is provided based on the Integrated Master Test Plan (IMTP) schedule. It supports BMDS Critical Engagement Conditions testing and analysis through the operation of the Test Execution Control node for distributed BMDS ground tests. During system flight test, the MDIOC provides infrastructure (power, Heating, Ventilation and Air Conditioning, and communications) support to the Flight Test Director and crew, and ensures the protection of those critical facility and test assets throughout the test window. Further, the MDIOC provides the facilities that support operations of the Missile Defense Element, manned by the U.S. Army 100th Missile Defense Brigade, the United States Northern Command (USNORTHCOM) Command, Control, Battle Management and Communications (C2BMC) Command and Control Center (CCC), the United States Strategic Command's (USSTRATCOM's) Joint Functional Component Command-Integrated Missile Defense (JFCC-IMD) and the Missile Defense Agency (MDA) Warfighter Support Center. In addition, the MDIOC supports the MDA Operations Support Center, which provides situational awareness of the health and status of the end-to-end BMDS, and provides network subject matter expertise and technical reach back for the program elements and Combatant Commanders. The MDIOC hosts BMDS wargames and exercises in support of the warfighter, and delivers requisite infrastructure for modeling and simulation to provide and integrate digital modeling and simulation assets to the Digital Simulation Architecture that form system-level constructive simulations for full-envelope BMDS performance assessment with surrogate capability for BMDS ground tests. The MDIOC maintains a technical repository of BMDS Implementation Architectures for real-time operations and configuration control; provides both state change management and asset management technical support for the BMDS; and provides the technical environment for BMDS Watch Officers, Safety Officers, and Information Assurance Officers to their assigned duties. The MDIOC also supports the operations of the Joint Early Warning Laboratory (JEWL), which provides USSTRATCOM with quick response analyses of real-world launches, and rapid anomaly identification and resolution.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Infrastructure Systems and Support	17.378	20.475	19.198

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Articles:	-	-	-

Description: N/A

FY 2014 Accomplishments:
Computing Center (Operating Systems, Print/Storage Services, Audio/Visual, Operations and Maintenance):

- Continued to maintain a mission execution platform to provide an enabling infrastructure (to include hardware, software maintenance, licenses, and upgrades) that supported MDA Research, Development, Test and Evaluation (RDT&E) efforts at the Missile Defense Integration and Operations Center (MDIOC) for the MDA elements/components, and Combatant Command and Warfighter operational elements
- Provided computer hosting of specified threat models and supported the integration of other threat tools as required
- Planned/Initiated, when directed, the installation of any additional data feeds required to support the Operations Support Center (OSC)
- Provided file, print, and messaging services
- Managed and maintained automated patching software and virus protection servers.
- Managed and maintained the MDA Enterprise directory services supporting user access to MDA Enterprise network resources
- Performed preventive maintenance and ensured data recovery capability through proper data backup scheduling and execution
- Planned/Designed enhancements to the MDIOC Data Center including floor space allocations, equipment staging areas, and streamlined logistics support function
- Designed/Implemented upgrades to audio/visual support to the MDIOC supporting the distribution of signals over Internet Protocol

MDIOC Communication Services:

- Installed communications and networking infrastructure (hardware/software) in support of evolving mission requirements of resident MDA development, testing, training, and operational activities
- Implemented Classified and Unclassified Voice Over Internet Protocol (VOIP) expansion
- Provided telephony services to include: Telephone/Fax Service: Provided local, long distance, Defense Switch Network and Defense Red Switch telephone systems. Telephone Switch Operations: Operated, maintained, and upgraded telephone switches, nodes, and Private Branch Exchanges to include 911 support

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Network Management Transport Services: - Acquired and distributed mission critical unclassified and secure communications capability to ten resident MDA elements/components and BMDS and Warfighter operational elements - Provided management of network capabilities by monitoring and controlling the network infrastructure, available bandwidth, hardware, and distributed software resources - Maintained the technical infrastructure and equipment which includes, routers and switches, Core Cryptographic Devices; Edge Encryption Devices; Global Engagement Manager (GEM); base and long-haul communications Information Assurance Systems - Provided information assurance to MDA elements/components, BMDS elements, and Combatant Command (COCOM) and Warfighter operational elements resident at the Missile Defense Integration and Operations Center (MDIOC) - Maintained DoD Information Assurance Certification and Accreditation Process (DIACAP) accreditation packages; managed the Information Assurance Vulnerability Assessment Program and provide technical assistance to Controls Validation Tests - Provided DoD Information Assurance Certification and Accreditation Process (DIACAP) package management; ensured timely submissions to Information Assurance Manager/Designated Accrediting Authority (IAM/DAA) for MDA Admin/General Services (GENSER) and Event Packages - Performed architecture design, engineering, and configuration management reviews for all assigned projects - Managed the Information Assurance Vulnerability Assessment and Communications Tasking Order remediation and implementation efforts to ensure Defense Information Systems Agency/Joint Task Force - Global Network Operations (DISA/JTF-GNO) directed compliance Infrastructure Implementation Engineering: - Implemented intelligence hardware/software updates as required to support the Operations Support Center - Provided MDIOC centric test event network related detailed designs in support of Test Events and real world operational events, provided implementation plans, updated interface control documents and performed Change Control and Configuration Management services - Planned, designed, tested and operated the IT and communications technical architecture including Internet Protocol addressing schema, routing tables, switching policies, data paths, information assurance controls,			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
fire wall configurations, application configurations, band width allocations for sub networks and eventual post event return to base line - Provided technical health and status monitoring, troubleshooting, and break/fix, IT/Communications support for each of the event architectures including critical asset identification, monitoring, Quality Assurance/Quality Control (QA/QC) seals with configuration management and job control - Implemented final Defense Information Systems Agency - Global Information Grid (DISA GIG) Mission Assurance node configuration Software Licenses, Services and Applications: - Maintained critical software licensing and maintenance agreements to meet critical customer and legal requirements, enabled continued software support necessary to maintain the directed computer network defense posture and ensured continued system operational availability - Planned/Designed/Implemented technical lifecycle, refresh, and standardization of MDIOC print services - Implemented a consolidated Microsoft Project Server and delivered as a web based service. Property/Asset Management and Accountability - Managed government property in accordance with the Federal Acquisition Regulations (FAR)/DoD FAR Supplements (DFARs) to include accountability, reporting, warehouse management, asset transportation and excess asset management - Maintained an inventory of IT hardware and software assets connected or used in the ULAN, CLAN, SIPRNET and TS/SCI networks Cable Plant Cubicle Workstation - Installed facility connectivity cabling; provided trouble-shooting and repair on a critical basis - Installed and reconfigured furniture and workstations on a critical basis			
FY 2015 Plans: MDIOC Communications and Special Purpose Processing Node: - Continue to maintain a mission execution platform to provide an enabling infrastructure (to include hardware, software maintenance, licenses, and upgrades) that supports MDA Research, Development, Test			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
and Evaluation (RDT&E) efforts at the Missile Defense Integration and Operations Center (MDIOC) for the MDA elements/components, and Combatant Command and Warfighter operational elements - Provide computer hosting of specified threat models and support the integration of other threat tools as required - Plan/Initiate, when directed, the installation of any additional data feeds required to support the Operations Support Center (OSC) - Maintain the technical infrastructure and equipment which includes, routers and switches, Core Cryptographic Devices; Edge Encryption Devices; Global Engagement Manager (GEM); base and long-haul communications Information Assurance Systems - Provide management of network capabilities by monitoring and controlling the network infrastructure, available bandwidth, hardware, and distributed software resources - Acquire and distribute mission critical unclassified and secure communications capability to ten resident MDA elements/components and BMDS and Warfighter operational elements - Install communications and networking infrastructure (hardware/software) in support of evolving mission requirements of resident MDA development, testing, training, and operational activities - Provide information assurance to MDA elements/components, BMDS elements, and Combatant Command (COCOM) and Warfighter operational elements resident at the Missile Defense Integration and Operations Center (MDIOC) - Maintain DoD Information Assurance Certification and Accreditation Process (DIACAP) accreditation packages; manage the Information Assurance Vulnerability Assessment Program and provide technical assistance to Controls Validation Tests - Manage and maintain the MDA Enterprise directory services supporting user access to MDA Enterprise network resources; perform preventive maintenance and ensure data recovery capability through proper data backup scheduling and execution - Implement Classified and Unclassified Voice Over Internet Protocol (VOIP) expansion to include the completion of the MDIOC VOIP implementation - Provide telephony services to include: Telephone/Fax Service: Provide local, long distance, Defense Switch Network and Defense Red Switch telephone systems. Telephone Switch Operations: Operate, maintain, and upgrade telephone switches, nodes, and Private Branch Exchanges to include 911 support - Design/Implement upgrades to audio/visual support to the MDIOC supporting the distribution of signals over Internet Protocol - Develop and coordinate Cross-Domain Solution architectures for high priority Ballistic Missile Defense System (BMDS); testing and contingency deployments - Plan/Design enhancements to the MDIOC Data Center including floor space allocations, equipment staging			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
areas, and streamlined logistics support function - Maintain critical software licensing and maintenance agreements to meet critical customer and legal requirements, enable continued software support necessary to maintain the directed computer network defense posture and ensure continued system operational availability - Plan/Design/Implement technical lifecycle, refresh, and standardization of MDIOC print services - Implement a consolidated Microsoft Project Server and deliver as a web based service End User Support: - Sustain End User core service support 18 hours a day, 6 days a week for administrative and business information systems for unclassified and classified users - Monitor networks for user compliance and DoD policies, and report incidents - Maintain Printing and Copy Services - Sustain email services (Exchange servers, BlackBerry Enterprise Services servers and archiving storage area networks) - Sustain file services (file servers and storage area networks) -Maintain Directory Services (Active Directory and domain controller servers) - Maintain Authentication services (Public Key Infrastructure/Common Area Card) -Maintain current hardware and software licenses for IT operational systems - Maintain an Integrated Service Desk - Maintain IT life-cycle asset management of end user devices (desktops, laptops, monitors, printers, thin clients, and BlackBerrys) Infrastructure Implementation Engineering: - Implement intelligence hardware/software updates as required to support the Operations Support Center - Provide MDIOC centric test event network related detailed designs in support of Test Events and real world operational events, provide implementation plans, update interface control documents and perform Change Control and Configuration Management services - Plan, design, test and operate the IT and communications technical architecture including Internet Protocol addressing schema, routing tables, switching policies, data paths, information assurance controls, fire wall configurations, application configurations, band width allocations for sub networks and eventual post event return to base line			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provide technical health and status monitoring, troubleshooting, and break/fix, IT/Communications support for each of the event architectures including critical asset identification, monitoring, Quality Assurance/Quality Control (QA/QC) seals with configuration management and job control - Implement final Defense Information Systems Agency - Global Information Grid (DISA GIG) Mission Assurance node configuration Hardware and Software Asset Management: - Manage government property in accordance with the Federal Acquisition Regulations (FAR)/DoD FAR Supplements (DFARs) to include accountability, reporting, warehouse management, asset transportation and excess asset management - Maintain an inventory of IT hardware and software assets connected or used in the ULAN, CLAN, SIPRNET and TS/SCI networks Cable Plant Cubicle Workstation - Install facility connectivity cabling; provide trouble-shooting and repair on a critical basis - Install and reconfigure furniture and workstations on a critical basis The FY 2015 increase is a result of planning for projects deferred in FY 2014.			
FY 2016 Plans: MDIOC Communications and Special Purpose Processing Node: - Continue to maintain a mission execution platform to provide an enabling infrastructure (to include hardware, software maintenance, licenses, and upgrades) that supports MDA Research, Development, Test and Evaluation (RDT&E) efforts at the Missile Defense Integration and Operations Center (MDIOC) for the MDA elements/components, and Combatant Command and Warfighter operational elements - Provide computer hosting of specified threat models and support the integration of other threat tools as required - Plan/Initiate, when directed, the installation of any additional data feeds required to support the Operations Support Center (OSC) - Maintain the technical infrastructure and equipment which includes, routers and switches, Core Cryptographic Devices; Edge Encryption Devices; Global Engagement Manager (GEM); base and long-haul communications			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Information Assurance Systems - Provide management of network capabilities by monitoring and controlling the network infrastructure, available bandwidth, hardware, and distributed software resources - Acquire and distribute mission critical unclassified and secure communications capability to ten resident MDA elements/components and BMDS and Warfighter operational elements - Install communications and networking infrastructure (hardware/software) in support of evolving mission requirements of resident MDA development, testing, training, and operational activities - Provide information assurance to MDA elements/components, BMDS elements, and Combatant Command (COCOM) and Warfighter operational elements resident at the Missile Defense Integration and Operations Center (MDIOC) - Maintain DoD Information Assurance Certification and Accreditation Process (DIACAP) accreditation packages; manage the Information Assurance Vulnerability Assessment Program and provide technical assistance to Controls Validation Tests - Manage and maintain the MDA Enterprise directory services supporting user access to MDA Enterprise network resources; perform preventive maintenance and ensure data recovery capability through proper data backup scheduling and execution - Implement Classified and Unclassified Voice Over Internet Protocol (VOIP) expansion to include the completion of the MDIOC VOIP implementation - Provide telephony services to include: Telephone/Fax Service: Provide local, long distance, Defense Switch Network and Defense Red Switch telephone systems. Telephone Switch Operations: Operate, maintain, and upgrade telephone switches, nodes, and Private Branch Exchanges to include 911 support - Design/Implement upgrades to audio/visual support to the MDIOC supporting the distribution of signals over Internet Protocol - Develop and coordinate Cross-Domain Solution architectures for high priority Ballistic Missile Defense System (BMDS); testing and contingency deployments - Plan/Design enhancements to the MDIOC Data Center including floor space allocations, equipment staging areas, and streamlined logistics support function - Maintain critical software licensing and maintenance agreements to meet critical customer and legal requirements, enable continued software support necessary to maintain the directed computer network defense posture and ensure continued system operational availability - Plan/Design/Implement technical lifecycle, refresh, and standardization of MDIOC print services - Implement a consolidated Microsoft Project Server and deliver as a web based service End User Support:			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Sustain End User core service support 18 hours a day, 6 days a week for administrative and business information systems for unclassified and classified users - Monitor networks for user compliance and DoD policies, and report incidents - Maintain Printing and Copy Services - Sustain email services (Exchange servers, BlackBerry Enterprise Services servers and archiving storage area networks) - Sustain file services (file servers and storage area networks) -Maintain Directory Services (Active Directory and domain controller servers) - Maintain Authentication services (Public Key Infrastructure/Common Area Card) -Maintain current hardware and software licenses for IT operational systems. - Maintain an Integrated Service Desk. - Maintain IT life-cycle asset management of end user devices (desktops, laptops, monitors, printers, thin clients, and BlackBerrys) Hardware and Software Asset Management: - Manage government property and IT hardware and software in accordance with the Federal Acquisition Regulations (FAR)/DoD FAR Supplements (DFARs) to include accountability, reporting, warehouse management, asset transportation and excess asset management - Maintain an inventory of IT hardware and software assets connected or used in the ULAN, CLAN, SIPRNET and TS/SCI networks Cable Plant Cubicle Workstation: - Install facility connectivity cabling; provide trouble-shooting and repair - Install and reconfigure furniture and workstations Infrastructure Implementation Engineering: - Implement intelligence hardware/software updates as required to support the Operations Support Center - Provide MDIOC centric test event network related detailed designs in support of Test Events and real world operational events, provide implementation plans, update interface control documents and perform Change Control and Configuration Management services			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Plan, design, test and operate the IT and communications technical architecture including Internet Protocol addressing schema, routing tables, switching policies, data paths, information assurance controls, fire wall configurations, application configurations, band width allocations for sub networks and eventual post event return to base line - Provide technical health and status monitoring, troubleshooting, and break/fix, IT/Communications support for each of the event architectures including critical asset identification, monitoring, Quality Assurance/Quality Control (QA/QC) seals with configuration management and job control - Implement final Defense Information Systems Agency - Global Information Grid (DISA GIG) Mission Assurance node configuration The decrease in FY2016 is due to the realignment of funds to other Department of Defense priorities			
Title: Facilities and Maintenance	13.439	13.786	13.590
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** Host Tenant Support(Electrical, Gas, Sewer, Water, Steam, Chilled Water, Waste Water, Landscaping, and Refuse Removal): - Procured utility services through 50th Air Force Space Wing (Host Base) - Sustained utility infrastructure and delivery systems Environmental, Safety and Occupational Health (ESOH): - Continued maintenance and updating of the program accident prevention plan - Provided required industrial safety training to facility services personnel - Procured and distributed personal protection equipment for contracted activities - Ensured compliance with Hazardous Waste, Hazardous Material Recycling, and National Environmental Policy Act (NEPA) programs - Conducted recurring safety and environmental audits Facilities Operations and Maintenance:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provided 24 hours a day, 7 days a week, 365 days a year, facility maintenance break/fix response for all facility systems (electrical; Heating, Ventilation, and Air Conditioning; plumbing; locksmith) with a response time of 15 minutes after normal duty hours - Conducted preventative maintenance inspections (PMIs) for all building systems Facilities Engineering: - Conducted Management Process Facility Installation Standard Audits - Provided risk management analysis and mitigation plans - Maintained infrastructure drawings configuration management databases on a limited basis - Developed and documented facility long range planning and programming - Provided preliminary designs and engineering rough order of magnitude estimates for required infrastructure buildout changes Missile Defense Integration and Operations Center (MDIOC) Operating Expenses: - Leased General Services Administration (GSA) Vehicles and a commercial warehouse - Funded Schriever Air Force Base Support Costs (Defense Red Switch Network (DRSN) Support, Local Dial Tone, Long Distance, Cable TV, and Grounds Maintenance) - Funded calibration of measuring and monitoring equipment - Funded repair of classified network switches - Procured major event transportation services (group movement) Facility Services: - Provided custodial services for over 675,000 square feet of floor space in Buildings 720 and 730 - Provided limited Copy Center and Shuttle Services for over 2,000 personnel - Provided In/Out Processing and Personnel Moves			
FY 2015 Plans: Host Tenant Support(Electrical, Gas, Sewer, Water, Steam, Chilled Water, Waste Water, Landscaping, and Refuse Removal): - Procure utility services through 50th Air Force Space Wing (Host Base)			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Sustain utility infrastructure and delivery systems Environmental, Safety and Occupational Health (ESOH): - Continue maintenance and updating of the program accident prevention plan - Provide required industrial safety training to facility services personnel - Procure and distribute personal protection equipment for contracted activities - Ensure compliance with Hazardous Waste, Hazardous Material Recycling, and National Environmental Policy Act (NEPA) programs - Conduct recurring safety and environmental audits Facilities Operations and Sustainment: - Provide 24 hours a day, 7 days a week, 365 days a year, facility maintenance break/fix response for all facility systems (electrical; Heating, Ventilation, and Air Conditioning; plumbing; locksmith) with a response time of 15 minutes after normal duty hours - Conduct preventative maintenance inspections (PMIs) for all building systems Facilities Engineering: - Conduct Management Process Facility Installation Standard Audits - Provide risk management analysis and mitigation plans - Maintain infrastructure drawings configuration management databases on a limited minimum basis - Develop and document facility long range planning programming - Provide consulting services, preliminary designs and engineering rough order of magnitude estimates for required infrastructure buildout changes Missile Defense Integration and Operations Center (MDIOC) Operating Expenses: - Lease General Services Administration (GSA) Vehicles and a commercial warehouse - Fund Schriever Air Force Base Support Costs (Defense Red Switch Network (DRSN) Support, Local Dial Tone, Long Distance, Cable TV, and Grounds Maintenance) - Fund calibration of measuring and monitoring equipment - Fund repair of classified network switches			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Facility Services: - Provide custodial services for over 675,000 square feet of floor space in Buildings 720 and 730 - Provide limited Copy Center and Shuttle Services for over 2,000 personnel - Provide In/Out Processing and Personnel Moves ***FY 2016 Plans:*** Host Tenant Support(Electrical, Gas, Sewer, Water, Steam, Chilled Water, Waste Water, Landscaping, and Refuse Removal): - Procure utility services through 50th Air Force Space Wing (Host Base) - Sustain utility infrastructure and delivery systems Environmental, Safety and Occupational Health (ESOH): - Continue maintenance and updating of the program accident prevention plan - Provide required industrial safety training to facility services personnel - Procure and distribute personal protection equipment for contracted activities - Ensure compliance with Hazardous Waste, Hazardous Material Recycling, and National Environmental Policy Act (NEPA) programs - Conduct recurring safety and environmental audits Facilities Operations and Sustainment: - Provide 24 hours a day, 7 days a week, 365 days a year, facility maintenance break/fix response for all facility systems (electrical; Heating, Ventilation, and Air Conditioning; plumbing; locksmith) with a response time of 15 minutes after normal duty hours - Conduct preventative maintenance inspections (PMIs) for all building systems Facilities Engineering: - Conduct Management Process Facility Installation Standard Audits - Provide risk management analysis and mitigation plans			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Maintain infrastructure drawings configuration management databases on a limited minimum basis - Develop and document facility long range planning programming - Provide consulting services, preliminary designs and engineering rough order of magnitude estimates for required infrastructure buildout changes Missile Defense Integration and Operations Center (MDIOC) Operating Expenses: - Lease General Services Administration (GSA) Vehicles and a commercial warehouse - Fund Schriever Air Force Base Support Costs (Defense Red Switch Network (DRSN) Support, Local Dial Tone, Long Distance, Cable TV, and Grounds Maintenance) - Fund calibration of measuring and monitoring equipment - Fund repair of classified network switches Facility Services: - Provide custodial services for over 675,000 square feet of floor space in Buildings 720 and 730 - Provide limited Copy Center and Shuttle Services for over 2,000 personnel - Provide In/Out Processing and Personnel Moves			
Title: Engineering and Event Services	6.501	6.837	7.778
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** Provided Mission Assurance and Event Services to reduce risk of infrastructure failures, prevent over-taxing of shared resources, and ensure the rapid restoration of impacted services through the following: Mission Assurance and Event Execution Support - Implemented baseline technical control for all Missile Defense Integration and Operations Center (MDIOC) mission critical subsystems and services - Executed MDIOC engineering management, quality assurance, configuration management and integration of all mission critical systems including: -- Technical power distribution, Uninterruptable Power Supply Systems, major transformer substations, and			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
circuit protection -- Heating, Ventilation and Air Conditioning, chilled water and steam systems -- Secure and non-secure voice communications for Ballistic Missile Defense Systems (BMDS); Operations, major tests, and general constituencies -- Local and wide area secure data networking environments and network health and status tools 24 hours a day, 7 days a week, 365 days a year - Ensured high availability of integrated MDIOC systems and BMDS Operations support 24 hours a day, 7 days a week, 365 days a year - Implemented 'last mile' integration for BMDS Operations, BMDS test, War gaming, exercise, training and general admin services - Executed comprehensive configuration baseline integrity periods of non-disruption, periods of interest and work screening for all major tests and real world contingencies - Coordinated process improvement investments across all mission areas - Executed aggressive, proactive and tailored risk management to ensure integrity and persistent connectivity for all MDIOC missions including: -- Command, Control, Battle Management and Communications (C2MBC) incremental development and integration across the Integration Laboratory, Experimentation Laboratory (X-Lab), and the International Point of Presence -- BMDS focused, system and distributed ground testing and Hardware-in-the-Loop (HWIL) execution -- Modeling and Simulation program management; Digital Simulation Architecture Development; Validation, Verification and Accreditation -- BMDS flight tests including Flight Test Ground-Based Midcourse Defense (FTG) execution; Flight Test - Aegis (FTM) and Flight Test - THAAD (FTT) planning, coordination and situational awareness. (For system flight tests directed from the MDIOC, ensured the protection of power, Heating, Ventilation and Air Conditioning, and communications critical to test execution and control). -- Joint Target Operations Center (JTOC) Target of Opportunity (TOO) and target tracking, coordination and visualization -- BMDS Operational Support Center and technical integration and implementation services 24 hours a day, 7 days a week, 365 days a year -- MDA Intelligence Support Cell and Threat Modeling Center services -- BMDS Wargame, exercise and Distributed Multi-Echelon Training System (DMETS) training execution; Warfighter Support Center program integration -- Missile Defense Space Center (MDSC) Satellite Operations, Ground System and experiment support operations, and Space Tracking and Surveillance System (STSS) testing			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-- Enterprise Sensor Laboratory experimental, networking and facility support and coordination -- Ground-Based Midcourse Defense (GMD) Fire Control component-level operations, integration, testing, and training -- Joint Early Warning Laboratory mission services and connectivity -- Combatant Command (COCOM) operations work centers including the United States Northern Command (USNORTHCOM) Command, Control, Battle Management and Communications (C2BMC) Control Center (CCC), Army 100th Missile Defense Brigade, and United States Strategic Command`s Joint Functional Component Command-Integrated Missile Defense -- MDA General Services Network and Operational Support Center and Network Communications Center -- MDA Computer Emergency Response Team Technical Watch Support - Provided on-site technical environment for Ballistic Missile Defense System (BMDS) ;Watch Officers, Safety Officers, and Information Assurance Officers to execute their duties 25 hours a day, 7days a week - Implemented recall procedures to augment subject matter expertise availability during contingencies and major events - Executed tabletop exercises to asses readiness for COCOM Operational contingencies and major BMDS tests - Provided state change management and asset management technical support for the BMDS - Coordinated, reported, and escalated critical information and BMDS test and operational event information to all Missile Defense Integration and Operations Center (MDIOC) technical and management staff to ensure rapid break/fix actions were executed Program Quality Management, Risk Management, and Earned Value Management - Provided overarching contract and financial management support for all JNIC Research and Development Contract (JRDC) integrated programs projects - Provided engineering coordination, resource management, and event integration across all Missile Defense and Integration (MDIOC) mission areas - Conducted continuous process improvement and implementation across all JRDC execution and MDIOC missions - Delivered integrated skill mix planning, coordination and workforce deployment across the dynamic spectrum of MDIOC events - Executed integrated resource forecasting and de-confliction			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Performed project management for discrete enterprise enhancements Event Architecture & Engineering Design: - Coordinated design and implementation of technical architectures for all major Missile Defense Integration and Operations Center (MDIOC) hosted Ballistic Missile Defense Systems) BMDS tests, training and operations - Delivered technical documentation packages for all major BMDS flight tests, ground tests, training and Combatant Command (COCOM) exercise support - Led requirements coordination and technical architecture enhancements for BMDS; wargame, exercise and training networks - Updated BMDS end-to-end COCOM deployed architecture as-built documentation reflecting new incremental content and deployments - Maintained a technical repository of BMDS Implementation Architectures for real-time operations and configuration management ***FY 2015 Plans:*** Mission Assurance and Event Execution Support - Implement baseline technical control for all Missile Defense Integration and Operations Center (MDIOC) mission critical subsystems and services - Execute MDIOC engineering management, quality assurance, configuration management and integration of all mission critical systems including: - Technical power distribution, Uninterruptable Power Supply Systems, major transformer substations, and circuit protection - Heating, Ventilation and Air Conditioning, chilled water and steam systems - Secure and non-secure voice communications for Ballistic Missile Defense Systems (BMDS); Operations, major tests, and general constituencies - Local and wide area secure data networking environments and network health and status tools 24 hours a day, 7 days a week, 365 days a year - Ensure high availability of integrated MDIOC systems and BMDS Operations support 24 hours a day, 7 days a week, 365 days a year - Implement 'last mile' integration for BMDS Operations, BMDS test, War gaming, exercise, training and general admin services - Execute comprehensive configuration baseline integrity freezes, periods of interest and work screening for			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
all major tests and real world contingencies - Coordinate process improvement investments across all mission areas - Execute aggressive, proactive and tailored risk management to ensure integrity and persistent connectivity for all MDIOC missions including: - Command, Control, Battle Management and Communications (C2MBC) incremental development and integration across the Integration Laboratory, Experimentation Laboratory (X-Lab), and the International Point of Presence - BMDS focused, system and distributed ground testing and Hardware-in-the-Loop (HWIL) execution - Modeling and Simulation program management; Digital Simulation Architecture Development; Validation, Verification and Accreditation - BMDS flight tests including Flight Test Ground-Based Midcourse Defense (FTG) execution; Flight Test - Aegis (FTM) and Flight Test - THAAD (FTT) planning, coordination and situational awareness. (For system flight tests directed from the MDIOC, ensure the protection of power, Heating, Ventilation and Air Conditioning, and communications critical to test execution and control). - Joint Target Operations Center (JTOC) Target of Opportunity (TOO) and target tracking, coordination and visualization - BMDS Operational Support Center and technical integration and implementation services 24 hours a day, 7 days a week, 365 days a year - MDA Intelligence Support Cell and Threat Modeling Center services - BMDS Wargame, exercise and DMETS training execution; Warfighter Support Center program integration - Missile Defense Space Development Center (MDSDC) Satellite Operations, Ground System and experiment support operations, and Airborne Infrared Radar (ABIR); and Space Tracking and Surveillance System (STSS) testing - Enterprise Sensor Laboratory experimental, networking and facility support and coordination - Ground-Based Midcourse Defense (GMD) Fire Control component-level operations, integration, testing, and training - Joint Early Warning Laboratory mission services and connectivity - Combatant Command (COCOM) operations work centers including the United States Northern Command (USNORTHCOM) Command, Control, Battle Management and Communications (C2BMC) Control Center (CCC), Army 100th Missile Defense Brigade, and United States Strategic Command`s Joint Functional Component Command-Integrated Missile Defense - MDA General Services Network and Operational Support Center and Network Communications Center - MDA Computer Emergency Response Team			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Technical Watch Support - Provide on-site technical environment for Ballistic Missile Defense System (BMDS) ;Watch Officers, Safety Officers, and Information Assurance Officers to execute their duties 24 hours a day, 7 days a week, 365 days a year - Implement recall procedures to augment subject matter expertise availability during contingencies and major events - Execute tabletop exercises to asses readiness for COCOM Operational contingencies and major BMDS tests - Provide state change management and asset management technical support for the BMDS - Coordinate, report and escalate critical information and BMDS test and operational event information to all Missile Defense Integration and Operations Center (MDIOC) technical and management staff to ensure rapid break/fix actions are executed Program Quality Management, Risk Management, and Earned Value Management - Provide overarching contract and financial management support for all JNIC JRDC integrated programs projects - Provide engineering coordination, resource management, and event integration across all MDIOC mission areas - Conduct continuous process improvement and implementation across all JRDC execution and MDIOC missions - Deliver integrated skill mix planning, coordination and workforce deployment across the dynamic spectrum of MDIOC events - Execute integrated resource forecasting and de-confliction - Perform project management for discrete enterprise enhancements Event Architecture & Engineering Design: - Coordinate design and implementation of technical architectures for all major MDIOC hosted BMDS tests, training and operations - Deliver technical documentation packages for all major BMDS flight tests, ground tests, training and COCOM exercise support - Lead requirements coordination and technical architecture enhancements for Ballistic Missile Defense System (BMDS); wargame, exercise and training networks - Update BMDS end-to-end Combatant Command (COCOM) deployed architecture as-built documentation reflecting new incremental content and deployments - Maintain a technical repository of BMDS Implementation Architectures for real-time operations and			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
configuration management ***FY 2016 Plans:*** Mission Assurance and Event Execution Support - Implement baseline technical control for all Missile Defense Integration and Operations Center (MDIOC) mission critical subsystems and services - Execute MDIOC engineering management, quality assurance, configuration management and integration of all mission critical systems including: - Technical power distribution, Uninterruptable Power Supply Systems, major transformer substations, and circuit protection - Heating, Ventilation and Air Conditioning, chilled water and steam systems - Secure and non-secure voice communications for Ballistic Missile Defense Systems (BMDS); Operations, major tests, and general constituencies - Local and wide area secure data networking environments and network health and status tools 24 hours a day, 7 days a week, 365 days a year - Ensure high availability of integrated MDIOC systems and BMDS Operations support 24 hours a day, 7 days a week, 365 days a year - Implement 'last mile' integration for BMDS Operations, BMDS test, War gaming, exercise, training and general admin services - Execute comprehensive configuration baseline integrity freezes, periods of interest and work screening for all major tests and real world contingencies - Coordinate process improvement investments across all mission areas - Execute aggressive, proactive and tailored risk management to ensure integrity and persistent connectivity for all MDIOC missions including: - Command, Control, Battle Management and Communications (C2MBC) incremental development and integration across the Integration Laboratory, Experimentation Laboratory (X-Lab), and the International Point of Presence - BMDS focused, system and distributed ground testing and Hardware-in-the-Loop (HWIL) execution - Modeling and Simulation program management; Digital Simulation Architecture Development; Validation, Verification and Accreditation - BMDS flight tests including Flight Test Ground-Based Midcourse Defense (FTG) execution; Flight Test - Aegis (FTM) and Flight Test - THAAD (FTT) planning, coordination and situational awareness. (For system flight tests directed from the MDIOC, ensure the protection of power, Heating, Ventilation and Air Conditioning,			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
and communications critical to test execution and control). - Joint Target Operations Center (JTOC) Target of Opportunity (TOO) and target tracking, coordination and visualization - BMDS Operational Support Center and technical integration and implementation services 24 hours a day, 7 days a week, 365 days a year - MDA Intelligence Support Cell and Threat Modeling Center services - BMDS Wargame, exercise and DMETS training execution; Warfighter Support Center program integration - Missile Defense Space Development Center (MDSDC) Satellite Operations, Ground System and experiment support operations, and Airborne Infrared Radar (ABIR); and Space Tracking and Surveillance System (STSS) testing - Enterprise Sensor Laboratory experimental, networking and facility support and coordination - Ground-Based Midcourse Defense (GMD) Fire Control component-level operations, integration, testing, and training - Joint Early Warning Laboratory mission services and connectivity - Combatant Command (COCOM) operations work centers including the United States Northern Command (USNORTHCOM) Command, Control, Battle Management and Communications (C2BMC) Control Center (CCC), Army 100th Missile Defense Brigade, and United States Strategic Command`s Joint Functional Component Command-Integrated Missile Defense - MDA General Services Network and Operational Support Center and Network Communications Center - MDA Computer Emergency Response Team Technical Watch Support - Provide on-site technical environment for Ballistic Missile Defense System (BMDS) ;Watch Officers, Safety Officers, and Information Assurance Officers to execute their duties 24 hours a day, 7 days a week, 365 days a year - Implement recall procedures to augment subject matter expertise availability during contingencies and major events - Execute tabletop exercises to asses readiness for COCOM Operational contingencies and major BMDS tests - Provide state change management and asset management technical support for the BMDS - Coordinate, report and escalate critical information and BMDS test and operational event information to all Missile Defense Integration and Operations Center (MDIOC) technical and management staff to ensure rapid break/fix actions are executed Program Quality Management, Risk Management, and Earned Value Management			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provide overarching contract and financial management support for all JNIC Research and Development Contract (JRDC)integrated programs projects - Provide engineering coordination, resource management, and event integration across all MDIOC mission areas - Conduct continuous process improvement and implementation across all JRDC execution and MDIOC missions - Deliver integrated skill mix planning, coordination and workforce deployment across the dynamic spectrum of MDIOC events - Execute integrated resource forecasting and de-confliction - Perform project management for discrete enterprise enhancements Event Architecture and Engineering Design: - Coordinate design and implementation of technical architectures for all major MDIOC hosted Ballistic Missile Defense System (BMDS) tests, training and operations - Deliver technical documentation packages for all major BMDS flight tests, ground tests, training and COCOM exercise support - Lead requirements coordination and technical architecture enhancements for BMDS; wargame, exercise and training networks - Update BMDS end-to-end Combatant Command (COCOM) deployed architecture as-built documentation reflecting new incremental content and deployments - Maintain a technical repository of BMDS Implementation Architectures for real-time operations and configuration management			
Title: Operations and Sustainment	6.245	6.389	6.009
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** Continued Operations and Sustainment for: - Government Civilian Salaries - Contract Support Services (CSS) - Training - Travel			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Federally Funded Research and Development			
FY 2015 Plans:			
- Fund Government Civilian, CSS, Training, and Travel			
- Fund Civilian and CSS positions supporting operations and sustainment of all Missile Defense Integration and Operations Center (MDIOC) activities contributing to the mission execution platform			
- Provide quality event planning, coordination, logistics, security access and host support for all MDIOC events and visitors			
- Deliver integrated service coordination for all MDIOC event and protocol support including:			
- Event Registration Web site			
- Offsite event registration			
- Security processing, including clearance verification and badging			
- Coordination of group lodging			
- Arrangement/Coordination/Scheduling of bus transportation			
- Reserve, setup, and coordinate access for all primary shared MDIOC conference rooms			
- Operate Audio Visual equipment during events			
- Prepare and conduct official ceremonies; coordinate and host Distinguished Visitor itineraries; obtain information disclosure approval; coordinate offsite dinners and socials			
- Fund Training and Travel			
FY 2016 Plans:			
- Fund Government Civilian, Contract Support Services (CSS), Training, and Travel			
- Fund Civilian and CSS positions supporting operations and sustainment of all Missile Defense Integration and Operations Center (MDIOC) activities contributing to the mission execution platform			
- Provide quality event planning, coordination, logistics, security access and host support for all MDIOC events and visitors			
- Deliver integrated service coordination for all MDIOC event and protocol support including management of the:			
- Event Registration Web site			
- Offsite event registration			
- Security processing, including clearance verification and badging			
- Arrangement/Coordination/Scheduling of bus transportation			
- Reserve, setup, and coordinate access for all primary shared MDIOC conference rooms			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Operate Audio Visual equipment during events - Prepare and conduct official ceremonies; coordinate and host Distinguished Visitor itineraries; obtain information disclosure approval - Fund Training and Travel			
Title: Infrastructure Systems Repair, Sustainment, and Critical Upgrades	3.501	7.091	-
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** Beginning in FY 2014, the repair, sustainment, and critical upgrade projects were realigned under this accomplishment from Infrastructure Systems and Support Accomplishments and Operations and Maintenance Accomplishments - Completed Electrical power distribution in two mission quadrants to replace end-of-life systems, increase reliability, improve power distribution efficiency, and redundancy to mission critical areas within the facility (multi-year project) - Completed Electrical distribution non-technical power switchgear scheduled maintenance (first phase) - Completed Heating, Ventilation, and Air Conditioning capacity upgrades to Missile Defense Integration and Operations Center (MDIOC) Computing Hub Data Center - Completed Heating, Ventilation, and Air Conditioning end-of-life replacement components (phased project) ***FY 2015 Plans:*** - Electrical power distribution in four mission quadrants to replace - End-of-life systems, increase reliability, improve power distribution efficiency, and redundancy to mission critical areas (multi-year project) - Electrical Distribution non-technical power switchgear scheduled maintenance (second and third phases) - Heating, Ventilation, and Air Conditioning end-of-life component replacement and capacity upgrade to improve mission assurance to critical mission areas within the facility (second phase) - Compliance project (first of multiple phases) to modify fire suppression system to meet building code requirements ***FY 2016 Plans:*** The decrease in FY2016 is due to the realignment of funds to other Department of Defense priorities			
Accomplishments/Planned Programs Subtotals	47.064	54.578	46.575

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing
• 0603294C: *Common Kill Vehicle Technology*	67.796	25.639	46.753	-	46.753	75.262	71.476	86.814	99.701	Continuing	Continuing
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	251.899	163.892	228.021	-	228.021	230.306	257.014	218.533	247.707	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing
• 0603893C: *Space Tracking and Surveillance System*	41.618	31.331	31.632	-	31.632	17.917	23.937	28.789	30.344	Continuing	Continuing
• 0603895C: *Ballistic Missile Defense System Space Programs*	6.412	6.389	23.289	-	23.289	21.433	16.108	11.933	11.952	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	41.051	46.387	49.570	-	49.570	50.533	51.363	52.217	54.247	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing
• 0603913C: *Israeli Cooperative Programs*	283.782	268.842	102.795	-	102.795	104.923	106.913	109.599	111.370	Continuing	Continuing

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Joint National Integration Center Research and Development Contract is the major performing integrated contract and is scheduled to be recompeted in FY 2016. The acquisition strategy for Missile Defense Integration and Operation Center (MDIOC) mission execution is to employ a contract to perform designated integration and sustainment tasks to conduct Ballistic Missile Defense System (BMDS) Research, Development, Test and Evaluation (RDT&E). The MDIOC is operated by missile defense subject matter experts (SME) composed of Government military and civilian personnel, Federally Funded Research and Development Center (FFRDC), MDIOC Contract Support Services, and major defense contractors.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Infrastructure Systems and Support - MDIOC NG	C/CPAF	MDIOC/Northrup Grumman Mission Systems : Colorado Springs, CO	80.363	17.378		20.475	Nov 2014	19.198	Nov 2015	-		19.198	Continuing	Continuing	Continuing
Facilities and Maintenance - MDIOC GSA / Leases / Calibration	MIPR	Various (GSA, 50th Space Wing, Warehouses) : Colorado Springs, CO	4.414	1.240		0.636		0.667		-		0.667	Continuing	Continuing	Continuing
Facilities and Maintenance - MDIOC NG	C/CPAF	MDIOC/Northrop Grumman Mission Systems : Colorado Springs, CO	57.296	9.780		9.947	Nov 2014	10.358	Nov 2015	-		10.358	Continuing	Continuing	Continuing
Facilities and Maintenance - MDIOC Utilities	MIPR	50th Space Wing : Shriever AFB, CO	9.020	2.419		3.203		2.565		-		2.565	Continuing	Continuing	Continuing
Engineering and Event Services - MDIOC NG	C/CPAF	MDIOC/Northrop Grumman Mission Systems : Colorado Springs, CO	38.458	6.501		6.837	Oct 2014	7.778	Oct 2015	-		7.778	Continuing	Continuing	Continuing
Operations and Sustainment - FFRDC	FFRDC	MDIOC : Colorado Springs, CO	1.807	0.360		0.407	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Operations and Sustainment - Operations & Sustainment	Allot	MDIOC : Colorado Springs, CO	12.035	3.263		3.330	Oct 2014	3.281	Oct 2015	-		3.281	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	Project (Number/Name) MD22 / *Missile Defense Integration and Operations Center (MDIOC)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operations and Sustainment - Support Services	C/FFP	SRS/ManTech/ MiDAESS Multi : Colorado Springs, CO	9.388	2.481		2.564	Oct 2014	2.640	Nov 2015	-		2.640	Continuing	Continuing	Continuing
Operations and Sustainment - Travel and Training	Allot	MDIOC : Colorado Springs, CO	0.397	0.141		0.088	Oct 2014	0.088	Oct 2015	-		0.088	Continuing	Continuing	Continuing
Infrastructure Systems Repair, Sustainment, and Critical Upgrades - MDIOC NG	C/CPAF	MDIOC/Northrop Grumman Mission Systems : Colorado Springs, CO	0.000	3.501		7.091	Nov 2014	-		-		-	Continuing	Continuing	Continuing
		Subtotal	213.178	47.064		54.578		46.575		-		46.575	-	-	-

Remarks

Funds for utilities and base communications are specified in the Inter-service Support Agreement with the 50th Space Wing. In addition, the Missile Defense Integration and Operations Center (MDIOC) provides Federally Funded Research and Development Center (FFRDC) and Technical Contract Support Services employees, for MDIOC operations and oversight of the Joint Research and Development Contractor (JRDC), as well as funding for JRDC work as required by the government.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

FY 2012 Plans captured in Project MD01, PE 0603896C

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	Project (Number/Name) MD22 / *Missile Defense Integration and Operations Center (MDIOC)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks															
N/A															

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	213.178	47.064		54.578		46.575		-		46.575	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

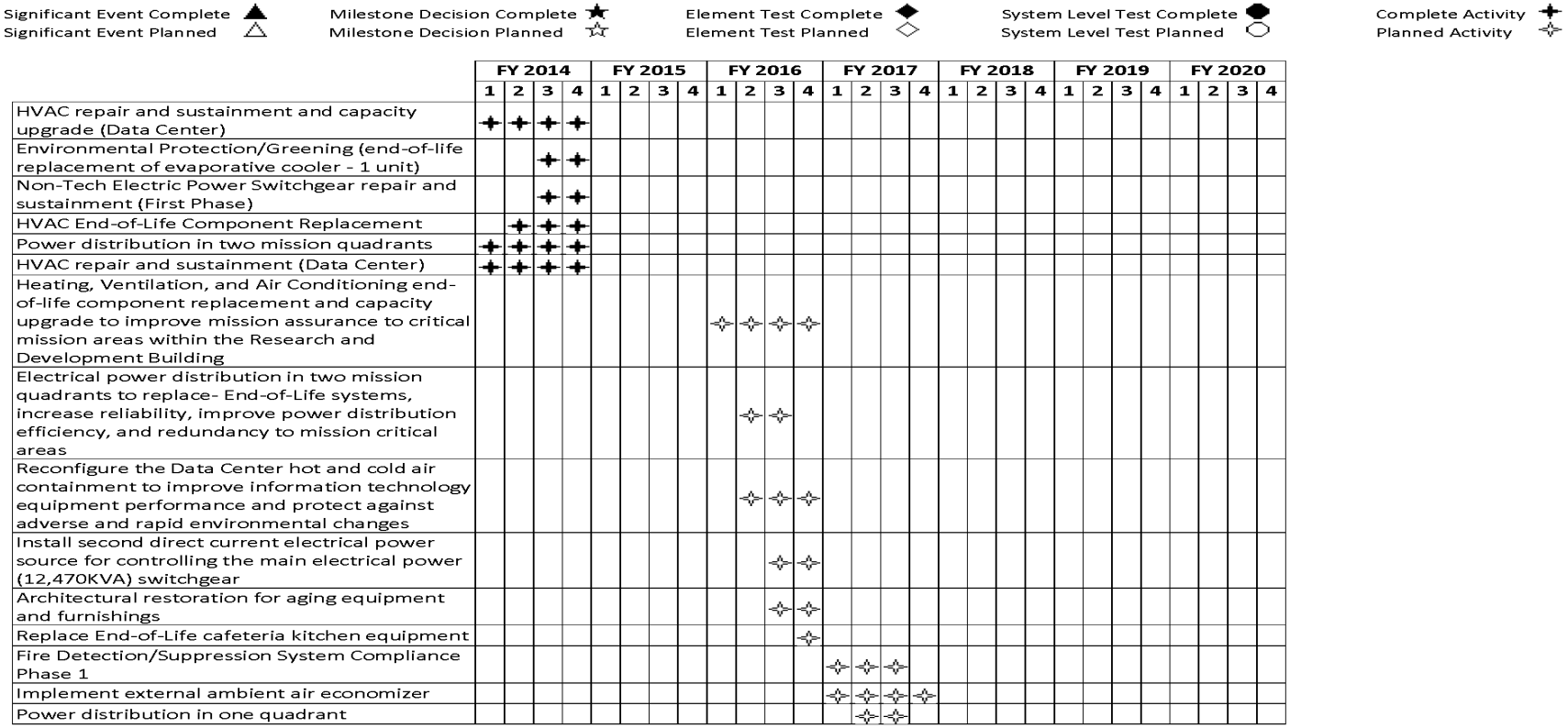

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

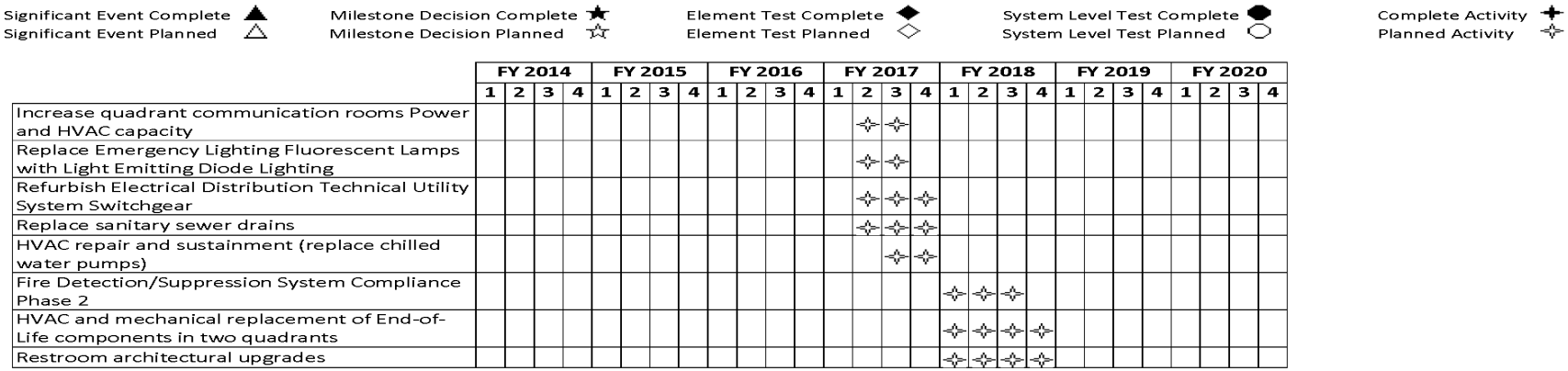

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
HVAC repair and sustainment and capacity upgrade (Data Center)	1	2014	4	2014
Environmental Protection/Greening (end-of-life replacement of evaporative cooler - 1 unit)	3	2014	4	2014
Non-Tech Electric Power Switchgear repair and sustainment (First Phase)	3	2014	4	2014
HVAC End-of-Life Component Replacement	2	2014	4	2014
Power distribution in two mission quadrants	1	2014	4	2014
HVAC repair and sustainment (Data Center)	1	2014	4	2014
Heating, Ventilation, and Air Conditioning end-of-life component replacement and capacity upgrade to improve mission assurance to critical mission areas within the Research and Development Building	1	2016	4	2016
Electrical power distribution in two mission quadrants to replace- End-of-Life systems, increase reliability, improve power distribution efficiency, and redundancy to mission critical areas	2	2016	3	2016
Reconfigure the Data Center hot and cold air containment to improve information technology equipment performance and protect against adverse and rapid environmental changes	2	2016	4	2016
Install second direct current electrical power source for controlling the main electrical power (12,470KVA) switchgear	3	2016	4	2016
Architectural restoration for aging equipment and furnishings	3	2016	4	2016
Replace End-of-Life cafeteria kitchen equipment	4	2016	4	2016
Fire Detection/Suppression System Compliance Phase 1	1	2017	3	2017
Implement external ambient air economizer	1	2017	4	2017
Power distribution in one quadrant	2	2017	3	2017
Increase quadrant communication rooms Power and HVAC capacity	2	2017	3	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD22 / *Missile Defense Integration and Operations Center (MDIOC)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Replace Emergency Lighting Fluorescent Lamps with Light Emitting Diode Lighting	2	2017	3	2017
Refurbish Electrical Distribution Technical Utility System Switchgear	2	2017	4	2017
Replace sanitary sewer drains	2	2017	4	2017
HVAC repair and sustainment (replace chilled water pumps)	3	2017	4	2017
Fire Detection/Suppression System Compliance Phase 2	1	2018	3	2018
HVAC and mechanical replacement of End-of-Life components in two quadrants	1	2018	4	2018
Restroom architectural upgrades	1	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	Project (Number/Name) MC22 / *Cyber Operations*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MC22: *Cyber Operations*	-	0.514	0.537	0.472	-	0.472	0.459	0.616	0.622	0.645	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project MC22 is a new Defensive Cyber Operations Project established in this Program Element (PE) for PB 2014. Funds were previously reported in Project MD22 of this PE.

A. Mission Description and Budget Item Justification

The Missile Defense Integration and Operations Center (MDIOC) conducts Cyber Defensive Operations through Key Management Infrastructure and Information Assurance Training which interfaces with the Information Technology/Information Assurance Enterprise to provide secure communications, network health and status monitoring, mission critical restoral capability, and technical expertise.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Cyber Defensive Operations	0.514	0.537	0.472
Articles:	-	-	-

Description: The Missile Defense Integration and Operations Center (MDIOC) conducts Defensive Cyber Operations in the following categories:

FY 2014 Accomplishments:
Key Management Infrastructure

- The MDIOC interfaces with the Information Technology/Information Assurance Enterprise to provide for the generation, production,
control and distribution, and training for utilizing the keying material used with the Agency's cryptographic devices.

Information Assurance Training

- The MDIOC maintains an Information Assurance (IA) certified workforce through continuous IA training as required by DoD Directive 8570.

FY 2015 Plans:
Key Management Infrastructure

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MC22 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- The MDIOC interfaces with the Information Technology/Information Assurance Enterprise to provide for the generation, production, control and distribution, and training for utilizing the keying material used with the Agency's cryptographic devices. Information Assurance Training - The MDIOC maintains an Information Assurance (IA) certified workforce through continuous IA training as required by DoD Directive 8570 ***FY 2016 Plans:*** Key Management Infrastructure - The MDIOC interfaces with the Information Technology/Information Assurance Enterprise to provide for the generation, production, control and distribution, and training for utilizing the keying material used with the Agency's cryptographic devices. Information Assurance Training - The MDIOC maintains an Information Assurance (IA) certified workforce through continuous IA training as required by DoD Directive 8570			
Accomplishments/Planned Programs Subtotals	0.514	0.537	0.472

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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MC22 / *Cyber Operations*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Cyber Defensive Operations - Cyber Defensive Operations	C/CPAF	MDIOC/Northrop : Grumman Mission Systems Colorado Springs, CO	0.000	0.514		0.537	Nov 2014	0.472	Nov 2015	-		0.472	Continuing	Continuing	Continuing
		Subtotal	0.000	0.514		0.537		0.472		-		0.472	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.514		0.537		0.472		-		0.472	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MC22 / *Cyber Operations*

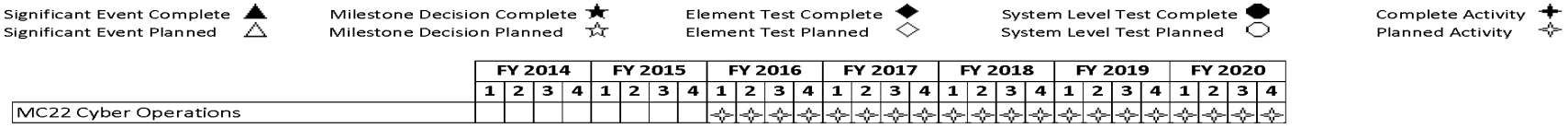

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MC22 / *Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MC22 Cyber Operations	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	5.867	2.693	3.388	2.164	-	2.164	2.746	2.748	2.940	3.097	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015, Program Wide Support reflects a proportional change as a result of increases in the Missile Defense Integration and Operations Center and in FY 2016, reflects a proportional change as a result of decreases in the Missile Defense Integration and Operations Center.
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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	2.693	3.388	2.164
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD40 / *Program-Wide Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	2.693	3.388	2.164

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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	Project (Number/Name) MD40 / *Program-Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Facilities, Operations, and Maintenance	MIPR	Various : Multi: AK, AL, CA, CO, VA	5.301	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, CA, CO, VA	0.241	-		0.230		-		-		-	0.241	0.712	-
Program Wide Support - Agency Operations and Support Services	Reqn	Various : Multi: AK, AL, CA, CO, VA	0.325	2.693		3.158	Nov 2014	2.164	Dec 2015	-		2.164	Continuing	Continuing	Continuing
		Subtotal	5.867	2.693		3.388		2.164		-		2.164	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.867	2.693		3.388		2.164		-		2.164	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD40 / *Program-Wide Support*

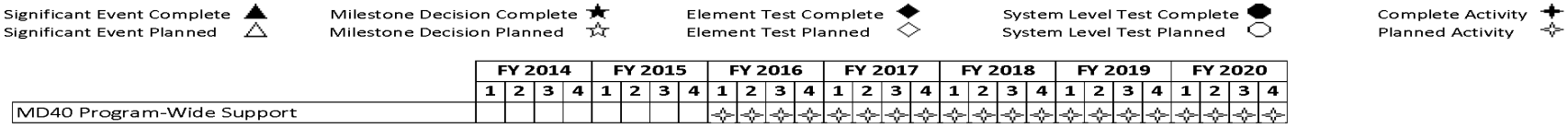

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603904C / *Missile Defense Integration and Operations Center (MDIOC)*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603906C / *Regarding Trench*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	23.405	14.525	16.199	9.583	-	9.583	9.082	9.390	9.527	9.891	Continuing	Continuing
MD35: *Regarding Trench*	23.405	14.525	16.199	9.583	-	9.583	9.082	9.390	9.527	9.891	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	12.464	16.199	10.111	-	10.111
Current President's Budget	14.525	16.199	9.583	-	9.583
Total Adjustments	2.061	-	-0.528	-	-0.528
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.267	-			
• SBIR/STTR Transfer	-0.206	-			
• Other Adjustment	-	-	-0.528	-	-0.528

Change Summary Explanation

FY 2016 adjustments reflect realignment to Department of Defense priorities.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603907C / *Sea Based X-Band Radar (SBX)*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	215.681	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing
MX46: *Sea Based X-Band Radar Development Support*	207.919	68.039	60.681	69.661	-	69.661	67.898	71.880	68.466	82.342	Continuing	Continuing
MD40: *Program-Wide Support*	7.762	2.297	3.728	3.205	-	3.205	3.369	3.880	3.853	4.716	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

The FY 2016 increase reflects an annualized funding requirement based on evolving requirements for maintaining SBX and maintaining readiness to support contingency operations: increased manning for improved readiness and shorter time from notification to underway, and increase in planned underway days from 60 to 120 days per year. This is an improvement in operational readiness over the Limited Test Support Status that was established in FY 2013.

A. Mission Description and Budget Item Justification

The SBX is an advanced X-Band radar that provides the capability for mid-course acquisition, tracking, discrimination and hit-assessment of ballistic missiles. The SBX radar is mounted on a mobile, ocean-going, semi-submersible platform and, thus can be positioned to cover any region of the globe. The SBX provides long-range missile tracking and discrimination capability for the Ballistic Missile Defense System (BMDS) for Homeland Defense against sophisticated Intercontinental Ballistic Missile (ICBM) threats. The SBX is the most capable discrimination sensor in the BMDS and provides valuable support to BMDS flight tests.

The SBX participates in BMDS flight and ground testing while being recallable to an active, operational status when indications and warnings indicate the need for enhanced discrimination. SBX will be located in a Pacific port when not required to be at sea. SBX will maintain vessel certifications for operations at sea as well as software compatibility with the BMDS.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0603907C *I Sea Based X-Band Radar (SBX)*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	44.478	64.409	57.081	-	57.081
Current President's Budget	70.336	64.409	72.866	-	72.866
Total Adjustments	25.858	-	15.785	-	15.785
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	26.555	-			
• SBIR/STTR Transfer	-0.697	-			
• Other Adjustment	-	-	15.785	-	15.785

Change Summary Explanation

The FY 2016 increase reflects a realignment of funds from the Ballistic Missile Defense Sensors Program Element 0603884C for evolving requirements for maintaining SBX and maintaining readiness to support contingency operations.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603907C / *Sea Based X-Band Radar (SBX)*	Project (Number/Name) MX46 / *Sea Based X-Band Radar Development Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MX46: *Sea Based X-Band Radar Development Support*	207.919	68.039	60.681	69.661	-	69.661	67.898	71.880	68.466	82.342	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The FY 2016 increase reflects an annualized funding requirement based on evolving requirements for maintaining SBX and maintaining readiness to support contingency operations: increased manning for improved readiness and shorter time from notification to underway, and increase in planned underway days from 60 to 120 days per year. This is an improvement in operational readiness over the Limited Test Support Status that was established in FY 2013.

A. Mission Description and Budget Item Justification

The SBX is in a test and operations support status, supporting Ballistic Missile Defense System (BMDS) ground and flight testing while maintaining the ability to be recalled to an active, operational status when indications and warnings indicate need for enhanced discrimination. SBX will be located in a Pacific port when not required to be at sea. SBX will maintain vessel certifications for operations at sea and software compatibility with the BMDS, ready for recall to active operational status.

This project provides for developmental operations and support of the SBX Radar and its four major sub-systems: the self-propelled vessel; the X-Band Radar (XBR); the In-Flight Interceptor Communications System Data Terminal; and the communications network. Developmental operations and support activities include operation and sustainment of the vessel, developmental operation and sustainment of the XBR, limited XBR software support and vessel and shoreside security.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Vessel Operations and Support	34.902	33.952	35.030
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: -Sustained the SBX in limited test support status -Maintained certification and readiness for operational contingencies -Deployed three times for operational contingency tasking -Participated in Ballistic Missile Defense System (BMDS) Ground Based Mid-Course Defense (GMD) Intercept Flight Test (FTG-06b) -Collected developmental data during a US Air Force Minuteman Glory Trip test (GT-211)			
FY 2015 Plans: -Sustain the SBX in limited test support status			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603907C / *Sea Based X-Band Radar (SBX)*	**Project (Number/Name)** MX46 / *Sea Based X-Band Radar Development Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Maintain certification and readiness for operational contingencies -Participate in Ballistic Missile Defense System (BMDS) Ground Based Mid-Course Defense Intercept Flight Test (FTG-11) -The increase reflects the recurring 5-year vessel U.S. Coast Guard and American Bureau of Shipping recertification and special survey effort ***FY 2016 Plans:*** -Sustain the SBX vessel in a test and operational support status -Maintain certification and readiness for operational contingencies, with increased responsiveness -Participate in Ballistic Missile Defense System (BMDS) Ground-Based Midcourse Defense Interceptor Development Test (CTV-02+) and Intercept Flight Test (FTG-15) -Annual surveys and U.S. Coast Guard Certification			
Title: System Force Protection	3.975	3.261	3.010
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** -Provided force protection for SBX in limited test support status ***FY 2015 Plans:*** -Provide force protection for SBX in limited test support status ***FY 2016 Plans:*** -Provide force protection for SBX			
Title: XBR Operations and Support	29.162	23.468	31.621
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** -Sustained the Sea Based X-Band Radar (SBX) in limited test support status -Participated in Ballistic Missile Defense System (BMDS) Ground Based Mid-Course Defense Intercept Flight Test (FTG-06b) -Collected developmental data during a US Air Force Minuteman Glory Trip test (GT-211) ***FY 2015 Plans:*** -Operate and sustain the X-Band Radar (XBR), operate and sustain SBX communications systems, and perform mission integration functions in limited test support status. Limited software sustainment will maintain system capability with the BMDS.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603907C / *Sea Based X-Band Radar (SBX)*	**Project (Number/Name)** MX46 / *Sea Based X-Band Radar Development Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Field additional XBR capability to the Warfighter (Build 3 software) with the BMDS Capability Update -Participate in Ballistic Missile Defense System (BMDS) Ground Based Mid-Course Defense Intercept Flight Test (FTG-11) -The amount requested in FY 2015 reflects an annualized funding requirement based on evolving requirements for maintaining SBX in Limited Test Support Status ***FY 2016 Plans:*** -The FY 2016 increase reflects an annualized funding requirement based on evolving requirements for maintaining SBX and maintaining readiness to support contingency operations: increased manning for improved readiness and shorter time from notification to underway, and increase in planned underway days from 60 to 120 days per year. This is an improvement in operational readiness over the Limited Test Support Status that was established in FY 2013. -Operate and sustain the X-Band Radar (XBR), operate and sustain SBX communications systems, and perform mission integration functions for SBX. Limited software sustainment will maintain system capability with the BMDS. -Field additional XBR capability to the Warfighter (added to Build 3 software) with the BMDS Capability Update -Provide precision track, discrimination and hit assessment for engagement support in Ballistic Missile Defense System (BMDS) Ground-Based Midcourse Defense Interceptor Development Test (CTV-02+) and Intercept Flight Test (FTG-15)			
Accomplishments/Planned Programs Subtotals	68.039	60.681	69.661

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603891C: *Special Programs - MDA*	266.749	310.261	400.387	-	400.387	349.606	315.151	257.065	266.853	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	41.051	46.387	49.570	-	49.570	50.533	51.363	52.217	54.247	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603907C / *Sea Based X-Band Radar (SBX)*	**Project (Number/Name)** MX46 / *Sea Based X-Band Radar Development Support*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing

Remarks

D. Acquisition Strategy

SBX will be contractor operated and maintained through a variety of contracts between the Navy and Missile Defense Agency (MDA). SBX-1 Vessel Management and Security contracts are managed by Military Sealift Command. The SBX X-Band Radar is operated and maintained on contracts managed by MDA. The MDA contracts also support the Army Navy/Transportable Radar Surveillance (AN/TPY-2) and the Ground Based Radar Prototype (GBR-P).

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603907C / *Sea Based X-Band Radar (SBX)*	**Project (Number/Name)** MX46 / *Sea Based X-Band Radar Development Support*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Vessel Operations and Support - Fuel	MIPR	Military Sealift Command : VA	20.452	6.579		4.515	Nov 2014	5.070	Nov 2015	-		5.070	Continuing	Continuing	Continuing
Vessel Operations and Support - Navy Transition Office	MIPR	US Navy : AL	5.732	-		1.619	Nov 2014	-		-		-	-	7.351	-
Vessel Operations and Support - Program Management Office	MIPR	Military Sealift Command : VA	0.000	0.952		-		1.150	Nov 2015	-		1.150	Continuing	Continuing	Continuing
Vessel Operations and Support - SBX Operations & Support (Vessel)	C/FFP	Tote : HI/NJ	65.759	15.768		17.639	Oct 2014	16.424	Oct 2015	-		16.424	Continuing	Continuing	Continuing
Vessel Operations and Support - SBX Vessel Maintenance	C/FFP	Tote : HI/NJ	8.544	5.139		5.289	Oct 2014	4.906	Oct 2015	-		4.906	Continuing	Continuing	Continuing
Vessel Operations and Support - Vessel Mission Integration	C/FFP	Gryphon Tech. : AL/ HI	17.179	6.464		4.890	Dec 2014	7.480	Dec 2015	-		7.480	Continuing	Continuing	Continuing
System Force Protection - Force Protection	SS/CPFF	AQuate : Hi	12.184	3.975		3.261	Oct 2014	3.010	Oct 2015	-		3.010	Continuing	Continuing	Continuing
XBR Operations and Support - SBX Communications Support	SS/CPIF	Boeing : AL/HI	1.744	1.270		2.225	Dec 2014	2.590	Dec 2015	-		2.590	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603907C / *Sea Based X-Band Radar (SBX)*	**Project (Number/Name)** MX46 / *Sea Based X-Band Radar Development Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
XBR Operations and Support - XBR Operations & Support	SS/CPIF	Raytheon : AL/AK/HI	76.325	27.892		21.243	Nov 2014	29.031	Nov 2015	-		29.031	Continuing	Continuing	Continuing
		Subtotal	207.919	68.039		60.681		69.661		-		69.661	-	-	-

Remarks

Increase in XBR support reflects an annualized funding requirement based on evolving requirements for maintaining and sustaining readiness to support contingency operations.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	207.919	68.039		60.681		69.661		-		69.661	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603907C / *Sea Based X-Band Radar (SBX)*	Project (Number/Name) MX46 / *Sea Based X-Band Radar Development Support*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603907C / *Sea Based X-Band Radar (SBX)*	**Project (Number/Name)** MX46 / *Sea Based X-Band Radar Development Support*

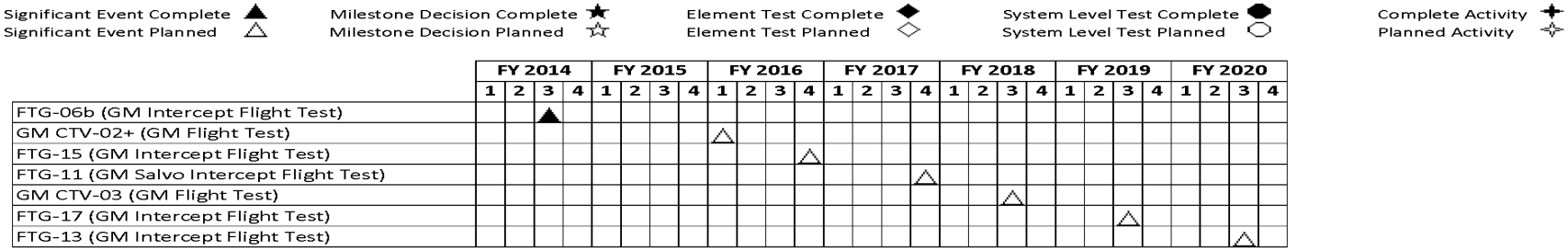


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603907C / *Sea Based X-Band Radar (SBX)*	**Project (Number/Name)** MX46 / *Sea Based X-Band Radar Development Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTG-06b (GM Intercept Flight Test)	3	2014	3	2014
GM CTV-02+ (GM Flight Test)	1	2016	1	2016
FTG-15 (GM Intercept Flight Test)	4	2016	4	2016
FTG-11 (GM Salvo Intercept Flight Test)	4	2017	4	2017
GM CTV-03 (GM Flight Test)	3	2018	3	2018
FTG-17 (GM Intercept Flight Test)	3	2019	3	2019
FTG-13 (GM Intercept Flight Test)	3	2020	3	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603907C / *Sea Based X-Band Radar (SBX)*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	7.762	2.297	3.728	3.205	-	3.205	3.369	3.880	3.853	4.716	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015 and FY 2016, Program Wide Support reflects a proportional increase as a result of changes to the Sea-Based X-Band Radar (SBX).
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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	2.297	3.728	3.205
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans: See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	2.297	3.728	3.205

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603907C / *Sea Based X-Band Radar (SBX)*	**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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603907C / *Sea Based X-Band Radar (SBX)*	**Project (Number/Name)** MD40 / *Program-Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Facilities, Operations and Maintenance	MIPR	Various : Multi: AK, AL, CA, CO, VA	0.000	1.613		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, CA, CO, VA	0.053	0.684		0.727		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (MIPRs)	MIPR	Various : Multi: AL, CA, CO, VA	0.027	-		3.001		3.205		-		3.205	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services (CPAF)	C/CPAF	Northrop Grumman : CO	7.541	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services (FFP)	C/FFP	Various : Multi: VA,WA	0.141	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services (Reqn)	Reqn	Dept of Labor : VA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	7.762	2.297		3.728		3.205		-		3.205	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.762	2.297		3.728		3.205		-		3.205	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603907C / *Sea Based X-Band Radar (SBX)*	**Project (Number/Name)** MD40 / *Program-Wide Support*

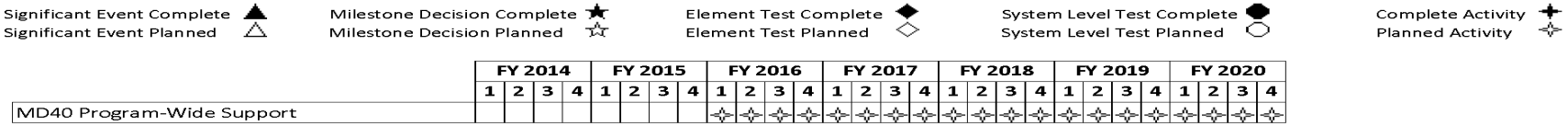


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603907C / *Sea Based X-Band Radar (SBX)*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603913C / *Israeli Cooperative Programs*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	854.335	283.782	268.842	102.795	-	102.795	104.923	106.913	109.599	111.370	Continuing	Continuing
MD20: *Israeli Upper Tier*	244.841	74.707	74.707	55.050	-	55.050	56.194	57.259	58.695	59.642	Continuing	Continuing
MD26: *Israeli ARROW Program*	204.931	44.363	56.201	11.019	-	11.019	11.245	11.460	11.748	11.937	Continuing	Continuing
MD34: *Short Range Ballistic Missile Defense (SRBMD)*	404.563	149.712	137.934	36.726	-	36.726	37.484	38.194	39.156	39.791	Continuing	Continuing
MD83: *Iron Dome*	-	15.000	-	-	-	-	-	-	-	-	-	15.000
MDAP/MAIS Code: 362												

Note

Content supports expected contributions from Israel per international agreements.

A. Mission Description and Budget Item Justification

Since 1986, the United States and the State of Israel have cooperated on missile defense. Currently Missile Defense Agency (MDA) has four major projects with Israel to develop and improve their indigenous capability to defend against short and medium range ballistic missiles. These include Upper Tier Interceptors (MD20), the Arrow Weapon System (MD26), the Short-Range Ballistic Missile Defense, also known as the David's Sling Weapon System (MD34) and the Iron Dome Program (MD83). Within these projects MDA develops and produces weapon systems, conducts tests, and exercises interoperability between U.S. BMDS and the Israeli Missile Defense Architecture.

U.S.-Israel Cooperative Programs consist of the following major efforts:

Israeli Upper Tier Interceptor (UTI) Project (MD20):
The Upper Tier Program provides the Arrow-3 missile, increasing the system`s capability against advanced medium range threats by providing approximately four times the current Arrow-2 battle space. The primary near term objective is to complete and demonstrate Upper Tier design and continue acquisition for Long Lead Initial Lot Production (ILP) with first unit delivery in FY 2016.

Israeli Arrow Weapon System (AWS) (MD26):
The Arrow System Improvement Program (ASIP) includes block upgrades to the Arrow Weapon System that enhances capabilities against more stressing evolving medium range threats by increasing the total defended area by approximately 50 percent. ASIP elements include the Arrow-2 missile and launcher, Citron Tree Battle Management Center (BMC), Green Pine (GP) and Super Green Pine (SGP) Radars, and the Hazelnut Tree Launcher Control Center (LCC). Also included is the integration of Block 5 assets which include the Arrow-3 missile and launcher. Arrow Block 5, under the ASIP agreement will also incorporate a Long Range Detection suite that consists of an unmanned aerial vehicle Airborne Early Warning System (ABEWS) and a S-Band Silver Oak radar for increased sensor range, early detection and enhanced raid size capacity. The program also includes the continued development of Arrow`s interoperability with U.S. Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*

Related activities include the Israeli Test Bed (ITB) and the Israeli Systems Architecture and Integration (ISA&I) study that assesses requirements and growth paths for the 2025 Israel Missile Defense Architecture.

Short Range Ballistic Missile Defense (SRBMD) (MD34):
SRBMD, also known as the David`s Sling Weapon System (DSWS), is designed to counter short range rockets, cruise missiles, and tactical ballistic missiles and will be integrated into the Israeli Missile Defense Architecture adding another layer of defense to the current Arrow System. Block 1 capability will enhance the short range rocket and missile defense capability. Block 2 will add capability to defend against medium range and cruise missiles. Block 3 will provide robust defense capability and add significant detection capability to the Israeli Air Defense Architecture The David`s Sling Weapon System (DSWS) includes the Stunner Interceptor, Missile Firing Unit (MFU), Multi-Mission Radar (MMR), Launch Site Controller (LSC) and the Golden Almond Battle Management Center (BMC). The near term objectives are completion of Block 1 development, demonstrate system capability and flight test, and procure material of Initial Lot Production (ILP) utilizing Research, Development, Test, & Evaluation (RDT&E) funding and field the system to the Israeli Air Force for first unit delivery in 2015.

U.S.-Israel Co-Production Program:

Iron Dome (ID) (MD83):
Iron Dome is a mobile all-weather air defense system developed by Rafael Advanced Defense Systems. The system is designed to intercept and destroy short-range rockets and artillery shells whose trajectory would take them to a populated area. FY 2014 funding is for non-recurring engineering costs in connection with the establishment of a capacity for co-production in the United States. Industry of the United States shall produce parts and components for the Iron Dome short-range rocket defense program.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	283.782	96.803	103.940	-	103.940
Current President's Budget	283.782	268.842	102.795	-	102.795
Total Adjustments	-	172.039	-1.145	-	-1.145
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	172.039			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	-	-	-1.145	-	-1.145

Change Summary Explanation

FY 2015 adjustments due to Congressional Adds that increased MD20: Israeli Upper Tier by $20.339 million, MD26: Israeli Arrow Program by $45.500 million and MD34: Short Range Ballistic Missile Defense by $106.200 million.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603913C / *Israeli Cooperative Programs*	Project (Number/Name) MD20 / *Israeli Upper Tier*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD20: *Israeli Upper Tier*	244.841	74.707	74.707	55.050	-	55.050	56.194	57.259	58.695	59.642	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This project code encompasses the Missile Defense Agency's (MDA) U.S.-Israeli cooperative program for the Israeli Upper Tier Program.

A. Mission Description and Budget Item Justification

This project provides funding for the Upper Tier component of the Arrow Weapon System (AWS) development. The Upper Tier Interceptor will enhance Israel's indigenous capability to defend against short and medium range ballistic missiles by increasing the battle space by a factor of four. The scope of the Upper Tier Program covers interceptor development, testing, material procurement to include initial lot production, and integration of spiral software development for Block 5 AWS. The United States through the cooperative effort gains knowledge and experience of the Israeli Defense Forces operation of a multi-layered defense architecture. This project also includes the procurement of the Silver Sparrow Air-Launched Target which is necessary to validate the performance of the Arrow-3 Missile and related Block 5 spiral development activities.

The Upper-Tier Interceptor Project Agreement was signed in 2010. This agreement states that the project will be jointly managed by the U.S. Missile Defense Agency and the Israeli Missile Defense Organization. The agreement also documents the U.S.-Israeli cost share, in which the development costs will be equitable between the U.S. and Israel.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Upper Tier Interceptor	74.707	74.707	55.050
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: -Conducted Interceptor Fly-Out Test #2 of the Arrow-3 Interceptor. -Completed data reduction and analysis for the Interceptor Fly-out Test #2 of the Arrow-3 Interceptor. -Conducted algorithm design review for Intercept Test Number #1 to verify requirements. -Conducted Hardware in the Loop (HWIL) testing to demonstrate electronic optical seeker Knowledge Points. -Conducted preparation activities for Arrow 3 Intercept Test Number #1. -Conducted Arrow-3 component Production Readiness Reviews for Initial Lot Production.			
FY 2015 Plans: -Conduct lab testing to demonstrate discrimination Knowledge Points.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*	**Project (Number/Name)** MD20 / *Israeli Upper Tier*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Conduct Interceptor Test #1 of the Arrow-3 Interceptor. -Conduct four Element-Level Knowledge Point demonstrations to provide critical data to assess viability of component design. -Conduct algorithm design review for Interceptor Test #2 to verify requirements. -Initiate procurement of Long Lead Items for Initial Lot Production assets. -Continue with Arrow-3 component Production Readiness Reviews for Initial Lot Production. ***FY 2016 Plans:*** -Conduct Interceptor Test #2 of the Arrow-3 Interceptor. -Conduct algorithm design review for Interceptor Test Number #3 to verify requirements. -Continue procurement of Initial Lot Production assets. -Conduct Upper Tier Interceptor Production Readiness Review (PRR).			
Accomplishments/Planned Programs Subtotals	74.707	74.707	55.050

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Upper-Tier Interceptor Project Agreement under the Research, Development, Test and Evaluation (RDT&E) Framework agreement between the U.S. and Israel creates a joint program office to manage this program. Missile Defense Agency (MDA) and the Israeli Ministry of Defense (IMoD) continue to implement best management practices that allow for the more effective use of program management tools to ensure risk is adequately managed to include Knowledge Points that assess Israel`s development progress. The DoD U.S. Israeli Cooperative Program Office jointly manages the Upper Tier program with IMoD to ensure that all systems are delivered on time, on budget, and meet the needs of the warfighter. The program is equitably funded between the U.S. and Israel. A portion of the Israeli cost share comes from non-financial contributions such as previously completed work prior to joint program initiation. Contracts are awarded by IMoD or MDA dependent on what is most advantageous to the Joint Governments. In regard to the Upper Tier Interceptor, IMoD will contract with Israel Aerospace Industries (IAI). IAI subcontracts with Israeli companies, Boeing and other U.S. companies.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*	**Project (Number/Name)** MD20 / *Israeli Upper Tier*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Upper Tier Interceptor - Upper Tier Interceptor	C/CPFF	Israel Aerospace Industries (IAI) : Israel	244.841	74.707		74.707	Dec 2014	55.050	Dec 2015	-		55.050	Continuing	Continuing	Continuing
		Subtotal	244.841	74.707		74.707		55.050		-		55.050	-	-	-

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*	**Project (Number/Name)** MD20 / *Israeli Upper Tier*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks															
N/A															

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	244.841	74.707		74.707		55.050		-		55.050	-	-	-

Remarks

Contract cost reflect U.S. contribution only. 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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*	**Project (Number/Name)** MD20 / *Israeli Upper Tier*

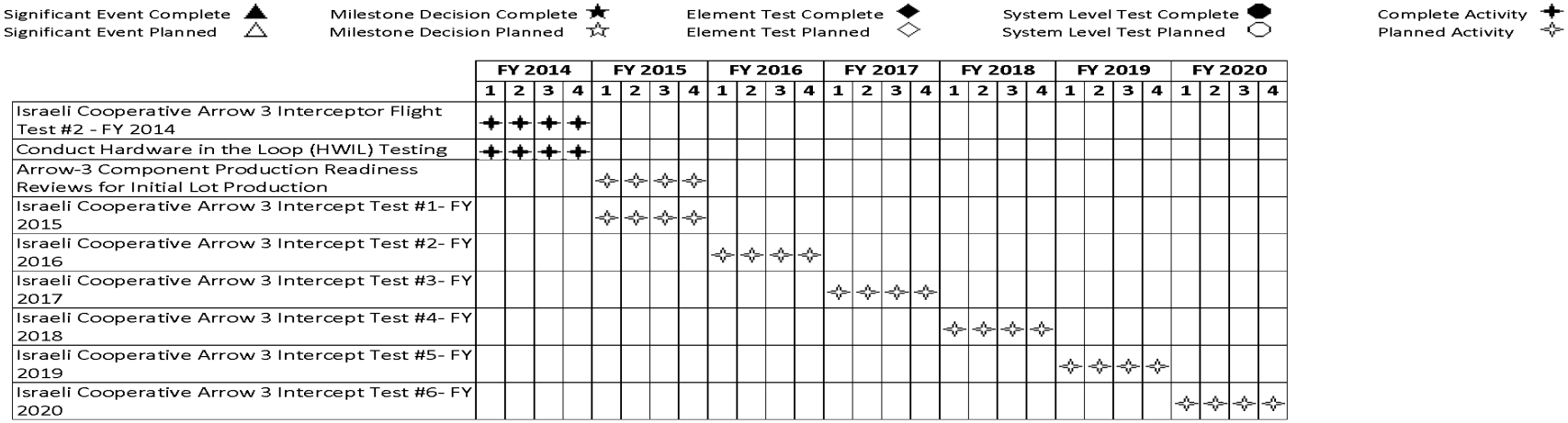


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*	**Project (Number/Name)** MD20 / *Israeli Upper Tier*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Israeli Cooperative Arrow 3 Interceptor Flight Test #2 - FY 2014	1	2014	4	2014
Conduct Hardware in the Loop (HWIL) Testing	1	2014	4	2014
Arrow-3 Component Production Readiness Reviews for Initial Lot Production	1	2015	4	2015
Israeli Cooperative Arrow 3 Intercept Test #1- FY 2015	1	2015	4	2015
Israeli Cooperative Arrow 3 Intercept Test #2- FY 2016	1	2016	4	2016
Israeli Cooperative Arrow 3 Intercept Test #3- FY 2017	1	2017	4	2017
Israeli Cooperative Arrow 3 Intercept Test #4- FY 2018	1	2018	4	2018
Israeli Cooperative Arrow 3 Intercept Test #5- FY 2019	1	2019	4	2019
Israeli Cooperative Arrow 3 Intercept Test #6- FY 2020	1	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603913C / *Israeli Cooperative Programs*	Project (Number/Name) MD26 / *Israeli ARROW Program*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD26: *Israeli ARROW Program*	204.931	44.363	56.201	11.019	-	11.019	11.245	11.460	11.748	11.937	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

This project includes funding for the Arrow Weapon Improvement System (ASIP), Israeli Test Bed (ITB) and the Israeli Systems Architecture and Integration (ISA&I).

The Arrow Weapon System (AWS) continues development of Block 4. Also included is the integration of Block 5 assets which consists of the Arrow-3 missile, launcher and the Long Range Detection Suite (LRDS). The LRDS consists of an unmanned aerial vehicle Airborne Early Warning System (ABEWS) and a S-Band Silver Oak radar for increased sensor range and early detection and enhanced salvo engagement capability. The AWS provides Israel an indigenous capability to defend against short and medium range ballistic missiles. The ASIP effort will enhance the performance of the AWS to defeat longer-range and more robust ballistic missile threats expected to be introduced in the Middle East in the near future. ASIP elements include the Arrow-2 missile and launcher, Citron Tree Battle Management Center (BMC), Green Pine (GP) and Super Green Pine (SGP) Radars, and the Hazelnut Tree Launcher Control Center (LCC). The ASIP also ensures AWS interoperability via Joint Tactical Information Data System (JTIDS) Link-16 common communication architecture with the U.S. Ballistic Missile Defense System elements such as Terminal High Altitude Area Defense (THAAD), AEGIS, Command and Control, Battle Management, and Communications (C2BMC), Army Navy/Transportable Radar Surveillance and Control (AN/TPY-2), and Phased Array Tracking Intercept of Target (PATRIOT) through ground tests, flight tests, and operational exercises.

The Israeli Test Bed (ITB) provides experiments to evaluate Human Machine Interface (HMI) battle management. Israeli Systems Architecture and Integration (ISA&I) conducts studies to assess Israel's future 2025 Missile Defense Architecture. The ITB and ISA&I efforts will continue to support AWS development as well as to define future missile defense architectures and growth paths.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Arrow System Improvement Program	38.001	49.839	4.657
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: -Conducted Block 4.2 Critical Design Review. -Conducted Juniper Cobra 14 interoperability Combatant Command (COCOM) Exercise test with the United States European Command (EUCOM). -Conducted Intercept Test with improved discrimination capability to verify Block 4.1.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*	**Project (Number/Name)** MD26 / *Israeli ARROW Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continued Long Range Detection Suite Development. -Continued Block 5 Arrow Weapon System Integration. ***FY 2015 Plans:*** -Continue Block 5 Arrow Weapon System integration. -Continue Long Range Detection Suite Development. -Conduct Lab and flight testing and analysis to demonstrate and complete Knowledge Points. ***FY 2016 Plans:*** -Continue Block 5 Arrow Weapon System integration.			
Title: Israeli Test Bed (ITB) ***Articles:*** ***Description:*** N/A ***FY 2014 Accomplishments:*** -Conducted Human-Machine Interface (HMI) experiment with warfighters to further define Techniques, Tactics and Procedures (TTPs) and Concept of Operations (CONOPs). -Conducted exercise with warfighters to further refine TTPs and Concept of Operations (CONOPs). ***FY 2015 Plans:*** -Conduct HMI experiments with warfighters to integrate David's Sling Weapon System (DSWS) and Iron Dome into Lower Tier TTPs and CONOPS. -Conduct HMI experiments with warfighters to integrate Block 5 Arrow Weapon System TTPs and CONOPS. ***FY 2016 Plans:*** -Conduct HMI experiments with warfighters to integrate Block 5 Arrow Weapon System TTPs and CONOPs.	3.535 -	3.535 -	3.535 -
Title: Israeli Systems Architecture and Integration (ISA&I) ***Articles:*** ***Description:*** N/A ***FY 2014 Accomplishments:*** -Conducted studies and analysis to identify the preferred missile defense architecture and reference threat for 10-15 year future epoch and interoperability special studies on regional threats and growth path options. ***FY 2015 Plans:***	2.827 -	2.827 -	2.827 -

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*	**Project (Number/Name)** MD26 / *Israeli ARROW Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Conduct studies and analysis to identify the preferred missile defense architecture and reference threat for 10-15 year future epoch and interoperability special studies on regional threats and growth path options. ***FY 2016 Plans:*** -Conduct studies and analysis to identify the preferred missile defense architecture and reference threat for 10-15 year future epoch and interoperability special studies on regional threats and growth path options.			
Accomplishments/Planned Programs Subtotals	44.363	56.201	11.019

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The DoD U.S. Israeli Cooperative Program Office jointly manages the Arrow Program with Israel Ministry of Defense (IMoD) to ensure that all systems are delivered with quality on time, on budget, and meet the needs of the warfighter. The program funding is equitably funded between the U.S. and Israel with Israel providing matching contributions. However, a portion of the Israeli cost share comes from non-financial contributions such as previously completed work prior to joint program initiation. Contracts are awarded by IMoD or MDA dependent on what is most advantageous to the Joint Governments. In regard to Arrow System Improvement Program (ASIP), IMoD contracts on behalf of U.S. government with Israel Aerospace Industries (IAI). IAI subcontracts with Israeli and U.S. companies. For the Israeli Test Bed, the Missile Defense Agency (MDA) contracts directly with Elbit Systems, Ltd. while IMoD provides an equitable share of the funding to the U.S. Finally, MDA contracts directly with WALES, Ltd for the Israeli System Architecture and Integration program.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*	**Project (Number/Name)** MD26 / *Israeli ARROW Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Arrow System Improvement Program - Arrow System Improvement Program (ASIP)	C/CPFF	Israel Aerospace Industries (IAI) : Israel	175.851	38.001		49.839	Dec 2014	4.657	Dec 2015	-		4.657	Continuing	Continuing	Continuing
Israeli Test Bed (ITB) - Israeli Test Bed	C/FFP	Elbit Systems : Israel	17.675	3.535		3.535	Oct 2014	3.535	Oct 2015	-		3.535	Continuing	Continuing	Continuing
Israeli Systems Architecture and Integration (ISA&I) - ISA&I	C/FFP	Wales LTD : Israel	11.405	2.827		2.827	Oct 2014	2.827	Oct 2015	-		2.827	Continuing	Continuing	Continuing
		Subtotal	204.931	44.363		56.201		11.019		-		11.019	-	-	-

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603913C / *Israeli Cooperative Programs*	Project (Number/Name) MD26 / *Israeli ARROW Program*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

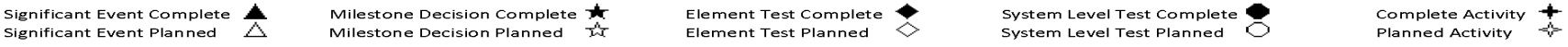
N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	204.931	44.363		56.201		11.019		-		11.019	-	-	-

Remarks

Contract cost reflect U.S. contribution only.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*	**Project (Number/Name)** MD26 / *Israeli ARROW Program*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Intercept Test with Arrow 2	✦	✦	✦	✦																								
Israeli Test Bed Exercise with Warfighter FY2014	✦	✦	✦	✦																								
Israeli Test Bed Human-Machine Interface Experiment with Warfighter FY2014	✦	✦	✦	✦																								
Israeli Test Bed Exercise with Warfighter FY2015					✧	✧	✧	✧																				
Israeli Test Bed Human-Machine Interface Experiment with Warfighter FY2015					✧	✧	✧	✧																				
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2015					✧	✧	✧	✧																				
Israeli Test Bed Experiments FY 2015					✧	✧	✧	✧																				
Israeli Test Bed Exercise with Warfighter FY2016									✧	✧	✧	✧																
Israeli Test Bed Human-Machine Interface Experiment with Warfighter FY2016									✧	✧	✧	✧																
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2016									✧	✧	✧	✧																
Israeli Test Bed Experiments FY 2016									✧	✧	✧	✧																
Israeli Test Bed Experiments FY 2017													✧	✧	✧	✧												
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2017													✧	✧	✧	✧												
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2018																	✧	✧	✧	✧								
Israeli Test Bed Experiments FY 2018																	✧	✧	✧	✧								
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2019																					✧	✧	✧	✧				
Israeli Test Bed Experiments FY 2019																					✧	✧	✧	✧				
Israeli Test Bed Experiments FY 2020																									✧	✧	✧	✧
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2020																									✧	✧	✧	✧

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*	**Project (Number/Name)** MD26 / *Israeli ARROW Program*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Intercept Test with Arrow 2	1	2014	4	2014
Israeli Test Bed Exercise with Warfighter FY2014	1	2014	4	2014
Israeli Test Bed Human-Machine Interface Experiment with Warfighter FY2014	1	2014	4	2014
Israeli Test Bed Exercise with Warfighter FY2015	1	2015	4	2015
Israeli Test Bed Human-Machine Interface Experiment with Warfighter FY2015	1	2015	4	2015
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2015	1	2015	4	2015
Israeli Test Bed Experiments FY 2015	1	2015	4	2015
Israeli Test Bed Exercise with Warfighter FY2016	1	2016	4	2016
Israeli Test Bed Human-Machine Interface Experiment with Warfighter FY2016	1	2016	4	2016
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2016	1	2016	4	2016
Israeli Test Bed Experiments FY 2016	1	2016	4	2016
Israeli Test Bed Experiments FY 2017	1	2017	4	2017
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2017	1	2017	4	2017
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2018	1	2018	4	2018
Israeli Test Bed Experiments FY 2018	1	2018	4	2018
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2019	1	2019	4	2019
Israeli Test Bed Experiments FY 2019	1	2019	4	2019
Israeli Test Bed Experiments FY 2020	1	2020	4	2020
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2020	1	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603913C / *Israeli Cooperative Programs*	Project (Number/Name) MD34 / *Short Range Ballistic Missile Defense (SRBMD)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD34: *Short Range Ballistic Missile Defense (SRBMD)*	404.563	149.712	137.934	36.726	-	36.726	37.484	38.194	39.156	39.791	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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.

A. Mission Description and Budget Item Justification

The goal of the Israeli Short Range Ballistic Missile Defense (SRBMD) program, also known as the David's Sling Weapon System (DSWS) is to provide an affordable SRBM and large caliber rocket defense capability. The current Program Agreement utilizes Research, Development, Test, & Evaluation (RDT&E) funding to develop the capability against large caliber rockets and short range ballistic missiles and procure material for Initial Lot Production (ILP). The DSWS is comprised of the Stunner Interceptor, Golden Almond Battle Management Center, the Multi-Mission Radar, Launch Site Controller and the Missile Firing Unit.

Under the U.S.-Israeli Project Agreement signed in September 2008, the DSWS Program is jointly managed by the U.S. Missile Defense Agency and the Israeli Missile Defense Organization. Responsibilities and cost share are specified in the Project Agreement. Development costs are equitably shared between the U.S. and Israel.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: SRBMD Program	149.712	137.934	36.726
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: -Conducted Radar Field Test #3. -Conducted ground test and simulations to validate missile and system performance to complete 4 Knowledge points and provide data to assess subsystem and system design robustness. -Completed production readiness review of the David's Sling Weapon System Sub-Components. -Conducted 1 Block One system intercept test with production representative interceptor to validate the Block One system performance.			
FY 2015 Plans: - Complete Initial Lot Production (ILP) delivery of first Battle Management Center. - Complete Block Two System Preliminary Design Review (PDR).			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*	**Project (Number/Name)** MD34 / *Short Range Ballistic Missile Defense (SRBMD)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conduct ground test and simulations to validate missile and system performance to complete 4 Knowledge points and provide data to assess subsystem and system design robustness. - Complete production readiness review of the David's Sling Weapon System. - Deliver Initial Lot Production (ILP) Interceptors to the Israeli Air Force. - Deliver Battle Management and Sensor capability to the Israeli Air Force. - Conduct 1 Block One system intercept test with production representative interceptor to validate the Block One system performance. ***FY 2016 Plans:*** -Deliver additional Initial Lot Production (ILP) Interceptors to the Israeli Air Force. -Conduct 1 Block One system intercept test with ILP Interceptor to demonstrate production stunner performance.			
Accomplishments/Planned Programs Subtotals	149.712	137.934	36.726

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Short Range Ballistic Missile Defense (SRBMD) Project Agreement under the Research, Development, Test and Evaluation (RDT&E) Framework agreement between the U.S. and Israel creates a joint program office to manage this program. Missile Defense Agency (MDA) and the Israeli Ministry of Defense (IMoD) continue to implement management practices that allow for the more effective use of program management tools to ensure risk is adequately managed to include Knowledge Points that assess Israel`s development progress. The DoD U.S. Israeli Cooperative Program Office jointly manages the SRBMD program with IMoD to ensure that all systems are delivered on time, on budget, and meet the needs of the warfighter. The program is equitably funded between the U.S. and Israel. A portion of the Israeli cost share comes from non-financial contributions such as previously completed work prior to joint program initiation. Contracts are awarded by IMoD or MDA dependent on what is most advantageous to the Joint Governments. For the Stunner Interceptor, Rafael Advanced Systems (an Israeli company), subcontracts to Raytheon Missile Systems for Stunner interceptor components.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603913C / *Israeli Cooperative Programs*	Project (Number/Name) MD34 / *Short Range Ballistic Missile Defense (SRBMD)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SRBMD Program - SRBMD Program	C/CPFF	Rafael : Israel	404.563	149.712		137.934	Dec 2014	36.726	Dec 2015	-		36.726	Continuing	Continuing	Continuing
		Subtotal	404.563	149.712		137.934		36.726		-		36.726	-	-	-

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603913C / *Israeli Cooperative Programs*	Project (Number/Name) MD34 / *Short Range Ballistic Missile Defense (SRBMD)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks															
N/A															

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	404.563	149.712		137.934		36.726		-		36.726	-	-	-

Remarks

Contract cost reflect U.S. contribution only.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*	**Project (Number/Name)** MD34 / *Short Range Ballistic Missile Defense (SRBMD)*

Significant Event Complete / Significant Event Planned
Milestone Decision Complete / Milestone Decision Planned
Element Test Complete / Element Test Planned
System Level Test Complete / System Level Test Planned
Complete Activity / Planned Activity

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Test #5 FY 2014	✦	✦	✦	✦																								
System Flight Test #6 FY 2015					✧	✧	✧	✧																				
System Flight Test #7 FY 2016									✧	✧	✧	✧																
System Flight Test #8 FY 2017													✧	✧	✧	✧												
System Flight Test #9 FY 2018																	✧	✧	✧	✧								
System Flight Test #10 FY 2019																					✧	✧	✧	✧				
System Flight Test #11 FY 2020																									✧	✧	✧	✧

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603913C / *Israeli Cooperative Programs*	**Project (Number/Name)** MD34 / *Short Range Ballistic Missile Defense (SRBMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
System Flight Test #5 FY 2014	1	2014	4	2014
System Flight Test #6 FY 2015	1	2015	4	2015
System Flight Test #7 FY 2016	1	2016	4	2016
System Flight Test #8 FY 2017	1	2017	4	2017
System Flight Test #9 FY 2018	1	2018	4	2018
System Flight Test #10 FY 2019	1	2019	4	2019
System Flight Test #11 FY 2020	1	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603913C / *Israeli Cooperative Programs*	Project (Number/Name) MD83 / *Iron Dome*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD83: *Iron Dome*	-	15.000	-	-	-	-	-	-	-	-	-	15.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Iron Dome defense system was built by Rafael Advanced Systems and funded by the Israeli Ministry of Defense (IMoD). Iron Dome was declared operational and initially deployed in March 2011 and successfully intercepted a Grad rocket launched from Gaza in April 2011. In FY 2014, $15 million was provided for non-recurring engineering costs in connection with the establishment of a capacity for co-production in the United States by industry of the United States of parts and components for the Iron Dome short-range rocket defense program. The U.S. signed a co-production agreement in March 2014 to develop Iron Dome parts for Israel. FY 2014 and FY 2015 procurement funds for U.S. based co-production of parts and components by U.S. industry will be implemented in accordance with the March 2014 International Agreement. In 2011, the United States of America provided $203 million in procurement funds to spur the production and deployment of additional Iron Dome Batteries. In addition to the initial procurement funding, $70 million was provided in 2012, $194 million was provided in 2013, and $445 million was provided in 2014, which included $225 million provided as a result of the Emergency Supplemental Appropriations Resolution to address emergent operations in support of Operation Protective Edge.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603914C / *Ballistic Missile Defense Test*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	881.939	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
MT04: *BMDS Test Program*	854.402	325.325	344.850	259.808	-	259.808	281.787	325.103	310.206	329.099	Continuing	Continuing
MC04: *Cyber Operations*	-	1.040	1.670	2.450	-	2.450	2.496	2.545	2.596	2.648	Continuing	Continuing
MD40: *Program Wide Support*	27.537	16.330	19.782	12.065	-	12.065	14.107	17.685	17.602	19.000	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

FY 2016 decrease reflects a transfer of Target Launch Operations from PE BMD Test (0603914C) to PE BMD Targets (0603915C).

A. Mission Description and Budget Item Justification

The Missile Defense Agency (MDA) utilizes a disciplined system engineering process to develop and integrate the BMDS into an effective, layered defense against ballistic missiles of all ranges during all phases of flight. This process consists of the following steps: Plan, Define, Design, Build, Test and Verify, Assess, and Deliver BMDS Capability, followed by transfer of selected capabilities. The BMDS Test Program Element (PE) is responsible for testing that provides critical data to:(1) determine validity of models and simulations used to verify and assess BMDS capabilities, (2) determine whether Elements and Components are properly designed, built, and integrated, (3) provide confidence that the BMDS will perform as designed, and (4) support system performance assessment for incremental capability delivery decisions. Results from the Test and Verify step provide feedback into the Plan, Define, and Design steps to identify areas for system improvements. Key to the systems engineering process is Modeling and Simulation (M&S), which reflects the integrated operational system's performance. Confidence in M&S is based on a comprehensive Verification, Validation, and Accreditation (VV&A) process. The BMDS Test Program, as documented in the Integrated Master Test Plan (IMTP), has a primary emphasis of increasing confidence in M&S, as well as providing the Operational Test Agency (OTA) with data to verify and assess BMDS capabilities and Critical Operational Issues. Lastly, as models are validated and accredited, MDA and the OTA will utilize these models to assess BMDS capabilities through a campaign of ground testing and digital performance assessments.

BMDS Test Program Functions:

-Develop and implement MDA test policy, standards, tools, products, and processes to enable effective tests while balancing MDA and element programmatic needs
-Develop an IMTP that compiles all MDA test objectives, test schedules, and funding requirements from the year of execution through the Future Years Defense Program time period
-Provide, maintain, and develop common test resources and infrastructure required to execute tests in the MDA Test Program by leveraging element laboratories, ranges, executing agents, and functional expertise, as applicable.
-Act as the single point of contact in MDA for all external ranges and common test resources
-Collect, archive, and distribute all MDA test data/information
-Certify that test personnel are trained and equipped to conduct safe and effective tests

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0603914C *I Ballistic Missile Defense Test*

-Provide test personnel and support services to plan and execute tests
-Represent MDA as the single test authority to the test and evaluation community, international cooperative program representatives, and other organization representatives on test matters

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	337.993	386.482	340.811	-	340.811
Current President's Budget	342.695	366.302	274.323	-	274.323
Total Adjustments	4.702	-20.180	-66.488	-	-66.488
• Congressional General Reductions	-	-0.180			
• Congressional Directed Reductions	-	-20.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	9.998	-			
• SBIR/STTR Transfer	-5.296	-			
• Other Adjustment	-	-	-66.488	-	-66.488

Change Summary Explanation

FY 2015 changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

The FY 2016 reduction of $66.488 million reflects modified requirements of the Integrated Master Test Plan based on fact-of-life adjustments to Missile Defense Agency's test program, including test event schedule changes, transfer of Target Launch Operations to PE 0603915C and test personnel reductions.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603914C / *Ballistic Missile Defense Test*	Project (Number/Name) MT04 / *BMDS Test Program*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT04: *BMDS Test Program*	854.402	325.325	344.850	259.808	-	259.808	281.787	325.103	310.206	329.099	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2014 and FY 2015, test support costs are captured in the Program Planning and Operations accomplishment. This change ensures the Flight & Ground Test accomplishments reflect the actions and costs captured in the Integrated Master Test Plan.

A. Mission Description and Budget Item Justification

The Test Program provides consolidated Missile Defense Agency (MDA) capabilities and resources to support the management and execution of Ballistic Missile Defense System (BMDS) and Element-level testing.

The MDA Test Program is responsible for all BMDS testing and relies on BMDS Systems Engineering to provide the system test objectives that define the test architecture by developing, updating, coordinating, and assessing the Integrated Master Test Plan (IMTP). The MDA Test Program plans and executes BMDS test events and develops the necessary test policy, test plans, and test infrastructure to conduct an effective test program. The goals of this budget project are to sustain and improve a robust testing program and to enhance M&S efforts to provide, in conjunction with flight and ground testing, confidence to the Combatant Commanders that the missile defense system works.

Activities are grouped into five major areas: 1) Program Planning and Operations; 2) Flight Test; 3) Ground Test; 4) Test Resources; and 5) Engineering Test Analysis.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Planning and Operations	130.491	108.898	98.160
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: -Delivered the Integrated Master Test Plan (IMTP), which is coordinated with Missile Defense Agency (MDA) and External stakeholders, and provides an affordable and executable test plan to meet Warfighter needs and National Security commitments. -Conducted a bottoms-up review of the test program with special focus on reducing both fixed and variable costs. -Managed the approved test plan by assessing all proposed changes to the Ballistic Missile Defense System (BMDS) Test Schedule and Test Configurations for each BMDS test event identified in the IMTP. -Maintained configuration control of the test baseline via the Test Baseline Working Group.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Served as the MDA Test Interface/Liaison with the Director, Operational Test & Evaluation (DOT&E), the Ballistic Missile Defense System (BMDS) Operational Test Agency (OTA), and the MDA Engineering Directorate (MDA/DE) to identify and resolve issues impacting the OTA's ability to assess the Operational Readiness of the BMDS. -Supported the Integration Synchronization Group (ISG), Program Change Board (PCB) and other baseline working groups to be responsive to MDA corporate governance. -Provided strategic technical planning support for the Test and Evaluation Standing Committee (TESC). -Developed and implemented test policy, standards, directives, and procedures for creating unified BMD test processes. -Conducted flight and ground planning, design and analysis efforts; test design feasibility assessments; software development required to support Flight and Ground test design/analysis; and Signatures Working Group activities. -Developed, maintained, and integrated test tools to support Truth Data Requirements Documents, Truth Data Packages, on-site Truth Quick-Look product development, and pre- and post-test analysis. -Coordinated budget planning and execution activities as well as manpower activities. -Inspired professional excellence and a diverse and professional workforce. -Updated and maintained the classified TRMP-T database. -Capitalized on the creativity and innovation of the Nation's universities --Continued University outreach with the United States Air Force Academy. ---The Test Directorate (DT) completed installation of a Test and Evaluation Data Acquisition and Communications (TEDAC) system node at the United States Air Force Academy (USAFA). During MDA tests, TEDAC acquires, packages, and distributes data to the missile defense community. MDA uses TEDAC to provide detailed displays of critical test data to test participants and situational awareness to leadership and other interested parties. The TEDAC node at the USAFA focuses on educating cadets in missile defense test planning and execution and allows them to view actual test events. With the assistance of MDA, the USAFA will develop courses on Ballistic Missile Defense test planning and execution using TEDAC and other assets. -Developed, maintained, and integrated test tools to support Truth Data Requirements Documents, Truth Data Packages, Integrate Data Management Plans (IDMPs), Data Handling Plans (DHPs), Information Assurance (IA) documentation, on-site truth-quick-look product development, and data planning and management; library operations; test planning and resource de-confliction; test operations support; and pre- and post-test analysis. -Managed the MDA Data Center Program and its library, operations, and test labs analysis infrastructure providing centralized data management, archival, and distribution services. -Utilized the Program Integration Center for analytical needs in support of Flight and Ground Test Activities. ***FY 2015 Plans:*** The decrease of $21.6 million from FY 2014 to FY 2015 reflects execution costs for Flight Test Operational (FTO-02).			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Develop, update, and coordinate the Integrated Master Test Plan (IMTP), including MDA Test Baseline development, management and affordability. -Serve as the MDA Test Interface/Liaison with the Director, Operational Test and Evaluation (DOT&E); the Deputy Assistant Secretary of Defense for Developmental Test and Evaluation (DASD(DT&E)); the Joint Functional Component Command for Integrated Missile Defense (JFCC-IMD); and the Operational Test Agency (OTA). -Provide strategic technical planning support for the Test and Evaluation Standing Committee (TESC). -Provide the Director of Test(DT) analytical capability for Flight and Ground test planning to include: test design feasibility assessments; Truth analysis; flight safety, telemetry link margin, collision avoidance, pre- and post-test trajectory and truth sensor analysis; Truth data requirements documents and data packages, and Signatures Working Group activities. -Support Integration Synchronization Group (ISG) and the Program Change Board (PCB), establish authority and maintain configuration control of the test baseline via the Test Baseline Working Group. -Update and maintain the classified Test Resources Mission Planning Tool (TRMP-T) data base. -Develop, maintain, and integrate test tools to support Truth Data Requirements Documents, Truth Data Packages, Integrated Data Management Plans (IDMPs), Data Handling Plans (DHPs), Information Assurance (IA) documentation, on-site truth-quick-look product development, and data planning and management; library operations; test planning and resource de-confliction; deployment process; infrastructure requirements process; test operations support; and pre- and post-test analysis. -Support pre and post-flight test mission communications to include fulfillment of Government Furnished Equipment/Government Furnished Services requirements and data analysis. -Provide System Test Lab support to the engineering, accreditation, operations and maintenance of Flight Test Programs. -Provide end-to-end test cost oversight on flight tests. -Provide System Test Lab support to the engineering, accreditation, operations and maintenance of Flight and Ground Test Programs. -Manage the MDA Data Center Program and its library, operations, and infrastructure providing centralized data management, archival, and distribution services. -Develop and implement test policy, standards, directives, and procedures for creating unified BMD test processes. -Coordinate budget planning and execution activities as well as manpower activities. -Conduct flight and ground planning, design and analysis efforts; test design feasibility assessments; software development required to support flight and ground test design/analysis; and Signatures Working Group activities. -Inspire professional excellence and a diverse and professional workforce. ***FY 2016 Plans:*** The decrease of $10.8 million from FY 2015 to FY 2016 due to Target Launch personnel moving to BMD Targets Program Element (0603915C).			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Develop, update, and coordinate the Integrated Master Test Plan (IMTP), including MDA Test Baseline development, management and affordability. -Serve as the MDA Test Interface/Liaison with the Director, Operational Test and Evaluation (DOT&E); the Deputy Assistant Secretary of Defense for Developmental Test and Evaluation (DASD(DT&E)); the Joint Functional Component Command for Integrated Missile Defense (JFCC-IMD); and the Operational Test Agency (OTA). -Provide strategic technical planning support for the Test and Evaluation Standing Committee (TESC). -Provide the Director of Test(DT) analytical capability for Flight and Ground test planning to include: test design feasibility assessments; Truth analysis; flight safety, telemetry link margin, collision avoidance, pre- and post-test trajectory and truth sensor analysis; Truth data requirements documents and data packages, and Signatures Working Group activities. -Support Integration Synchronization Group (ISG) and the Program Change Board (PCB), establish authority and maintain configuration control of the test baseline via the Test Baseline Working Group. -Update and maintain the classified Test Resources Mission Planning Tool (TRMP-T) data base. -Develop, maintain, and integrate test tools to support Truth Data Requirements Documents, Truth Data Packages, on-site Truth Quick-Look product development, pre- and post-test analysis test planning, and resource de-confliction; Integrated Data Management Plans (IDMPs), Data Handling Plans (DHPs), Information Assurance (IA) documentation, data planning and management, library operations, deployment process; infrastructure requirements process; and test operations support. -Manage the MDA Data Center Program and its library, operations, and infrastructure providing centralized data management, archival, and distribution services. -Utilize the Program Integration Center for analytical needs in support of Flight and Ground Test Activities.			
Title: Flight Test	8.891	54.665	2.697
Articles:	-	-	-
Description: The Flight Test Execution program solely reflects the Integrated Master Test Plan (IMTP) cost model. ***FY 2014 Accomplishments:*** -Successfully conducted Flight Test Standard Missile (FTM)-22 (3 October 2013), engaging and destroying an Aegis Readiness Assessment Vehicle (ARAV) Terrier-Terrier-Oriel Medium Range Ballistic Missile (MRBM) target using Aegis Ballistic Missile Defense (BMD) 4.0.2 and a Standard Missile (SM)-3 Block IB guided missile. This test event exercised the latest version of the second-generation Aegis BMD weapon system, capable of engaging longer-range and more sophisticated ballistic missiles, and supported follow-on production decisions for the SM-3 Block IB guided missile. -Successfully conducted SM-3 Cooperative Development Propulsion Test Vehicle - 1 (SCD PTV-1) test (October 2013): The PTV test conducted at the White Sands Missile Range demonstrated the SM-3 Block IIA missile can be safely launched from its MK 29 Mod 0 canister and the MK 41 vertical launch support .			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Successfully conducted David's Sling Test (DST)-2 (20 November 2013): DST-2 was a joint flight test conducted with Israel Missile Defense Organization (IMD) at a test range in southern Israel. A target missile was launched and tracked by the David's Sling Weapon System's multi-mission radar. A Stunner interceptor successfully performed its planned trajectory and destroyed the target. -Successfully conducted Missile Defense Agency (MDA) associated operations using Glory Trip (GT) 210 (17 December 2013) as a target of opportunity: This test event was an Air Force Global Strike Command (AFGSC) operational test flight of a Minute Man III (MM III) Intercontinental Ballistic Missile (ICBM) launched from Vandenberg Air Force Base (VAFB), CA, with impact at Kwajalein Atoll. The Space Tracking and Surveillance System (STSS) and External Systems Laboratory participated in the test event as associated operations. -Successfully conducted Arrow 3 Fly Out (A3FO)-2 (3 January, 2014): A3FO-2 was a joint flight test of the Israeli Upper Tier Arrow-3 interceptor conducted with IMDO at a test range in southern Israel. A3FO-2 was a major milestone in the Joint U.S.-Israel Upper Tier development program that demonstrated and verified Arrow-3's key functional capabilities in-flight. -Successfully conducted Flight Test Other (FTX)-18 (15 January 2014): FTX-18 involved the simulated engagements of a raid of three short-range ARAV-A targets using the Aegis BMD 4.0.2 Weapons System and simulated SM-3 Block IB missiles as part of the Commander, Operational Test and Evaluation Force evaluation of Aegis BMD and SM-3 Block (Blk) IB effectiveness and suitability. -Successfully conducted Aegis Ashore Controlled Test Vehicle (AA CTV)-01 (20 May 2014): This test was the first SM-3 Blk IB flyout test using the new Aegis Ashore Missile Defense Test Center located at the Pacific Missile Range Facility on Kauai, HI. This was the first live fire event with the Aegis Weapon System Baseline 9.B.0 software upgrade planned for deployment to the Romania Aegis Ashore facility. -Successfully conducted Operation Polar Bear (24 May 2014), a collaborative MDA and Program Executive Office - Integrated Warfare System tracking exercise with an experimental Terrier-Terrier-Oriole -B sounding rocket. -Successfully conducted Flight Test Ground-Based Interceptor (FTG)-06b (22 June 2014): This test successfully demonstrated a long interceptor time-of-flight and medium closing velocity engagement of an Intermediate Range Ballistic Missile (IRBM) class target by a Capability Enhancement (CE)-II-configured Ground Based Interceptor (GBI) while performing all Exoatomspheric Kill Vehicle (EKV) functions necessary to discriminate and intercept the lethal object from a representative ICBM target scene with countermeasures. Other participants in this test included an Aegis BMD ship providing a cue to the Sea-based X-Band Radar (SBX) and track data to the Groundbased Midcourse Defense (GMD) Fire Control (GFC) via the Command, Control, Battle Management and Communications (C2BMC). -Successfully conducted Arrow System Test (AST-14) (9 September 2014): The IMDO and MDA conducted an intercept test of the Arrow-2 interceptor missile. -Successfully conducted MDA associated operations using GT-211 (23 September , 2014) as a target of opportunity: This was an AFGSC operational test flight of a MM III ICBM. Participating BMDS elements, including SBX, Army/Navy Transportable			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Radar Surveillance (AN/TPY-2) and one STSS satellite, used GT 211 as a target of opportunity to conduct risk reduction and data collection, assess future capabilities, and exercise BMDS communications links. -MDA also conducted detailed test planning and readiness activities for the following FY 2015 and 1st Quarter FY 2016 Flight Tests: FTX-20; FTM-25; FTM-26; FTX-19; Flight Test Operational (FTO)-02 Event 1; SM-3 Cooperative Development (SCD) CTV-01; FTO-02 Event 2; Flight Test Terminal High Altitude Area Defense (THAAD) (FTT)-18; FTX-21; FTM-24; GM CTV-02+; SCD CTV-02, GT 214; GT 215; GT 212; GT 216; AST-15; DST-3; and DST-4.			
FY 2015 Plans: The $45.8 million increase from FY 2014 to FY 2015 is due to execution requirements for FTO-02. Given the new appropriated baseline, the following flight test adjustments were made to the Test baseline: --Deleted FTM 24 --Deleted FTM-26 --Deleted SFTM-01 E1 --Deferred FTX-21 until 3Q FY 2016 --Deferred FTM-27 until 1Q FY 2017 --Deferred FTX-24 and FTM-28 until 4Q FY 2017, and campaign these two events. -Increase from FY 2014 to FY 2015 due to execution requirements for FTO-02. --Conduct FTO-02, a campaign of operational flight tests, a demonstration of MDA's European Phased Adaptive Approach (EPAA) for Missile Defense Phase 2 architecture. FTO-02 will demonstrate system functionality of Aegis Ashore, AN/TPY-2 in the forward based mode supported by a command and control architecture consisting of Space Based Infrared System/Defense Support Program (SBIRS/DSP) and C2BMC. Additionally, uniformed personnel will operate the system under operationally realistic conditions. --Conduct FTO-02 Event 1 (E1), a demonstration the of Agency's integrated regional/theater ballistic missile defense using an operationally realistic scenario where uniformed personnel normally assigned to the Aegis BMD systems in a real-world situation will execute the test. FTO-02 E1 will demonstrate system functionality of Aegis BMD (Aegis-at-Sea) and will be supported by a sensor command and control architecture consisting of SBIRS and a C2BMC suite. FTO-02 E1 execution will support the EPAA Phase 2 and will be the first operational test of Aegis Ashore with Aegis Baseline (BL) 9.B1 (BMD) 5.0 Capability Upgrade (CU)) and SM-3 Blk IB Threat Upgrade (TU) engagement of an air-launched MRBM target. --Conduct FTO-02 Event 2 (E2), a demonstration of the Agency's integrated regional missile defenses using an operationally realistic scenario where uniformed personnel normally assigned to the Aegis BMD and THAAD systems in a real-world situation will execute the test. FTO-02 E2 will demonstrate system functionality of Aegis BMD (Aegis-at-Sea), THAAD, and Patriot supported by a sensor command and control architecture consisting of SBIRS/DSP and a C2BMC suite.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Complete planning and successful execution of FTX-19, an Aegis BMD 4.0 SM-3 Blk IB simulated engagement of short range ballistic missile (SRBM) targets in a raid scenario by two ships using digital engagement coordination. -Complete planning and successful execution of FTT-18, a THAAD operationally representative intercept of a separating IRBM target. -Complete planning and successful execution of Aegis Multi-Mission Warfare test, a series of events testing Aegis BMD BL 9.C1 (5.0) SM-6 Dual I (Air Warfare Mode) missile and SM-2 Block IV missile against AW and SRBM targets. -Conduct target test engineering, mission logistics, and launch operations with consistent test expertise to support operational and developmental flight testing across the BMDS Test Program in accordance with the Integrated Test Master Plan (IMTP) in various test Major Range and Test Facilities. -Develop flight test training requirements for Test Directors and other console operators. -Coordinate and maintain execution support requirements with all stakeholders. -Identify mission risks, and implement mitigation practices as required to ensure safe & successful test outcomes. -Provide Failure Response Team and ensures implementation of response plan. Captures lessons learned for process improvement. -Train test personnel and track/maintain training records for all test personnel. -Complete test planning for BMDS Flight Test events as shown in Exhibit R-4 Schedule. -Identify and execute focused investments in the BMDS test infrastructure. -Conduct mission planning and range coordination activities, perform final target system integration and execute target missions, provided communications security equipment and management for BMDS Flight Test events as shown in Exhibit R-4 Schedule. -Train and resource System Mission Managers to lead Integrated Event Test Team mission management and readiness activities across all five test event phases for System and Element flight test and contingency operations. -Identify, monitor and develop burn down plans for target system mission risks for all FY2015 BMDS missions as defined in the IMTP.			
FY 2016 Plans: The decrease of $51.9 million from FY 2015 to FY 2016 due to funding transferred to the BMD Targets Program Element 06038915C, for Target Launch Operations. -Complete planning and successful execution of GM CTV-02+ (Formerly FTG-09), a Ground-Based Midcourse Defense (GMD) 3-stage CE-II interceptor characterization test with an air-launched Intermediate Range Ballistic Missile (IRBM). -Complete planning and successful execution of FTG-15, a Ground-Based Midcourse Defense (GMD) 3-stage Consolidated Booster Avionics Upgrade/Capability 2 Enhancement -II CBAU/C2 CE-II Blk I EKV Ground-Based Interceptor engagement of an InterContinental Ballistic Missile (ICBM).			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Complete planning and successful execution of SFTM-01 Event 2, an Aegis BMD BL 9.C2 (5.1) SM-3 Blk IIA missile engagement of a Medium Range Ballistic Missile (MRBM). -Complete planning and successful execution of SCDCTV-02, an Aegis BMD BL 9.C2 (5.1) SM-3 Blk IIA missile controlled test vehicle (CTV) performance test (Missile Only). -Complete planning and defer execution of FTM-27 until 1Q FY 2017, an Aegis BMD BL 9.C1 (5.0 CU) SM-6 salvo (2) missile engagement of a Medium Range Ballistic Missile (MRBM). -Complete planning and successful execution of FTX-21, an Aegis BMD BL 9.C1 (5.0 CU) SM-6 Dual I missile simulated engagement of an MRBM. -Develop flight test training requirements for Test Directors and other console operators. -Identify mission risks, and implement mitigation practices as required to ensure safe & successful test outcomes. -Provide Failure Response Team and ensures implementation of response plan. Captures lessons learned for process improvement. -Train test personnel and track/maintain training records for all test personnel. -Complete test planning for BMDS Flight Test events as shown in Exhibit R-4 Schedule. -Identify and execute focused investments in the BMDS test infrastructure. -Conduct mission planning and range coordination activities; provide communications security equipment and management for BMDS Flight Test events as shown in Exhibit R-4 Schedule. -Train and resource System Mission Managers to lead Integrated Event Test Team mission management and readiness activities across all four test event phases for System and Element flight test and contingency operations. -Identify, monitor and develop burn down plans for target system mission risks for all FY2016 BMDS missions as defined in the IMTP.			
Title: Ground Test	16.156	4.821	4.035
Articles:	-	-	-
Description: The Ground Test Execution program solely reflects the Integrated Master Test Plan (IMTP)cost model. ***FY 2014 Accomplishments:*** -Completed first operational test (OT) series of tests in Ground Test Campaign 04e delivering both Operational Testing of United States Pacific Command (USPACOM) regional defense and Operational Assessments of United States Northern Command (USNORTHCOM) and USPACOM Ballistic Missile Defense System (BMDS) Homeland Defense. -Conducted target test engineering, mission logistics, and launch operations with consistent test expertise to support operational and developmental flight testing. -Procured, maintained, and managed test resource infrastructure, and provided trained personnel to integrate test resources into each test event for the BMDS Test Program.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Executed data management, test labs analysis infrastructure management and sustainment, and test tools management and integration. -Began detailed test planning for GTI-06 (BMDS Integrated Ground Test). -Completed planning and successful execution of FTG-06b System Pre-Mission Test in support of risk reduction for FTG-06b. -Began planning of Ground-Based Midcourse Defense Controlled Test Vehicle (CTV) 02+ System Pre-Mission Test in support of risk reduction for CTV-02+ flight test event. -Completed detailed planning and test execution involving hardware and software testing, truth drivers and framework integration, formal execution runs and official data collection of Fast Phoenix, GTI-04e Part 2 (BMDS Integrated Ground Test), and Fast Exchange Hardware-in-the-Loop (HWIL) and Distributed (including Fast Falcon and Fast Osprey test requirements). -Coordinated emerging ground test requirements for ground test event design and execution. Completed re-plan of ground test campaigns to incorporate PBR/PB 2015 decision.			
FY 2015 Plans: The decrease of $11.3 million from FY 2014 to FY 2015 due to deployment of revised Ground Test (GT) CONOPs which result in more efficient GT programs. -Continue efforts as listed under FY 2014 plans. -Execute Ballistic Missile Defense System (BMDS) Ground Test events. -Facilitate strategic planning of ground test campaigns in support of IMTP. -Complete hardware and software testing, truth drivers and framework integration, formal execution runs and/or official data collection in support of GTD-04e Part 2 (BMDS Distributed Ground Test), GTI-06 Part 1 (BMDS Integrated Ground Test), GTI-06 Part 3, GTD-06 Part 1, and any rapid response test events. -Support execution of the BMDS Ground Test campaign to assess BMDS capabilities, to include the integration of additional BMDS sensors. -Maintain and resource a Ground Test Mission Director (MD) and System Mission Manager (SMM) manpower pool to lead Integrated Event Test Teams IAW BMDS Test CONOPs. -Develop training requirements for ground test MDs and SMMs. -Ensure capabilities are tested within respective test venues. -Provide input to MDA modeling and simulation development.			
FY 2016 Plans: The decrease of $786 thousand from FY 2015 to FY 2016 due to more efficient and stable Integrated Master Test Plan (IMTP) schedule.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Complete the GT-06 campaign in support of the Technical Capability Declaration (TCD) of European Phased Adaptive Approach (EPAA) Phase II. -Incorporate new cybersecurity testing requirements into the Ballistic Missile Defense System (BMDS) ground tests. -Start to conduct cybersecurity red team testing in GTI-07a (BMDS Integrated Ground Test) event. -Coordinate emerging requirements for ground test event planning, design, and execution. -Support ground test strategic planning in development of the Integrated Master Test Plan. -Work with international partners (to include NATO, Israel, etc.) to incorporate their testing requirements into the Department of Defense BMDS ground testing. -Complete hardware and software testing, truth drivers and framework integration, formal execution runs and/or official data collection in support of GTI-06 Part 2, GTI-ISR (Israeli) (16), GTD-06 Part 2 (BMDS Distributed Ground Test) and planning activities for GTI-07a and GTD-07a Part 1. -Maintain and resource a Ground Test Mission Director and System Mission Manager manpower pool to lead Integrated Event Test Teams IAW BMDS Test CONOPs. -Execute BMDS Ground Tests as shown in Exhibit R-4 schedule. -Ensure capabilities are tested within respective test venues.			
Title: Test Resources	144.110	148.434	128.079
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: -Procured, maintained, and managed test resource infrastructure and provided trained Test Resource Managers to integrate test resources into each test event for the Ballistic Missile Defense System (BMDS) Test Program. -Established and maintained Agency test policies and test functional area organizational accountability, contracts, and budgets. -Ground Test Resource Managers (TRMs) continued to complement test execution teams by managing the scheduling, funding, and management of ground test resource assets. -Supported all MDA-sponsored BMDS ground testing conducted in FY 2014 with the full complement of hardware-in-the-loop (HWIL) and communication test assets. -Maintained and upgraded MDA unique ground test facilities to support Ballistic Missile Defense System (BMDS) level ground tests, including basic ground test control as well as some element representations. -Added hardware and digital element representations to support expansion of the existing HWIL (Hardware-in-the-Loop) capability as the BMDS evolves, such as the new Group 8 Aegis 5.0/Aegis Ashore Labs built to support the GT-06 Ground test campaign. -Developed the Directorate of Test Support System (DTSS) classified Computer Network Defense Service Provider (CNDSP) to support network cyber security defense for Test Directorate's (DT) ground test network systems.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Developed, maintained, and upgraded as needed Missile Defense Agency (MDA) unique range facilities and mobile sensors, communication, data processing and dissemination infrastructure to support a broad spectrum of test requirements including metric tracking, target characterization, and multi-spectral imagery of BMDS phenomena. -Continued sustainment of the flight test infrastructure at the Missile Defense Integrated Operations Center (MDIOC). -Obtained accreditation for the Transportable Telemetry Systems (TTS), Pacific Collector Range Safety System (PCRSS), and the Flight Test Communications Network (FTCN). -Continued implementation of a dedicated cybersecurity program to maintain accreditation of the DTR flight test instrumentation -Early Launch Tracking System (ELTS) completed Government Acceptance Testing in third quarter FY 2014 as a critical component of Range upgrades required to support SM-3 Block IB launches from PMRF. -Early Launch Tracking System (ELTS) radars participated in Flight Safety Certification and Aegis Ashore flight testing at PMRF in third quarter FY 2014. -Sea Based Systems (SBS) continued sustainment of test instrumentation ships, Pacific Collector and Pacific Tracker, and associated telemetry and radar systems -Moved TTS-1 control room from two shelters on the deck of Pacific Collector to a dedicated space inside the ship, a major safety improvement. -Successfully installed C-band receiving capability on TTS-4 and achieved Initial Operational Capability (IOC). This upgrade allows for simultaneous tracking in L/S/C-bands to better prepare MDA for the transition to C-band as L & S-band spectrum is sold off for commercial use. -Airborne Sensor (ABS) (HALO-I, HALO-II and HALO-IV) successfully supported FTM-22, AA CTV-01, Operation Polar Bear, FTG-06b and Advanced Hypersonic Weapon (AHW) FT-2. -Integrated a communications infrastructure at Kodiak Island to support Space and Missile Defense Command (SMDC) deployment requirements for the AHW FT-2 Test. -Deferred non-essential overhauls, upgrades and maintenance for flight test instrumentation, hardware-in-the-loop (HWIL) equipment, and communication test assets.			
FY 2015 Plans: The increase of $4.3 million from FY 2014 to FY 2015 due to execution of FTO-02 upgrades and JRDC Ground Test (GT) Infrastructure asset moved to Test Resources. -Continue efforts as listed under FY 2014 accomplishments. -Initiate study for migration of Airborne Sensors airframes to newer platforms. -Continue deferral of upgrades to the flight test instrumentation. -Continue deferral of development of hardware-in-the-loop (HWIL) equipment. -Continue deferral of tech refresh and upgrades to hardware-in-the-loop (HWIL) Labs and communication test assets.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continue deferral of non-critical maintenance and spares for hardware-in-the-loop (HWIL) Labs and communication test assets. -Develop a BMDS SBIRS INC2 Test Support Capability (TSC) Lab at the MDIOC to support flight and distributed ground tests (GTDs/Fast Events) required for EPAA Phase II and deployment of 44 GBIs for homeland defense. -Develop a 2nd String BMDS SBIRS INC2 HWIL Lab at the Azusa, CA to support intergraded ground (GTI) test and System Per-Mission Tests (SPMT) required for EPAA Phase II and deployment of 44 GBIs for homeland defense. -Initiate Advanced Research Center (ARC) strategy for operational improvements and potential relocation onto Redstone Arsenal. -Initiate a Ground Test Working Group (GTWG) strategy for improvements and potential new assets required to support the GT-07 and GT-08 Campaigns to address EPAA Phase 3. -Continue to support BMDS cybersecurity testing utilizing HWIL labs. -Construct Communications Facility & lay communications network at Wake Island to support FTO-02 E2 -Perform Meck upgrades to support ICBM IMTP testing -Sea Based Systems (SBS) continuing sustainment of test instrumentation ships, PACIFIC COLLECTOR and PACIFIC TRACKER, and associated telemetry and radar systems -SBS completion of the Mobile Launch Platform program termination and disposal of associated property to include ex-USS TRIPOLI and NARRAGANSETT Perform On-Condition Cyclic Maintenance.			
FY 2016 Plans: The decrease of $20.3 million from FY 2015 to FY 2016 is due to full transfer of Target Launch Operations to BMD Targets Program Element 0603915C beginning in FY 2015 as well as continued realization of test efficiencies. -Procure, maintain, and manage test resource infrastructure and provide trained Test Resource Managers to integrate test resources into each test event for the Ballistic Missile Defense System (BMDS) Test Program. -Establish and maintain Agency test policies and test functional area organizational accountability, contracts, and budgets. -Ground Test Resource Managers (TRMs) continue to complement test execution teams by managing the scheduling, funding, and management of ground test resource assets. -Support all MDA-sponsored BMDS ground testing conducted in FY 2016 with the full complement of hardware-in-the-loop (HWIL) and communication test assets. -Maintain MDA-unique ground test facilities to support Ballistic Missile Defense System (BMDS) level ground tests, including basic ground test control as well as some element representations. -Maintain the Directorate of Test Support System (DTSS) classified Computer Network Defense Service Provider (CNDSP) to support network cyber security defense for Test Directorate's (DT) ground test network systems. -Maintain the Missile Defense Agency (MDA) unique range facilities and mobile sensors, communication, data processing and dissemination infrastructure to support a broad spectrum of test requirements including metric tracking, target characterization, and multi-spectral imagery of BMDS phenomena.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continue sustainment of the flight test infrastructure at the Missile Defense Integrated Operations Center (MDIOC). -Maintain accreditation for the Transportable Telemetry Systems (TTS), Pacific Collector Range Safety System (PCRSS), and the Flight Test Communications Network (FTCN). -Maintain a dedicated cybersecurity program to maintain accreditation of the DTR flight test instrumentation -Maintain Sea Based Systems (SBS), including test instrumentation ships, Pacific Collector and Pacific Tracker, and associated telemetry and radar systems -Finalize Advanced Research Center (ARC) study for operational improvements and potential relocation onto Redstone Arsenal. -Implement findings from the Ground Test Working Group (GTWG) strategy for improvements and potential new assets required to support the GT-07 and GT-08 Campaigns to address EPAA Phase 3. -Discontinued MLP & Narragansett use in FY 2015 but decommissioning/disposal costs may continue into FY 2016. -MLP & Narragansett have been in the previous Integrated Master Test Plan (IMTP) for one mission during the Five-Year Defense Plan (FYDP): however, that requirement was removed in a previous IMTP schedule. -Initiate the Sea Based Systems X-Band Transportable Radar-1(XTR-1) Cooling System Upgrade. -Replace obsolete International Marine/Maritime Satellite (INMARSAT) with Swift Broadband solution on Pacific Collector. -Replace Catamaran vessels that are required for Meck Island Operations and Maintenance (O&M) and mission support. -Continue deferral of Transportable Telemetry System (TTS) receiver upgrades. -Continue deferral of TTS mission control room replacement on Pacific Tracker. -Continue deferral of C-band upgrade for TTS 1, 2, 3 and 5. -Continue study for migration of Airborne Sensors airframes to newer platforms. -Continue deferral of required maintenance of airborne sensor platforms. -Continue deferral of required maintenance and upgrades of flight test ranges and facilities.			
Title: Engineering and Test Analysis	25.677	28.032	26.837
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: -Defined test objectives and evaluation criteria for all System level test events. -Provided engineering support for test events listed in the Integrated Master Test Plan (IMTP): -- Performed System-level and interoperability analysis. -- Developed, delivered, and briefed Quick Look Brief (QLB), Executive QLB (EQLB), Mission Data Review (MDR), and Executive MDR (EMDR). -- Used models and simulations (M&S) for pre-test assessment and post-test review.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Provided Systems Engineering and Integration (SE&I) test configuration management; risk assessment; and anomaly/deficiency review, assessment and closure to enable execution of the ground and flight test program and support data gathering for BMDS hardware/software reliability improvements. -Designed and certified scenarios for ground test events to meet required data collection. -Incorporated software changes to Modular Analysis and Reporting Suite (MARS) to enhance analyst efficiency and capability. -Requirement decrease is a result of approved Integrated Master Test Plan (IMTP) changes.			
FY 2015 Plans: Provide engineering support for planning, execution, and analysis of the test events listed in the Integrated Master Test Plan (IMTP): - Design test architecture, defines target requirements, and generate appropriate scenarios for ground and flight tests. - Define test objectives and assessment criteria for all System level test events to anchor Modeling and Simulation (M&S) and address data collection requirements. - Perform System-level and interoperability analysis. - Participate in major test reviews. - Generate BMDS test observations and coordinate associated BMDS Discrepancy Reports (BDR) within the Failure Reporting, Analysis, and Corrective Action System (FRACAS). - Produce the threat data required to enable BMDS ground tests, flight tests and performance assessment. - Utilize models and simulations (M&S) for pre-test assessment and post-test review, as well as M&S updates. - Provide Systems Engineering and Integration (SE&I) test configuration management; risk assessment; and anomaly/deficiency review, assessment and closure to support data gathering for BMDS hardware/software reliability improvements. - Analyze test results to identify shortfalls so that objectives can be reassigned to future events to provide required verification and model validation data. - Develop and document long-range BMDS IMTP planning and integration strategies related to overarching BMDS analysis product integration - Develop and provide capability upgrades to test analysis tools in concert with the BMDS evolution (e.g., Modular Analysis and Reporting Suite (MARS), Assessment Parameter Extraction (APEX) to enhance analysis capability and efficiency. - Populate the MARS database with data from the most recently completed tests to support as-built analysis and capability assessments. - Provide engineering analysis process software to include System Coordination and Observation Reporting Environment (SCORE), Software Change Analysis Review Environment (SCARE), File Manager (FileMan), ManPower Loading (MPL) - Develop and provide infrastructure, software, and associated MDA/IA compliance for the Rapid Scenario Prototype (RASP) capability - Develop and optimize candidate ground test scenarios and produce the associated scenario data packages			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Develop and establish hardware-in-the-loop (HWIL) M&S integration test cases for ground and flight tests (pre-post mission). - Provide modeling and technical analysis support during Combatant Command (COCOM) wargames and exercises. - Develop, deliver, and present the Quick Look Brief (QLB), Executive Quick Look Brief (EQLB), Mission Data Review (MDR), and Executive MDR (EMDR). - Develop and establish Hardware-in-the-loop (HWIL) M&S Integration Test Cases for flight and ground tests. - Conduct M&S HWIL Integration Bench Mark testing for ground tests by integrating the BMDS HWIL M&S framework with MDA and non-MDA Elements into the test event BMDS architecture. - Integrate, test, functionally qualify, and deliver end-to-end BMDS simulations supporting ground test missions.			
FY 2016 Plans: Provide engineering support for planning, execution, and analysis of the test events listed in the Integrated Master Test Plan (IMTP): - Design test architecture, define target requirements, and generate appropriate scenarios for ground and flight tests. - Define test objectives and evaluation criteria via the Integrated Master Assessment Plans and Flight Test Strategic Plan for all System level test events to anchor Modeling and Simulation (M&S) and address data collection requirements. - Perform System-level and interoperability analysis. - Develop inputs to the Test Analysis Report. - Participate in major test reviews, analysis team meetings, and mission planning events. - Generate BMDS test observations and coordinate associated BMDS Discrepancy Reports (BDR) within the Failure Reporting, Analysis, and Corrective Action System (FRACAS). - Produce the threat data required to enable BMDS ground tests, flight tests and performance assessment. - Utilize models and simulations (M&S) for pre-test assessment and post-test review, as well as M&S updates. - Provide Systems Engineering and Integration (SE&I) test configuration management; risk assessment; and anomaly/deficiency review, assessment and closure to support data gathering for BMDS hardware/software reliability improvements. - Analyze test results to identify shortfalls so that objectives can be reassigned to future events to provide required verification and model validation data. - Develop and document long-range BMDS IMTP planning and integration strategies related to overarching BMDS analysis product integration. - Develop and provide capability upgrades to test analysis tools in concert with the BMDS evolution (e.g., Modular Analysis and Reporting Suite (MARS)) to enhance analysis capability and efficiency. - Populate the MARS database with data from the most recently completed tests to support as-built analysis and capability assessments.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provide engineering analysis process software to include System Coordination and Observation Reporting Environment (SCORE), Software Change Analysis Review Environment (SCARE), File Manager (FileMan), ManPower Loading (MPL). - Develop and provide infrastructure, software, and associated MDA/IA compliance for the RApid Scenario Prototype (RASP) capability. - Develop and optimize candidate ground test scenarios and produce the associated scenario data packages. - Develop and establish hardware-in-the-loop (HWIL) M&S integration test cases for ground and flight tests (pre-post mission). - Provide modeling and technical analysis support during Combatant Command (COCOM) wargames and exercises. - Develop, deliver, and present the Quick Look Brief (QLB), Mission Data Review (MDR), and Executive MDR (EMDR). - Conduct M&S HWIL Integration Bench Mark testing for ground tests by integrating the BMDS HWIL M&S framework with MDA and non-MDA Elements into the test event BMDS architecture. - Integrate, test, functionally qualify, and deliver end-to-end BMDS simulations supporting ground test missions. FY 2016 reduction reflects partial workload transfer to Enabling PE 0603890C, Budget Project MT23 (Enabling Test).			
Accomplishments/Planned Programs Subtotals	325.325	344.850	259.808

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Ballistic Missile Defense System (BMDS) Test Program acquisition strategy is consistent with the Missile Defense Agency (MDA) capabilities-based acquisition strategy that emphasizes testing, evolutionary acquisition, and knowledge-based funding. Test directs a team of various internal staff (government and scientific, engineering and technical assistance support), executing agents (including DoD agencies, Service Organizations, Laboratories and Program Offices, Federally Funded Research and Development Center (FFRDC), and other MDA programs to execute the various diverse efforts within the Ballistic Missile Defense System (BMDS) test program through competition. When a specific effort/activity being conducted, acquired, or maintained requires the use of an executing agent, respective headquarter regulations are used to conform the acquisition strategy.

The MDA Integrated Master Test Plan (IMTP) establishes and documents the test requirements for the BMDS with the specific focus on collecting the data needed for the Verification, Validation, and Accreditation (VV&A) of the BMDS Models and Simulations (M&S). This paradigm uses critical factor analysis to drive test design, planning, and execution for accrediting M&S, which is used to validate and assess system performance. With this test approach, MDA will establish confidence that the M&S used to evaluate the BMDS represent real world behavior, thereby enabling simulation-based performance assessment to verify system functionality.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603914C / *Ballistic Missile Defense Test*	Project (Number/Name) MT04 / *BMDS Test Program*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Planning and Operations - IMTP Planning and Data Management Tools	C/FP	None : AL	25.487	32.912		29.813		21.012		-		21.012	Continuing	Continuing	Continuing
Program Planning and Operations - Lab Analysis Infrastructure	MIPR	MIT-LL/Aerospace : AL/CA/MA	34.108	6.926		4.926		8.071		-		8.071	Continuing	Continuing	Continuing
Program Planning and Operations - Operational Test Agency	MIPR	ATEC/Aberdeen Proving Grounds : MD	29.548	12.562		12.876		12.498		-		12.498	Continuing	Continuing	Continuing
Program Planning and Operations - Support to Flight Testing	C/CPAF	Northrop Grumman/ Lockheed Martin : AL/CO	0.000	15.576		13.595		12.116		-		12.116	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Planning and Operations - Support to Ground Testing	C/CPAF	MDIOC/JRDC/ Northrop Grumman : AL/CO/VA/DC	0.000	4.889		5.189		5.039		-		5.039	Continuing	Continuing	Continuing
Program Planning and Operations - Support to Test Resources	MIPR	None : MiDAESS/AL	0.000	11.121		4.833		4.066		-		4.066	Continuing	Continuing	Continuing
Program Planning and Operations - Test Functional Management Office	Various	None : MDA/ MiDAESS/AL/VA/ CO/MA	162.571	46.505		37.666		35.358		-		35.358	Continuing	Continuing	Continuing
Flight Test - IMTP Flight Testing	MIPR	Air & Missile Def Command/AFGSC/ H'ville Operations Support Center/ NAWC/NRL/Ronald Reagan Test Site /SPAWAR/ Vandenberg AFB/ White Sands Missile Range/AMRDEC/ NSWC/PMRF/611th CES/611th ASUS/ AEDC : AL/CA/CO/ HI	146.150	8.891		54.665	Oct 2014	2.697		-		2.697	Continuing	Continuing	Continuing
Flight Test - Support to Flight Testing	C/CPAF	None : AL	47.542	-		-		-		-		-	Continuing	Continuing	Continuing
Flight Test - Target ILS	MIPR	National Security Agency/Navy Special Warfare Command/ Pacific Missile Range Facility/RTC/Sandia National Laboratory/ Yuma Proving Ground : AL/CA/HI/ NM	32.200	-		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603914C / *Ballistic Missile Defense Test*	Project (Number/Name) MT04 / *BMDS Test Program*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Test - IMTP Ground Testing	MIPR	Aviation & Missile Research & Development/LTPO/ Space & Naval Warfare Command : AL/CO/CA	19.608	16.156		4.821	Oct 2014	4.035	Oct 2015	-		4.035	Continuing	Continuing	Continuing
Ground Test - Support to Ground Testing	C/CPAF	None : AL/CO	18.298	-		-		-		-		-	Continuing	Continuing	Continuing
Test Resources - Airborne Optics Mobile Assets	C/IDIQ	None : L3/JHU/APL/ TX/MD/AZ/TN	40.887	15.026		15.496		14.900		-		14.900	Continuing	Continuing	Continuing
Test Resources - Core Ground Test Communication Support	MIPR	Space and Naval Warfare Command : AL/CA	9.026	3.619		3.127		3.127		-		3.127	-	18.899	-
Test Resources - Core Ground Test Labs and HWILS	C/IDIQ	None : Colsa/ AMRDEC/AL/MD/FL/ CA/OH/CO	58.581	28.168		28.032		26.444		-		26.444	Continuing	Continuing	Continuing
Test Resources - Current String	MIPR	None : SPAWAR/ AMRDEC/AL/CA/ NM/TN	6.500	-		-		-		-		-	-	6.500	-
Test Resources - Enhanced GT Capability Assets	C/IDIQ	None : Colsa/Boeing/ NG/AL/CO/FL/MD/HI	3.243	9.152		7.353		7.280		-		7.280	Continuing	Continuing	Continuing
Test Resources - Facilities Sustainment, Restoration & Modernization	MIPR	SMDC/Northrup Grumman/Colsa : AL/CO/NM	0.000	3.798		3.800		4.186		-		4.186	Continuing	Continuing	Continuing
Test Resources - Flight Test Improvements	MIPR	None : WSMR	9.668	-		-		-		-		-	-	9.668	-
Test Resources - Flight Test Instrumentation	C/IDIQ	ASI/WSMR : Gray Research/NRL/ NAWC/CA/MD/NCR/ NM/AL/MA	36.580	17.254		16.637		12.013		-		12.013	Continuing	Continuing	Continuing
Test Resources - Flight Test Ranges	C/IDIQ	SMDC/SNL/PMRF : NAWC/WSMR/	32.439	13.548		12.287		8.557		-		8.557	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		AMRDEC/NG/AK/AL/ CA/HI/NM/CO													
Test Resources - Sea Based Mobile Assets	MIPR	None : MARAD/ NAWC/Hanscom AFB/AL/CA/MD/ NCR/NM/MA	33.225	11.255		11.536		12.065		-		12.065	Continuing	Continuing	Continuing
Test Resources - Second String	MIPR	None : Colsa/Boeing/ NG/AL/CO	9.400	-		-		-		-		-	-	9.400	-
Test Resources - Support to Test Resources	MIPR	None : MiDAESS/AL	22.118	36.790		44.566		33.534		-		33.534	Continuing	Continuing	Continuing
Test Resources - Target ILS	MIPR	None : NSA/ NAVSPECWARCOM/ PMRF/RTC/SNL/ YPG AL/CA/HI/NM	0.000	5.500		5.600	Oct 2014	5.973		-		5.973	Continuing	Continuing	Continuing
Engineering and Test Analysis - CSS Support	C/CPFF	Torch Technologies : AL	0.000	6.311		6.120		6.000		-		6.000	Continuing	Continuing	Continuing
Engineering and Test Analysis - EADSIM	MIPR	None : SMDC/AL	11.660	-		-		-		-		-	Continuing	Continuing	Continuing
Engineering and Test Analysis - FFRDA/UARC 2	MIPR	Aerospace : CA	0.000	-		-		0.755		-		0.755	Continuing	Continuing	Continuing
Engineering and Test Analysis - FFRDC/UARC	MIPR	MITRE : VA	2.214	0.973		1.596	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Engineering and Test Analysis - Industry Support	C/CPAF	Boeing : AL	10.438	4.100		4.019	Oct 2014	2.569		-		2.569	Continuing	Continuing	Continuing
Engineering and Test Analysis - Joint Analysis Team IMTP	MIPR	None : AL/VA	36.859	5.846		-		-		-		-	Continuing	Continuing	Continuing
Engineering and Test Analysis - OGA Support	MIPR	AMRDEC : AL	13.830	7.747		16.297	Oct 2014	17.513		-		17.513	Continuing	Continuing	Continuing
Engineering and Test Analysis - Threat Engineering	MIPR	FFRDC : NJ/CO/MD/ VA	2.222	0.700		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	854.402	325.325		344.850		259.808		-		259.808	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603914C / *Ballistic Missile Defense Test*	Project (Number/Name) MT04 / *BMDS Test Program*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

In FY 2014 and FY 2015, Flight Support, Ground Support and Test Resources Support accomplishments are captured under Program Planning and Operations.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	854.402	325.325		344.850		259.808		-		259.808	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

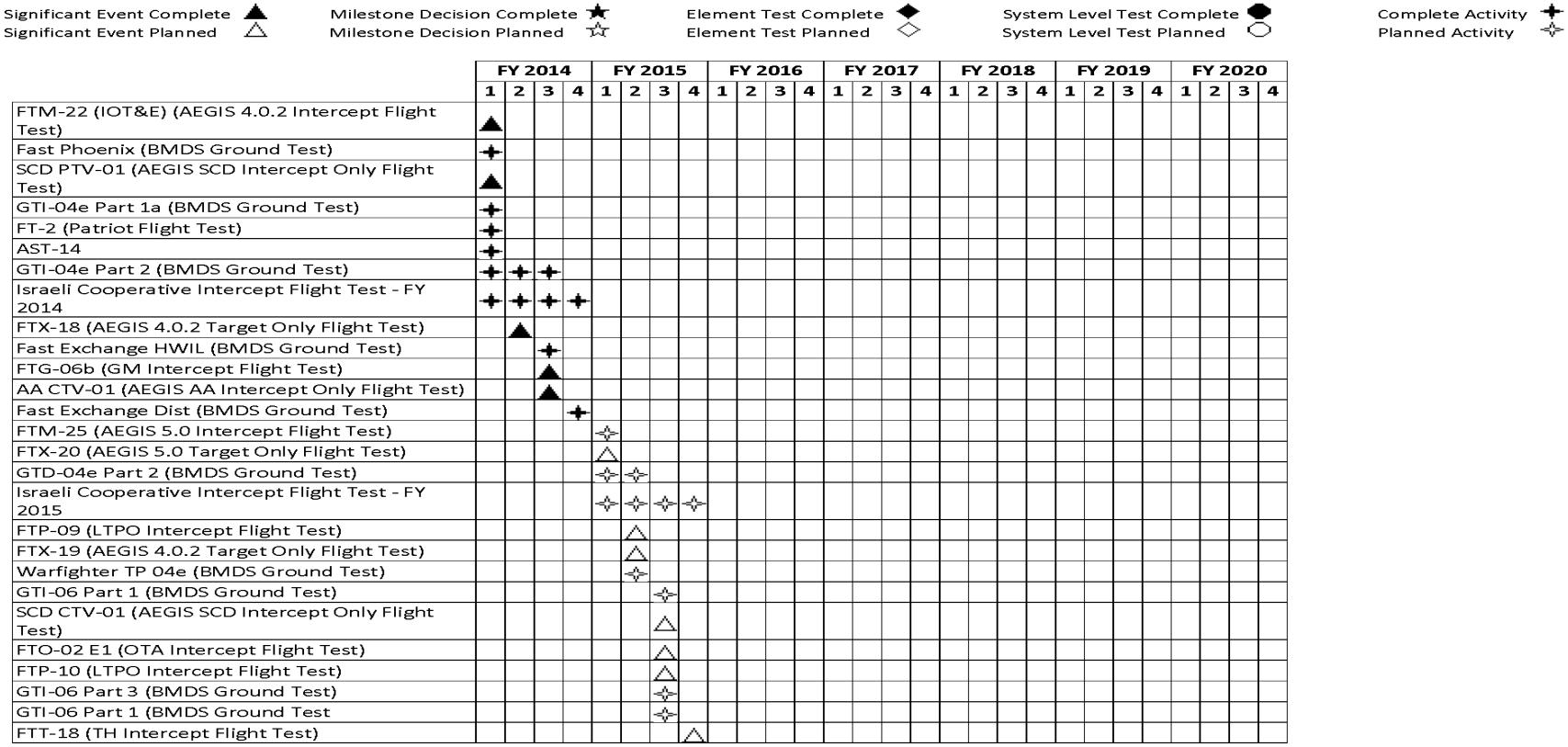

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬟ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
FTO-02 E2 (OTA Intercept Flight Test)								△																				
MMW E1 (AEGIS 5.0 Intercept Flight Test)								△																				
MMW E2 (AEGIS 5.0 Intercept Flight Test)								△																				
MMW E3 (AEGIS 5.0 Intercept Flight Test)								△																				
MMW E4 (AEGIS 5.0 Intercept Flight Test)								△																				
FTP-11 (LTPO Intercept Flight Test)									△																			
FTP-12 (LTPO Intercept Flight Test)									△																			
FTP-13 (LTPO Intercept Flight Test)									△																			
GTD-06 Part 1a (BMDS Ground Test)									✧																			
GM CTV-02+ (GM Flight Test)									△																			
SCD CTV-02 (AEGIS SCD Intercept Only Flight Test)									△																			
Israeli Cooperative Intercept Flight Test - FY 2016									✧	✧	✧	✧																
FTX-21 (AEGIS SBT Target Only Flight Test)											△																	
SFTM-01 E2 (AEGIS 5.1 Intercept Flight Test)											✧																	
Warfighter TP 06 (BMDS Ground Test)											✧																	
GTI-06 Part 2 (BMDS Ground Test)											✧																	
GTI-ISR (BMDS Ground Test)											✧																	
GTD-06 Part 2 (BMDS Ground Test)												✧																
FTG-15 (GM Intercept Flight Test)												△																
FTM-27 (AEGIS SBT Intercept Flight Test)													✧															
SFTM-02 (AEGIS 5.1 Intercept Flight Test)													△															
FTM-DST 1 (DST FT) (Flight Test)													✧															
Israeli Cooperative Intercept Flight Test - FY 2017													✧	✧	✧	✧												
GTI-07a (BMDS Ground Test)														✧														
FTT-15 (TH Intercept Flight Test)														△														
FTX-22 (SN Target Only Flight Test)															△													
GTD-07a Part 1 (BMDS Ground Test)															✧													
Warfighter TP 07a (BMDS Ground Test)															✧													
GTD-07a Part 2 (BMDS Ground Test)															✧	✧												
FTX-24 (AEGIS SBT Target Only Flight Test)																✧												
FTM-28 (AEGIS SBT Intercept Flight Test)																△												

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

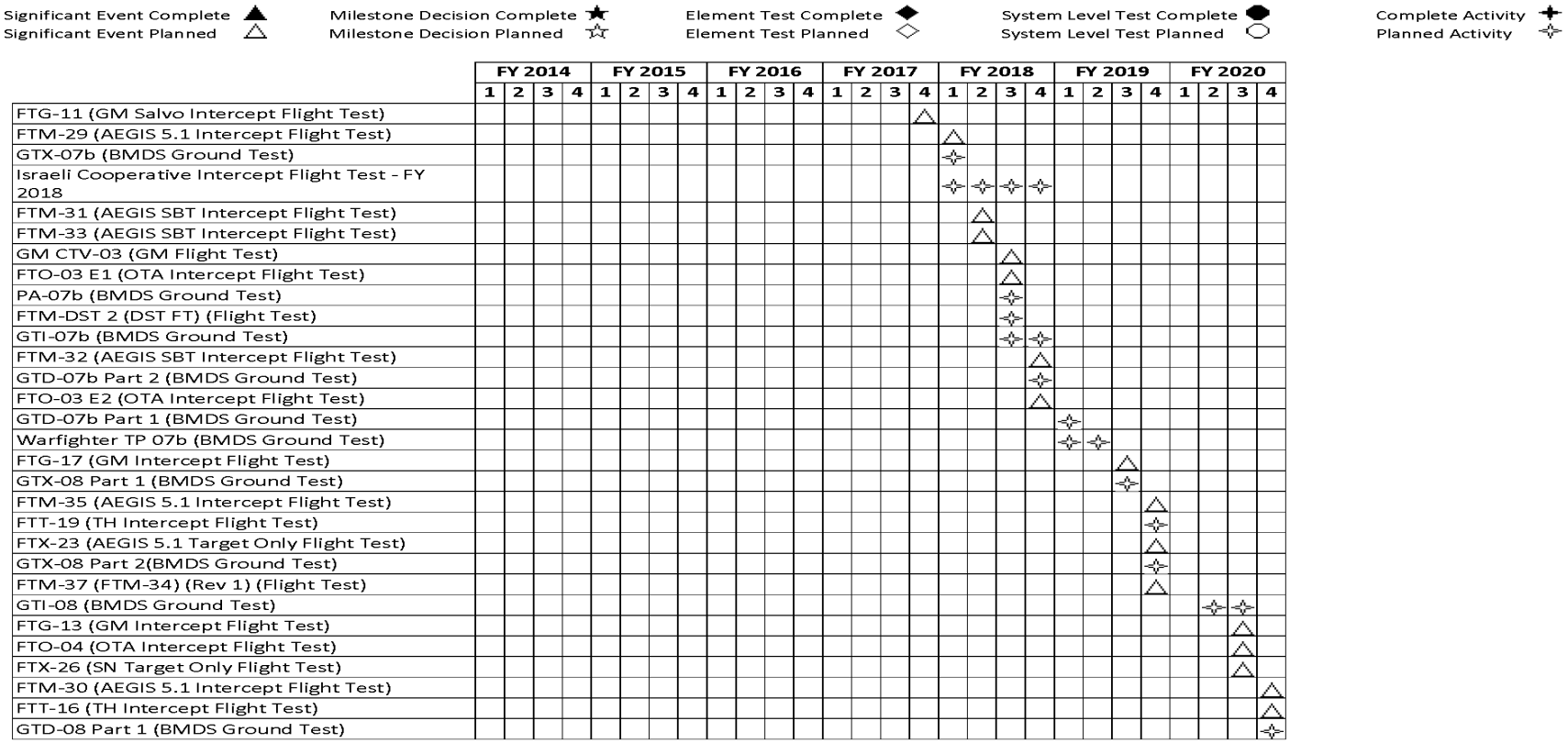

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTM-22 (IOT&E) (AEGIS 4.0.2 Intercept Flight Test)	1	2014	1	2014
Fast Phoenix (BMDS Ground Test)	1	2014	1	2014
SCD PTV-01 (AEGIS SCD Intercept Only Flight Test)	1	2014	1	2014
GTI-04e Part 1a (BMDS Ground Test)	1	2014	1	2014
FT-2 (Patriot Flight Test)	1	2014	1	2014
AST-14	1	2014	1	2014
GTI-04e Part 2 (BMDS Ground Test)	1	2014	3	2014
Israeli Cooperative Intercept Flight Test - FY 2014	1	2014	4	2014
FTX-18 (AEGIS 4.0.2 Target Only Flight Test)	2	2014	2	2014
Fast Exchange HWIL (BMDS Ground Test)	3	2014	3	2014
FTG-06b (GM Intercept Flight Test)	3	2014	3	2014
AA CTV-01 (AEGIS AA Intercept Only Flight Test)	3	2014	3	2014
Fast Exchange Dist (BMDS Ground Test)	4	2014	4	2014
FTM-25 (AEGIS 5.0 Intercept Flight Test)	1	2015	1	2015
FTX-20 (AEGIS 5.0 Target Only Flight Test)	1	2015	1	2015
GTD-04e Part 2 (BMDS Ground Test)	1	2015	2	2015
Israeli Cooperative Intercept Flight Test - FY 2015	1	2015	4	2015
FTP-09 (LTPO Intercept Flight Test)	2	2015	2	2015
FTX-19 (AEGIS 4.0.2 Target Only Flight Test)	2	2015	2	2015
Warfighter TP 04e (BMDS Ground Test)	2	2015	2	2015
GTI-06 Part 1 (BMDS Ground Test)	3	2015	3	2015
SCD CTV-01 (AEGIS SCD Intercept Only Flight Test)	3	2015	3	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTO-02 E1 (OTA Intercept Flight Test)	3	2015	3	2015
FTP-10 (LTPO Intercept Flight Test)	3	2015	3	2015
GTI-06 Part 3 (BMDS Ground Test)	3	2015	3	2015
GTI-06 Part 1 (BMDS Ground Test	3	2015	3	2015
FTT-18 (TH Intercept Flight Test)	4	2015	4	2015
FTO-02 E2 (OTA Intercept Flight Test)	4	2015	4	2015
MMW E1 (AEGIS 5.0 Intercept Flight Test)	4	2015	4	2015
MMW E2 (AEGIS 5.0 Intercept Flight Test)	4	2015	4	2015
MMW E3 (AEGIS 5.0 Intercept Flight Test)	4	2015	4	2015
MMW E4 (AEGIS 5.0 Intercept Flight Test)	4	2015	4	2015
FTP-11 (LTPO Intercept Flight Test)	1	2016	1	2016
FTP-12 (LTPO Intercept Flight Test)	1	2016	1	2016
FTP-13 (LTPO Intercept Flight Test)	1	2016	1	2016
GTD-06 Part 1a (BMDS Ground Test)	1	2016	1	2016
GM CTV-02+ (GM Flight Test)	1	2016	1	2016
SCD CTV-02 (AEGIS SCD Intercept Only Flight Test)	1	2016	1	2016
Israeli Cooperative Intercept Flight Test - FY 2016	1	2016	4	2016
FTX-21 (AEGIS SBT Target Only Flight Test)	3	2016	3	2016
SFTM-01 E2 (AEGIS 5.1 Intercept Flight Test)	3	2016	3	2016
Warfighter TP 06 (BMDS Ground Test)	3	2016	3	2016
GTI-06 Part 2 (BMDS Ground Test)	3	2016	3	2016
GTI-ISR (BMDS Ground Test)	3	2016	3	2016
GTD-06 Part 2 (BMDS Ground Test)	4	2016	4	2016
FTG-15 (GM Intercept Flight Test)	4	2016	4	2016
FTM-27 (AEGIS SBT Intercept Flight Test)	1	2017	1	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SFTM-02 (AEGIS 5.1 Intercept Flight Test)	1	2017	1	2017
FTM-DST 1 (DST FT) (Flight Test)	1	2017	1	2017
Israeli Cooperative Intercept Flight Test - FY 2017	1	2017	4	2017
GTI-07a (BMDS Ground Test)	2	2017	2	2017
FTT-15 (TH Intercept Flight Test)	2	2017	2	2017
FTX-22 (SN Target Only Flight Test)	3	2017	3	2017
GTD-07a Part 1 (BMDS Ground Test)	3	2017	3	2017
Warfighter TP 07a (BMDS Ground Test)	3	2017	3	2017
GTD-07a Part 2 (BMDS Ground Test)	3	2017	4	2017
FTX-24 (AEGIS SBT Target Only Flight Test)	4	2017	4	2017
FTM-28 (AEGIS SBT Intercept Flight Test)	4	2017	4	2017
FTG-11 (GM Salvo Intercept Flight Test)	4	2017	4	2017
FTM-29 (AEGIS 5.1 Intercept Flight Test)	1	2018	1	2018
GTX-07b (BMDS Ground Test)	1	2018	1	2018
Israeli Cooperative Intercept Flight Test - FY 2018	1	2018	4	2018
FTM-31 (AEGIS SBT Intercept Flight Test)	2	2018	2	2018
FTM-33 (AEGIS SBT Intercept Flight Test)	2	2018	2	2018
GM CTV-03 (GM Flight Test)	3	2018	3	2018
FTO-03 E1 (OTA Intercept Flight Test)	3	2018	3	2018
PA-07b (BMDS Ground Test)	3	2018	3	2018
FTM-DST 2 (DST FT) (Flight Test)	3	2018	3	2018
GTI-07b (BMDS Ground Test)	3	2018	4	2018
FTM-32 (AEGIS SBT Intercept Flight Test)	4	2018	4	2018
GTD-07b Part 2 (BMDS Ground Test)	4	2018	4	2018
FTO-03 E2 (OTA Intercept Flight Test)	4	2018	4	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MT04 / *BMDS Test Program*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GTD-07b Part 1 (BMDS Ground Test)	1	2019	1	2019
Warfighter TP 07b (BMDS Ground Test)	1	2019	2	2019
FTG-17 (GM Intercept Flight Test)	3	2019	3	2019
GTX-08 Part 1 (BMDS Ground Test)	3	2019	3	2019
FTM-35 (AEGIS 5.1 Intercept Flight Test)	4	2019	4	2019
FTT-19 (TH Intercept Flight Test)	4	2019	4	2019
FTX-23 (AEGIS 5.1 Target Only Flight Test)	4	2019	4	2019
GTX-08 Part 2(BMDS Ground Test)	4	2019	4	2019
FTM-37 (FTM-34) (Rev 1) (Flight Test)	4	2019	4	2019
GTI-08 (BMDS Ground Test)	2	2020	3	2020
FTG-13 (GM Intercept Flight Test)	3	2020	3	2020
FTO-04 (OTA Intercept Flight Test)	3	2020	3	2020
FTX-26 (SN Target Only Flight Test)	3	2020	3	2020
FTM-30 (AEGIS 5.1 Intercept Flight Test)	4	2020	4	2020
FTT-16 (TH Intercept Flight Test)	4	2020	4	2020
GTD-08 Part 1 (BMDS Ground Test)	4	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603914C / *Ballistic Missile Defense Test*	Project (Number/Name) MC04 / *Cyber Operations*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MC04: *Cyber Operations*	-	1.040	1.670	2.450	-	2.450	2.496	2.545	2.596	2.648	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project MC04 is a new Defensive Cyber Operations Project established in this Program Element (PE) for PB 2014. Funds were previously reported in Project MT04 of this PE.

A. Mission Description and Budget Item Justification

The funds in this project sustain Missile Defense Agency (MDA) DoD Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for MDA Ballistic Missile Defense Test program. It maintains the Certification and Accreditation (C&A) data repository, capturing the DIACAP documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&M on all MDA information systems. This project supports the monitoring and tracking of Cybersecurity mitigations detailed in Information Technology security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA Senior Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation (IV&V) 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 (FISMA).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Network / System Certification and Accreditation (C&A)	1.040	1.670	2.450
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: -Funded Ballistic Missile Defense Test Program Information Assurance Manager (IAM) civilian salaries. -Conducted cyber security/information assurance engineering and architecture planning for Test Directorate (DT) information technology systems. -Planned and tested the Information Assurance (IA) controls for Ballistic Missile Defense System. -Developed Test Directorate's (DT) Department of Defense Information Assurance Certification and Accreditation Process (DIACAP) certification and accreditation packages.			
FY 2015 Plans: The increase of $630 Thousand is due to additional personnel and realignment of cyber duties from MT budget project.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MC04 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provide Cybersecurity Program oversight of all MDA Test Directorate (DT) information systems, networks, sponsored remote sites, ground and flight test infrastructure, and exercise/wargame infrastructures. This includes management of: cybersecurity compliance and authorization; cybersecurity training and awareness; information system secure configuration; assessment and incident management; and computer network defense. - Fund Ballistic Missile Defense Test Program Information Assurance Manager (IAM) civilian salaries. - Conduct cyber security/information assurance engineering and architecture planning for DT information technology systems. - Plan and test the Information Assurance controls for Ballistic Missile Defense System. - Develop DT DIACAP certification and accreditation packages. ***FY 2016 Plans:*** The Increase of $780 Thousand is due to additional personnel and realignment of cyber duties from MT budget project. - Provide Cybersecurity Program oversight of all MDA Test Directorate (DT) information systems, networks, sponsored remote sites, ground and flight test infrastructure, and exercise/wargame infrastructures. This includes management of: cybersecurity compliance and authorization; cybersecurity training and awareness; information system secure configuration; assessment and incident management; and computer network defense. - Fund Ballistic Missile Defense Test Program Information Assurance Manager (IAM) civilian salaries. - Conduct cyber security/information assurance engineering and architecture planning for Test Directorate (DT) information technology systems. - Plan and test the Information Assurance controls for BMDS. - Develop DT NIST certification and accreditation packages.			
Accomplishments/Planned Programs Subtotals	1.040	1.670	2.450

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MC04 / *Cyber Operations*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C&A) - Information Assurance	C/IDIQ	Torch Technologies : Various	0.000	0.887		1.361		2.134		-		2.134	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Information Assurance Civ	MIPR	MDA : Various	0.000	0.153		0.309		0.316		-		0.316	Continuing	Continuing	Continuing
		Subtotal	0.000	1.040		1.670		2.450		-		2.450	-	-	-

Remarks

N/A

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	1.040		1.670		2.450		-		2.450	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MC04 / *Cyber Operations*

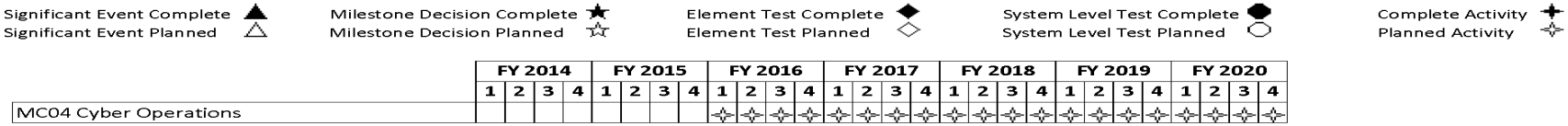

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MC04 / *Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MC04 Cyber Operations	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603914C / *Ballistic Missile Defense Test*	Project (Number/Name) MD40 / *Program Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program Wide Support*	27.537	16.330	19.782	12.065	-	12.065	14.107	17.685	17.602	19.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015, Program Wide Support reflects a proportional change as a result of an increase and in FY 2016, reflects a proportional change as a result of a decrease to Ballistic Missile Defense Test.
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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	16.330	19.782	12.065
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MD40 / *Program Wide Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	16.330	19.782	12.065

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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603914C / *Ballistic Missile Defense Test*	Project (Number/Name) MD40 / *Program Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, CA, CO, VA	0.100	0.090		1.759		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, CA, CO, VA	27.437	15.240		18.023	Dec 2014	12.065	Dec 2015	-		12.065	Continuing	Continuing	Continuing
Program Wide Support - Facilities and Maintenance - SRM	MIPR	Various : Multi: AK,AL,CA,VA	0.000	1.000		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	27.537	16.330		19.782		12.065		-		12.065	-	-	-

Remarks

N/A

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	27.537	16.330		19.782		12.065		-		12.065	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MD40 / *Program Wide Support*

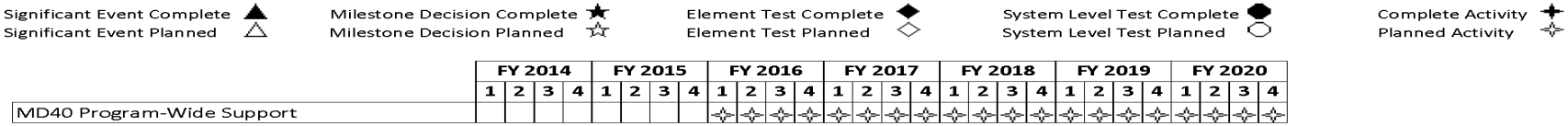

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603914C / *Ballistic Missile Defense Test*	**Project (Number/Name)** MD40 / *Program Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603915C / *Ballistic Missile Defense Targets*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	936.073	501.170	455.068	513.256	-	513.256	585.727	484.242	442.202	460.945	Continuing	Continuing
MT05: *BMDS Targets Program*	916.128	484.743	430.229	490.682	-	490.682	558.035	459.443	418.644	435.975	Continuing	Continuing
MD40: *Program Wide Support*	19.945	16.427	24.839	22.574	-	22.574	27.692	24.799	23.558	24.970	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

The FY 2016 increase reflects a transfer of Target Launch Operations from PE BMD Test (0603914C) to PE BMD Targets (0603915C).

A. Mission Description and Budget Item Justification

As part of the total Ballistic Missile Defense System (BMDS), the BMDS Targets Program provides centrally managed targets and countermeasures development and procurement for a cost effective, integrated system-level test approach to BMDS testing. The BMDS Targets Program has realized past and future savings by centralized competition and management of targets and countermeasures using efficient acquisition strategies and lot buys resulting in economies of scale. Based on the systems engineering assessments of threat intelligence, the BMDS Program Element develops, builds, and supports the launch of Short Range Ballistic Missile (SRBM: Less than 1000Km range) targets, Medium Range Ballistic Missile (MRBM: 1000-3000 Km Range) targets, Intermediate Range Ballistic Missile (IRBM: 3000-5500 Km Range) targets, Intercontinental Ballistic Missile (ICBM: Greater than 5500 km range) targets, and Multi-Class Components to test, verify, and validate the performance of the BMDS against threats. The Missile Defense Agency (MDA) BMDS Targets Program provides an economical and reliable inventory of targets which are representative of feasible future threats and demonstrate capability of the evolving layered missile defense system in a simultaneous test and operations threat environment.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0603915C *I Ballistic Missile Defense Targets*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	491.170	485.294	419.537	-	419.537
Current President's Budget	501.170	455.068	513.256	-	513.256
Total Adjustments	10.000	-30.226	93.719	-	93.719
• Congressional General Reductions	-	-0.226			
• Congressional Directed Reductions	-	-30.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	10.000	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	-	-	93.719	-	93.719

Change Summary Explanation

FY 2015 changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

The FY 2016 increase reflects a transfer of $56.64 million of Target Launch Operations from PE 0603914C into PE 0603915C. The additional $37.08 million increase includes the following: inclusion of Re-Entry vehicle (RV) to emulate emerging threat to support the flight test to demonstrate capability for Homeland Defense and Phased Adaptive Approach Phase III; the addition of two Medium Range Ballistic Missile (MRBM) T3 configuration II to support Sea Based Terminal Defense, increment II; and the build of an Extended-Long Range Air-Launched Target (E-LRALT) to support a Terminal High Altitude Area Defense (THAAD) Materiel Release Requirement in FY 2017.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603915C / *Ballistic Missile Defense Targets*	Project (Number/Name) MT05 / *BMDS Targets Program*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT05: *BMDS Targets Program*	916.128	484.743	430.229	490.682	-	490.682	558.035	459.443	418.644	435.975	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

All Budget Project MT05 funds support Ballistic Missile Defense System (BMDS)-Level Testing.

A. Mission Description and Budget Item Justification

The mission of the Missile Defense Agency (MDA) BMDS Targets program is to provide an economical and reliable inventory of targets that are representative of feasible future threats. These targets enable demonstration of the evolving layered missile defense system capability in operationally realistic scenarios. The BMDS Targets Program develops and acquires three target types across four target classes. The four target classes include: Short Range Ballistic Missiles (SRBM), Medium Range Ballistic Missiles (MRBM), Intermediate Range Ballistic Missiles (IRBM), and Intercontinental Ballistic Missiles (ICBM). The target types (Type 1-3) designate the complexity of the target within its class. Type-1 targets are simple baseline configurations. Type-2 targets have increased capability or complexity. Type-3 targets have unique configurations. Target requirements are derived from the Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs) that are documented in the Agency's Integrated Master Test Plan.

The BMDS Targets Program develops and provides Multi-Class Components that can be used across the spectrum of target types and classes. The BMDS Targets Program provides target digital models that enable MDA weapon system program offices to simulate end to end sensor and interceptor performance during pre-mission analysis. The BMDS Targets Program also provides maintenance, aging surveillance, refurbishment, and routine testing of government furnished equipment boosters and target components.

The BMDS Targets Program carefully plans the year of execution to assure the best use of appropriated funds. However, the BMDS Targets Program must be flexible in its execution of the program in order to respond to emerging real world threats or changes in the intelligence community estimates of when a threat will be deployed. The targets program must also work with BMDS systems engineers on a continuing basis to align the targets program to the BMDS capabilities as reflected in the Missile Defense Agency's Integrated Master Test Plan (IMTP). The BMDS Targets Program makes every effort to reduce instability in contracts, production base and budget while managing in this dynamic work environment.

The BMDS Targets Program develops and builds targets and countermeasures at multiple locations including: Courtland, AL; Orlando, FL; Huntsville, AL; and Chandler, AZ. Storage and maintenance facilities are also located throughout the country including: Huntsville, AL; White Sands, NM; Ogden, UT; Camp Navajo, AZ; Hawthorne, NV; Tooele, UT; Cape Canaveral Air Force Station, FL, and Courtland, AL.

The BMDS Targets Program consists of four major areas: Consumables, Program Planning and Operations, Resources, and Flight Test Execution.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Consumables	368.848	-	-
Articles:	-	-	-

Description: Consumables includes the development and manufacturing of target hardware. The Ballistic Missile Defense System (BMDS) Targets Program delivers fully assembled and integrated targets to the BMDS Test Program.

Target development includes the non-recurring engineering (NRE) for all four target classes, Multi-Class Components (Associated Objects and Modified Ballistic Re-Entry Vehicles), and launch support equipment that support BMDS flight testing. Target development provides air, sea, and ground launch capabilities to maximize flexibility in Missile Defense Agency (MDA) test design. Development activities include requirements decomposition, design, modeling and simulation, qualification testing, and characterization. The BMDS Targets Program Office manages target configuration, component interface specifications, range integration, reliability, mission assurance, and costs. Through the development program, BMDS Targets Program ensures target designs are producible, reliable, and affordable.

Target manufacturing includes the build of targets and target components that are required to execute the Missile Defense Agency (MDA) Integrated Master Test Plan (IMTP). Manufacturing includes government furnished equipment and new component acquisition, assembly, and integration. Also included are target characterization, quality and mission assurance, transportation, and logistics support. Future revisions to the IMTP will likely affect target types and quantities noted in the Planned Accomplishments.

FY 2014 Accomplishments:
Short Range Ballistic Missiles (SRBM):

-Aegis Readiness Assessment Vehicle-B (ARAV-B) - delivered Ship Sets 9 and 14 to support pre-ship readiness reviews and mission execution in FY 2015
-ARAV-A - delivered Ship Sets 10, 11, 12, and 13 to support flight tests in the second quarter FY 2014
-Terrier, Terrier, Oriole Vehicle (TTO-E) - delivered Ship Set 2 to support a flight test in first quarter FY 2014, continued manufacture of Ship Set 1 to support a flight test in FY 2016
-Short Range Air-Launched Target (SRALT) - continued manufacturing of Ship Set 5 to support pre-ship readiness review in FY 2015

Medium Range Ballistic Missile (MRBM):

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Extended Medium Range Ballistic Missile (eMRBM) - initiated assembly, integration and test of Ship Set 1 to support flight test in FY 2015 (Ship Set 2 was successfully flown in a first flight test in FY 2013) -MRBM Type 3 (MRBM T3) - completed qualification testing and delivered Ship Set 1 to support first Flight Test in FY 2015, continued long lead purchase and manufacturing of Ship Sets 2-4 to support pre-ship readiness review in FY 2016 (Ship Set 3), FY 2017 (Ship Set 4), and FY 2018 (Ship Set 2) -Modified Ballistic Re-entry Vehicle-5 (MBRV-5) - continued non-recurring engineering efforts; delivered Ship Set 1 to support a flight test in FY 2015; continued manufacturing of Ship Sets 2-4 to support flight tests in FY 2016 (Ship Sets 3), FY 2017 (Ship Set 4) and FY 2018 (Ship Set 2) -MRBM T1/T2 - continued non-recurring engineering efforts; initiated long-lead purchase and production of Ship Set 1 to support first target acceptance review in FY 2017 -MRBM Type 3 Configuration 2 (MRBM T3C2) - prepared solicitation for Configuration 2 of MRBM T3 (MRBM T3C2) for competitive award in FY 2015 Intermediate Range Ballistic Missile (IRBM): -IRBM T1/T2 - continued the non-recurring engineering development effort and all the base program component qualification testing; completed production of Ship Set 1 to support the first mission for this target type in third quarter FY 2015. Intercontinental Ballistic Missile (ICBM): -ICBM T1/T2 - completed the Critical Design Review and continued the non-recurring engineering development efforts; finalized the plans to execute an ICBM Ground Test Missile pathfinder where Missile Defense Agency (MDA) will execute the Concept of Operations in first quarter FY 2016. -ICBM Type 1-3 (ICBM T1-3) - conducted market research for potential sources of future ICBM T1-3 Multi-Class Components: -Modified Ballistic Re-Entry Vehicle-2 (MBRV-2) - delivered Ship Set 3 to support an FY 2015 flight test -MBRV-7 - continued development of Ship Sets 3-5 to support flight tests in FY 2015, FY 2017, and FY 2018; initiated development of Ship Sets 6 and 7 to support flight tests in FY 2018 and FY 2019 -MBRV-8 - continued non-recurring engineering efforts; delivered Ship Sets 1 and 2 to support flight tests in FY 2015 (Ship Set 1) and FY 2017 (Ship Set 2)			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continue Associated Object (AO) package production in accordance with IMTP requirements ***FY 2015 Plans:*** Starting in FY 2015, Consumables segregated by target classification into separate R2A accomplishments. ***FY 2016 Plans:*** Starting in FY 2015, Consumables segregated by target classification into separate R2A accomplishments.			
Title: Consumables - Short Range Ballistic Missiles (SRBM)	-	14.930	11.273
Articles:	-	-	-
Description: Consumables includes the development and manufacturing of target hardware. The Ballistic Missile Defense System (BMDS) Targets Program delivers fully assembled and integrated targets to the BMDS Test Program. Target development includes the non-recurring engineering (NRE) for all four target classes, Multi-Class Components (Associated Objects and Modified Ballistic Re-Entry Vehicles), and launch support equipment that support BMDS flight testing. Target development provides air, sea, and ground launch capabilities to maximize flexibility in Missile Defense Agency (MDA) test design. Development activities include requirements decomposition, design, modeling and simulation, qualification testing, and characterization. The BMDS Targets Program Office manages target configuration, component interface specifications, range integration, reliability, mission assurance, and costs. Through the development program, BMDS Targets Program ensures target designs are producible, reliable, and affordable. Target manufacturing includes the build of targets and target components that are required to execute the Missile Defense Agency (MDA) Integrated Master Test Plan (IMTP). Manufacturing includes government furnished equipment and new component acquisition, assembly, and integration. Also included are target characterization, quality and mission assurance, transportation, and logistics support. Future revisions to the IMTP will likely affect target types and quantities noted in the Planned Accomplishments. ***FY 2014 Accomplishments:*** Reference Consumables R2A accomplishments for FY 2014 ***FY 2015 Plans:*** Short Range Ballistic Missile (SRBM) FY 2015 variance is not an increase but a breakdown of the total FY 2015 Consumable amount into lower level detail that was not provided in earlier submits.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Aegis Readiness Assessment Vehicle-B (ARAV-B) - deliver Ship Sets 11, 12, and 13 to support a flight test in the second quarter FY 2015 -ARAV-G - initiate non-recurring engineering development efforts for booster hardware and the re-entry vehicle (RV) nose tip -Terrier, Terrier, Oriole Vehicle (TTO-E) - deliver Ship Set 1 to support a flight test in FY 2016, initiate production of Ship Sets 3 and 4 to support pre-ship readiness reviews in FY 2016 -Short Range Air-Launched Target (SRALT) - complete qualification testing and deliver Ship Set 5 to support pre-ship readiness review and flight test in FY 2015 -Foreign Materiel Acquisition-1 (FMA-1) - complete qualification testing and deliver Ship Set 15 to support a flight test in FY 2016 -Develop and manufacture additional SRBMs as required by semi-annual updates to the Ballistic Missile Defense System Integrated Master Test Plan ***FY 2016 Plans:*** Short Range Ballistic Missile (SRBM) FY2016 variance: Decrease is due to the completion of the Foreign Materiel Acquisition (FMA) target in FY15 -Aegis Readiness Assessment Vehicle-B (ARAV-B) - deliver Ship Set 17 to support pre-ship readiness review in FY 2016 and flight test in FY 2017 -ARAV-G - continue non-recurring engineering development efforts for booster hardware and the re-entry vehicle (RV) nose tip -Terrier, Terrier, Oriole Vehicle (TTO-E) - deliver Ship Sets 3 and 4 to support pre-ship readiness reviews in FY 2016 and flight tests in the first quarter FY 2017 -Develop and manufacture additional SRBMs as required by semi-annual updates to the Ballistic Missile Defense System Integrated Master Test Plan			
Title: Consumables - Medium Range Ballistic Missiles (MRBM)	-	106.258	119.252
Articles:	-	-	-
Description: Consumables includes the development and manufacturing of target hardware. The Ballistic Missile Defense System (BMDS) Targets Program delivers fully assembled and integrated targets to the BMDS Test Program. Target development includes the non-recurring engineering (NRE) for all four target classes, Multi-Class Components (Associated Objects and Modified Ballistic Re-Entry Vehicles), and launch support equipment that support BMDS flight testing. Target development provides air, sea, and ground launch capabilities to maximize flexibility in Missile Defense Agency (MDA) test design. Development activities include requirements decomposition, design, modeling and simulation, qualification testing, and characterization. The BMDS Targets Program Office manages target configuration, component interface specifications, range			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
integration, reliability, mission assurance, and costs. Through the development program, BMDS Targets Program ensures target designs are producible, reliable, and affordable. Target manufacturing includes the build of targets and target components that are required to execute the Missile Defense Agency (MDA) Integrated Master Test Plan (IMTP). Manufacturing includes government furnished equipment and new component acquisition, assembly, and integration. Also included are target characterization, quality and mission assurance, transportation, and logistics support. Future revisions to the IMTP will likely affect target types and quantities noted in the Planned Accomplishments. ***FY 2014 Accomplishments:*** Reference Consumables R2A accomplishments for FY 2014 ***FY 2015 Plans:*** Medium Range Ballistic Missile (MRBM) FY 2015 variance is not an increase but a breakdown of the total FY 2015 Consumable amount into lower level detail that was not provided in earlier submits. -Extended Medium Range Ballistic Missile (eMRBM) - complete assembly, integration and test of Ship Set 1 to support flight test in FY 2015 -MRBM Type 3 (MRBM T3) - restart motor delivery and integration in late FY 2015 for Ship Sets 2-4 to support pre-ship readiness reviews in FY 2016 (Ship Set 3), FY 2017 (Ship Set 4) and FY 2018 (Ship Set 2) -MRBM Type 3 Configuration 2 (MRBM T3C2) - complete solicitation and competitively award contract for three units (MRBM T3 Ship Sets 5-7) -Modified Ballistic Re-entry Vehicle-5 (MBRV-5) - continue manufacturing of Ship Sets 2-4 to support flight tests in FY 2016 (Ship Set 3), FY 2017 (Ship Set 4) and FY 2018 (Ship Set 2) -MRBM T1/T2 - continue non-recurring engineering efforts; continue manufacturing of Ship Set 1 to support first target acceptance review in FY 2017 -Extended Long Range Air Launch Target (E-LRALT) - initiate manufacture of Ship Set 2 to support pre-ship readiness review in FY 2017 -Develop and manufacture additional MRBMs as required by semi-annual updates to the Ballistic Missile Defense System Integrated Master Test Plan ***FY 2016 Plans:*** Medium Range Ballistic Missile (MRBM) FY 2016 variance: Increase is due to a full year of Medium Range Ballistic Missile T3C2 effort			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-MRBM Type 3 (MRBM T3) - deliver Ship Sets 3 and 4 to support pre-ship readiness reviews in FY 2016 and flight tests in FY 2016 (Ship Set 3) and FY 2017 (Ship Set 4); continue manufacturing of Ship Set 2 to support a pre-ship readiness review in FY 2018 -MRBM Type 3 Configuration 2 (MRBM T3C2) - initiate non-recurring engineering design and development of MRBM T3C2; initate manufacture of Ship Set 5 for delivery in FY 2018 -Modified Ballistic Re-entry Vehicle-5 (MBRV-5) - implement Phase II effort for MRBM T3/MBRV-5 Program; deliver Ship Sets 3 and 4 to support flight tests in FY 2016 (Ship Sets 3) and FY 2017 (Ship Set 4); continue manufacturing Ship Set 2 to support a flight test in FY 2018 -MRBM T1/T2 - continue non-recurring engineering efforts; continue manufacturing of Ship Set 1 to support first target acceptance review in FY 2017; initiate long lead purchase and manufacture of Ship Sets 2-4 to support pre-ship readiness reviews in FY 2019 (Ship Set 2 and 3) and FY 2020 (Ship Set 4) -Extended Long Range Air Launch Target (E-LRALT) - complete qualification testing and prepare Ship Set 2 for delivery to support pre-ship readiness review in FY 2017 -Develop and manufacture additional MRBMs as required by semi-annual updates to the Ballistic Missile Defense System Integrated Master Test Plan			
Title: Consumables - Intermediate Range Ballistic Missiles (IRBM)	-	99.874	91.896
Articles:	-	-	-
Description: Consumables includes the development and manufacturing of target hardware. The Ballistic Missile Defense System (BMDS) Targets Program delivers fully assembled and integrated targets to the BMDS Test Program. Target development includes the non-recurring engineering (NRE) for all four target classes, Multi-Class Components (Associated Objects and Modified Ballistic Re-Entry Vehicles), and launch support equipment that support BMDS flight testing. Target development provides air, sea, and ground launch capabilities to maximize flexibility in Missile Defense Agency (MDA) test design. Development activities include requirements decomposition, design, modeling and simulation, qualification testing, and characterization. The BMDS Targets Program Office manages target configuration, component interface specifications, range integration, reliability, mission assurance, and costs. Through the development program, BMDS Targets Program ensures target designs are producible, reliable, and affordable. Target manufacturing includes the build of targets and target components that are required to execute the Missile Defense Agency (MDA) Integrated Master Test Plan (IMTP). Manufacturing includes government furnished equipment and new component acquisition, assembly, and integration. Also included are target characterization, quality and mission assurance, transportation, and logistics support. Future revisions to the IMTP will likely affect target types and quantities noted in the Planned Accomplishments.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
FY 2014 Accomplishments: Reference Consumables R2A accomplishments for FY 2014 ***FY 2015 Plans:*** Intermediate Range Ballistic Missile (IRBM) FY 2015 variance is not an increase but a breakdown of the total FY 2015 Consumable amount into lower level detail that was not provided in earlier submits. -IRBM T1/T2 - deliver Ship Sets 2 and 3 to support pre-ship readiness reviews in FY 2015; initiate production of Ship Sets 4-14 to support pre-ship readiness reviews in FY 2017 (Ship Sets 4 and 5), FY 2018 (Ship Sets 6-9), FY 2019 (Ship Sets 10-12), and FY 2020 (Ship Sets 13 and 14) -Develop and manufacture additional IRBMs as required by semi-annual updates to the Ballistic Missile Defense System Integrated Master Test Plan ***FY 2016 Plans:*** Intermediate Range Ballistic Missile (IRBM) FY 2016 variance: decrease is due to reduced non-recurring engineering associated with the IRBM T1/T2 target. -IRBM T1/T2 - continue manufacturing and integration of Ship Sets 4-14 to support pre-ship readiness reviews in FY 2017 (Ship Sets 4 and 5), FY 2018 (Ship Sets 6-9), FY 2019 (Ship Sets 10-12), and FY 2020 (Ship Sets 13 and 14); initiate production of Ship Sets 15-16 to support pre-ship readiness reviews in FY 2021 (Ship Set 15) and FY 2022 (Ship Set 16) -Develop and manufacture additional IRBMs as required by semi-annual updates to the Ballistic Missile Defense System Integrated Master Test Plan			
Title: Consumables - Intercontinental Ballistic Missiles (ICBM)	-	47.225	37.659
Articles:	-	-	-
Description: Consumables includes the development and manufacturing of target hardware. The Ballistic Missile Defense System (BMDS) Targets Program delivers fully assembled and integrated targets to the BMDS Test Program. Target development includes the non-recurring engineering (NRE) for all four target classes, Multi-Class Components (Associated Objects and Modified Ballistic Re-Entry Vehicles), and launch support equipment that support BMDS flight testing. Target development provides air, sea, and ground launch capabilities to maximize flexibility in Missile Defense Agency (MDA) test design. Development activities include requirements decomposition, design, modeling and simulation, qualification testing, and characterization. The BMDS Targets Program Office manages target configuration, component interface specifications, range integration, reliability, mission assurance, and costs. Through the development program, BMDS Targets Program ensures target designs are producible, reliable, and affordable.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Target manufacturing includes the build of targets and target components that are required to execute the Missile Defense Agency (MDA) Integrated Master Test Plan (IMTP). Manufacturing includes government furnished equipment and new component acquisition, assembly, and integration. Also included are target characterization, quality and mission assurance, transportation, and logistics support. Future revisions to the IMTP will likely affect target types and quantities noted in the Planned Accomplishments. ***FY 2014 Accomplishments:*** Reference Consumables R2A accomplishments for FY 2014 ***FY 2015 Plans:*** Intercontinental Ballistic Missile (ICBM) FY 2015 variance is not an increase but a breakdown of the total FY 2015 Consumable amount into lower level detail that was not provided in earlier submits. -ICBM T1/T2 - continue non-recurring engineering efforts; complete qualification testing and deliver Ship Set 1 to support pre-ship readiness review in FY 2016; continue manufacturing of Ship Set 2 to support pre-ship readiness review in FY 2017 -Continue integration of the ICBM Ground Test Missile used as a pathfinder for the Concept of Operations -Develop and manufacture additional ICBMs as required by semi-annual updates to the Ballistic Missile Defense System Integrated Master Test Plan ***FY 2016 Plans:*** Intercontinental Ballistic Missile (ICBM) FY 2016 variance: Decrease is due to completion of Non-Recurring Engineering (NRE) and qualification test efforts for the ICBM target. -ICBM T1/T2 - deliver Ship Set 1 for first flight test currently scheduled in the Integrated Master Test Plan for fourth quarter FY 2016; continue manufacturing of Ship Set 2 to support pre-ship readiness review in FY 2017 -Continue integration of the ICBM Ground Test Missile used as a pathfinder for the Concept of Operations -Develop and manufacture additional ICBMs as required by semi-annual updates to the Ballistic Missile Defense System Integrated Master Test Plan			
Title: Consumables - Multi-Class	-	49.986	59.179
Articles:	-	-	-
Description: Consumables includes the development and manufacturing of target hardware. The Ballistic Missile Defense System (BMDS) Targets Program delivers fully assembled and integrated targets to the BMDS Test Program.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Target development includes the non-recurring engineering (NRE) for all four target classes, Multi-Class Components (Associated Objects and Modified Ballistic Re-Entry Vehicles), and launch support equipment that support BMDS flight testing. Target development provides air, sea, and ground launch capabilities to maximize flexibility in Missile Defense Agency (MDA) test design. Development activities include requirements decomposition, design, modeling and simulation, qualification testing, and characterization. The BMDS Targets Program Office manages target configuration, component interface specifications, range integration, reliability, mission assurance, and costs. Through the development program, BMDS Targets Program ensures target designs are producible, reliable, and affordable. Target manufacturing includes the build of targets and target components that are required to execute the Missile Defense Agency (MDA) Integrated Master Test Plan (IMTP). Manufacturing includes government furnished equipment and new component acquisition, assembly, and integration. Also included are target characterization, quality and mission assurance, transportation, and logistics support. Future revisions to the IMTP will likely affect target types and quantities noted in the Planned Accomplishments. ***FY 2014 Accomplishments:*** Reference Consumables R2A accomplishments for FY 2014 ***FY 2015 Plans:*** Multi Class FY 2015 variance is not an increase but a breakdown of the total FY 2015 Consumable amount into lower level detail that was not provided in earlier submits. -Modified Ballistic Re-Entry Vehicle-7 (MBRV-7) - deliver Ship Sets 3 and 4 to support flight tests in FY 2015; continue manufacturing of Ship Sets 5-7 to support flight tests in FY 2018 and FY 2019 -MBRV-8 - initiate Ship Sets 3 and 4 to support flight tests in FY 2017 (Ship Set 3) and FY 2018 (Ship Set 4) -Continue Associated Object (AO) package deliveries in accordance with Ballistic Missile Defense System Integrated Master Test Plan requirements -Continue Counter Measures/Associated Objects Non-Recurring Engineering to support flight tests as required by the Ballistic Missile Defense System Integrated Master Test Plan -Develop and manufacture additional Modified Ballistic Re-entry Vehicles, Associated Objects, and Motors as required by semi-annual updates to the Ballistic Missile Defense System Integrated Master Test Plan ***FY 2016 Plans:*** Multi Class FY 2016 variance: Increase is due to initiation of four MBRV-8 Ship Sets to support flight tests in FY 2018 and FY 2019 and the start of Non-Recurring Engineering to support family 4A of the Associated Objects (AO).			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Modified Ballistic Re-Entry Vehicle-7 (MBRV-7) - continue manufacturing of Ship Sets 5-7 to support flight tests in FY 2018 and FY 2019; initiate production of Ship Sets 8 and 9 to support flight tests in FY 2019 and FY 2020 -MBRV-8 - continue manufacturing of Ship Sets 3 and 4 to support flight tests in FY 2017 (Ship Set 3) and FY 2018 (Ship Set 4); initiate production of Ship Sets 5-8 to support flight tests in FY 2018 and FY 2019 -Continue Associated Object (AO) package deliveries in accordance with Integrated Master Test Plan requirements -Continue Counter Measures/Associated Objects Non-Recurring Engineering to support flight tests as required by the Ballistic Missile Defense System Integrated Master Test Plan -Develop and manufacture additional Modified Ballistic Re-entry Vehicles, Associated Objects, and Motors as required by semi-annual updates to the Ballistic Missile Defense System Integrated Master Test Plan			
Title: Program Planning & Operations ***Articles:*** ***Description:*** Program Planning and Operations provides for government management of the Targets program. Included in this effort is program and business management, program administration, technical and testing oversight, verification of hardware and software development, Other Government Agency and Federally Funded Research and Development Research Centers are used for highly specialized skill sets not available internal to Targets for specific time periods, and government manpower and infrastructure to develop, test and sustain the Ballistic Missile Defense System Targets Program Office system and components. ***FY 2014 Accomplishments:*** -Provided technical and business management support activities, financial management, cost and schedule performance analysis cost estimation and analysis, and integration activities -Provided program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight -Ensured Targets and Countermeasures program compliance with internal and external direction, policies, and regulations -Conducted Internal Program Plans that align with the Missile Defense Agency (MDA) approved Integrated Master Test Plan (IMTP) ***FY 2015 Plans:*** Variance analysis: Slight increase over FY 2014 due to additional oversight needed due to the Government assuming responsibility for data products and associated analysis from Prime Contractors. -Provide technical and business management support activities, financial management, cost and schedule performance analysis cost estimation and analysis, and integration activities -Provide program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight	55.011 -	55.761 -	60.900 -

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Ensure Targets and Countermeasures program compliance with internal and external direction, policies, and regulations -Conduct Internal Program Plans that align with the Missile Defense Agency (MDA) approved Integrated Master Test Plan (IMTP) ***FY 2016 Plans:*** Variance analysis: Increase over FY 2015 is due to the transfer of Target Launch Operations civilian personnel plus their associated travel and contractor support into this PE from PE 0603914C. -Provide technical and business management support activities, financial management, cost and schedule performance analysis cost estimation and analysis, and integration activities -Provide program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight -Ensure Targets and Countermeasures program compliance with internal and external direction, policies, and regulations -Conduct Internal Program Plans that align with the Missile Defense Agency (MDA) approved Integrated Master Test Plan (IMTP) -Provide program and technical management of target launch operations activities to include oversight of mission planning, range coordination, and mission requirements.			
Title: Resources	60.884	56.195	59.022
Articles:	-	-	-
Description: Ballistic Missile Defense System Target Resources consist of two sub-elements. These are Systems Engineering/ Program Management and Logistics. System engineering/program management provides target program technical direction to meet program requirements while balancing cost, schedule, performance, and risk. It conducts functional requirements allocation to product lines, defines product line specifications/interfaces, performs configuration and data management, and follows guidelines for design reviews. It performs target system analysis to verify system performance, defines target program baselines, controls flight test configurations, and conducts pre and post-flight analysis. It identifies treaty and environmental issues and develops plans for issue resolution. It provides Quality, Safety, and Mission Assurance operations to ensure compliance with Missile Defense Agency requirements for design, test, manufacturing, quality, safety and reliability to ensure high quality products are delivered for test events. It also includes Single Stimulation Framework (SSF)/Objective Stimulation Framework (OSF) compatible Modeling and Simulation execution and improvements to evolve TC Modeling and Simulation capability; trajectory analyses; signature analyses and characterization; studies to assess alternative target and platform solutions; assessments of risk management; and design approval of government furnished equipment.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Ballistic Missile Defense System Targets Program logistics support provides the Missile Defense Agency (MDA) with target storage, aging surveillance, and transportation of TC hardware in support of BMDS testing. Also included are integrated logistics support for facilities, inventory maintenance, spare parts, aging surveillance, disposal, special testing for rocket motor propellants, and other hazardous material handling. This task manages and oversees accountability of all government furnished equipment and contractor acquired property. Logistics also provides common support equipment for launch vehicles, Modified Ballistic Re-Entry Vehicles, associated objects, and all up integrated target rounds. It also supports launch site activations through the transportation of support equipment to various test sites. ***FY 2014 Accomplishments:*** System Engineering and Program Management: -Continued Program Management and Business Operations for target components to provide a framework for overall management of the Targets program -Continued providing classified network connections to Other Government Agencies (OGAs) so their subject matter experts can be used to support Target requirements -Continued analyses of future target Launch Vehicles, Re-Entry Vehicles, and launch platforms to ensure they are threat representative and that the Agency is making use of available technology in our future designs -Continued performing Pedigree Reviews to ensure high probability of mission success -Continued information technology and classified network support to ensure sensitive target information is not compromised -Continued Software Independent Verification and Validation (IV&V) to provide risk reduction of flight missions for target systems under development, including the Medium Range Ballistic Missile Type 3 (MRBM T3), Intermediate Range Ballistic Missile (IRBM), Extended Long Range Air-Launched Target (E-LRALT), and Modified Ballistic Re-Entry Vehicle-5 (MBRV-5) -Conducted MBRV7/8 All Up Round test Logistics: -Continued Multi-Class Inventory storage, aging surveillance, maintenance of existing assets, and transportation support to ensure availability of Modified Ballistic Re-entry Vehicles and ground support equipment -Conduct disposal actions of inert assets ***FY 2015 Plans:*** Variance Analysis: Decreases from FY 2014 due to normal Target Resource requirements with no specific additional cost drivers in FY 2015			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
System Engineering and Program Management: -Continue Program Management and Business Operations for target components to provide a framework for overall management of the Targets program -Continue providing classified network connections to Other Government Agencies (OGAs) so their subject matter experts can be used to support Target requirements -Continue analyses of future target Launch Vehicles, Re-Entry Vehicles, and launch platforms to ensure they are threat representative and that the Agency is making use of available technology in our future designs -Continue performing Pedigree Reviews to ensure high probability of mission success -Continue information technology and classified network support to ensure sensitive target information is not compromised -Continue Software Independent Verification and Validation (IV&V) to provide risk reduction of flight missions for target systems under development, including the Medium Range Ballistic Missile Type 3 (MRBM T3), Intermediate Range Ballistic Missile (IRBM), and Modified Ballistic Re-Entry Vehicle-5 (MBRV-5) Logistics: -Continue Multi-Class Inventory storage, aging surveillance, maintenance of existing assets, and transportation support to ensure availability of Modified Ballistic Re-entry Vehicles and ground support equipment -Conduct disposal actions of inert assets			
FY 2016 Plans: Variance Analysis: Slight increase in FY 2016 due to Target Resource requirements for mix of flight tests planned System Engineering and Program Management: -Continue Program Management and Business Operations for target components to provide a framework for overall management of the Targets program -Continue providing classified network connections to Other Government Agencies (OGAs) so their subject matter experts can be used to support Target requirements -Continue analyses of future target Launch Vehicles, Re-Entry Vehicles, and launch platforms to ensure they are threat representative and that the Agency is making use of available technology in our future designs -Continue performing Pedigree Reviews to ensure high probability of mission success -Continue information technology and classified network support to ensure sensitive target information is not compromised			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continue Software Independent Verification and Validation (IV&V) to provide risk reduction of flight missions for target systems under development, including the Intermediate Range Ballistic Missile (IRBM) and Modified Ballistic Re-Entry Vehicle-5 (MBRV-5) Logistics: -Continue Multi-Class Inventory storage, aging surveillance, maintenance of existing assets, and transportation support to ensure availability of Modified Ballistic Re-entry Vehicles and ground support equipment -Conduct disposal actions of inert assets			
Title: Flight Test Execution	-	-	51.501
Articles:	-	-	-
Description: Flight Test Execution is performed by the Target Launch Operations group. This group conducts target mission planning, coordinates target range and mission requirements, and provides target technical information to the Missile Defense Agency`s General Counsel to support treaty approvals. The Target Launch Operations Group is the primary link between the target developer and the Ballistic Missile Defense System test community, incorporating target system constraints into the BMDS mission countdown and launch constraints. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** Variance analysis: increase from FY 2015 to FY 2016 due to transfer of Target Launch Operations into this PE from to PE 0603914C. -Conduct a Ground-Based Midcourse Defense (GMD) 3-stage Capability Enhancement II (CE-II) interceptor characterization test with an air-launched Intermediate Range Ballistic Missile (IRBM) target -Conduct a Ground-Based Midcourse Defense (GMD) 3-stage CE-II Configuration 2 (C2)/Consolidated Booster Avionics Upgrade (CBAU) CE-II Blk I Exoatmospheric Kill Vehicle (EKV) Ground-Based Interceptor engagement of a InterContinental Ballistic Missile (ICBM) target -Conduct an Aegis BMD Baseline 9.C2 (5.1) SM-3 Blk IIA missile simulated engagement of a Medium Range Ballistic Missile (MRBM) target -Conduct an Aegis BMD Baseline 9.C2 (5.1) SM-3 Blk IIA missile engagement of a Medium Range Ballistic Missile (MRBM) target			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Conduct target test engineering, mission logistics, and launch operations with consistent test expertise to support operational and developmental flight testing across the Ballistic Missile Defense System Targets Program in accordance with the Integrated Master Test Plan (IMTP) in various test Major Range and Test Facilities (MRTF). -Conduct mission planning and range coordination activities, perform final target system integration and execute target missions, provided communications security equipment and management for Ballistic Missile Defense System Flight Test events			
Accomplishments/Planned Programs Subtotals	484.743	430.229	490.682

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Missile Defense Agency (MDA) Ballistic Missile Defense System (BMDS) Targets Program provides for the development and purchase of ballistic missile targets and countermeasures for the Ballistic Missile Defense System in support of the Missile Defense Agency's flight test program. The BMDS Targets Program requirements are derived from the Agency's Integrated Master Test Plan (IMTP).

The BMDS Targets and Countermeasures Program Acquisition Strategy is based on three premises. The first is to utilize existing capabilities. The second is to initiate new development if there is no existing capability using firm-fixed price contracts with incentive fee based on cost, schedule and performance. The third premise is to use cost reimbursable contracts with incentive fee based on cost, schedule, and performance for new development that has high-risk.

MDA BMDS Targets Program competitively awarded a prime contract to Lockheed Martin Space Systems Company (LMSSC) for development of the Flexible Target Family (FTF). Short Range Ballistic Missile targets, Medium Range Ballistic Missile targets, and Intermediate Range Ballistic Missile targets, as well as Modified Ballistic Re-Entry Vehicles are procured using this contract. Hardware purchases will remain on existing contract and launch services and engineering services have been broken out into a follow-on contract. The follow-on launch and engineering services contract was awarded via a sole-source fixed price contract.

MDA BMDS Targets Program competitively awarded a prime contract to Orbital Sciences Corporation air-launched Intermediate Range Ballistic Missile (IRBM) targets. This award includes two follow-on options; one for eight IRBM targets (exercised) and one for one to six IRBM targets.

The United States Air Force competitively awarded a contract to L-3 Communications/Coleman Aerospace to provide one air-launched medium range ballistic missile and one air-launched short range ballistic missile. Execution of the contract elements for this effort was transferred to the Missile Defense Agency.

MDA BMDS Targets Program competitively awarded a prime contract to L-3 Communications/Coleman Aerospace (Coleman) to provide 6 medium range ballistic missile targets. This award includes one follow-on option, for up to six additional medium range ballistic missile targets.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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The Solid Rocket Motor Technical Services Contract was competitively awarded to Alliant Tech Systems in May 2005 and provides aging and surveillance, refurbishment, transportation, testing, and sensitivity studies for MDA BMDS Targets Program solid rocket motors to include A3, C4, Orbus 1/1A, GEM, and Castor IV variants. A follow-on sole source contract was awarded 30 September 2011.

The Aegis Readiness Assessment Vehicle (ARAV) target effort is managed by MDA BMDS Targets Program and the Naval Surface Warfare Center Port Hueneme Division White Sands (NSWC PHD WS). NSWC PHD WS has unique sounding rocket expertise and access to existing contracts managed by White Sands Missile Range that makes this a beneficial relationship for both parties. MDA BMDS Targets Program provides targets funding via Military Interdepartmental Purchase Orders that NSWC PHD WS expends on its hardware development and engineering contracts. In addition, MDA BMDS Targets Program provides funding to Sandia National Labs in support of the Attitude Control Module (ACM) development effort for the ARAV Group C target. NSWC PHD WS manages the integration of the ACM onto the launch vehicle. The MDA BMDS Test Program (Program Element 0603914C) is responsible for funding all launch services of these targets in support of the (Integrated Master Test Plan) IMTP for FY 2014 and FY 2015. Beginning in FY 2016 all targets launch service funds to support the IMTP will be transferred into this Program Element (0603915C).

MDA BMDS Targets Program is currently in various stages of planning or execution for procurement of ballistic missile targets by range class: Short Range (SRBM), Medium Range (MRBM), Intermediate Range (IRBM), and Intercontinental Range (ICBM). These targets will be procured using a Target Performance Specification to support flight test requirements as identified in the Integrated Master Test Plan. Each target class will be solicited, evaluated, and competitively awarded independently in IMTP "need date" priority order.
Within each target class, capabilities are further segregated and designated as a class type. Type 1, Type 2, and Type 3 capabilities are defined as follows:

Type 1: A Type 1 target is the baseline (simple) configuration for the class. A Type 1 target satisfies the minimum target requirements to provide the baseline capability for each target class. The baseline configuration represents the complete vehicle stack-up and includes: 1-n boosters, attitude control system, test object, flight termination system, housekeeping and environmental instrumentation, and telemetry. For example, the basic configuration of an LV-2 target is representative of a Type 1 configuration in the intermediate range class.

Type 2: A Type 2 target requires more advanced or complex performance capabilities. Type 2 capabilities may be included in the baseline Type 1 configuration or provided as configuration kits that can be added to the baseline configuration. Type 2 kits may include the following: countermeasures and associated deployment capability, enhanced targeting and aim point accuracies, selectable booster and test object dynamics, tailored separation debris, temperature sensors, hit location and miss distance instrumentation, onboard sensors, deployable fly along sensors, and/or lethality payloads. For example, the LV-2 target with countermeasures or additional payloads is representative of a Type 2 configuration in the intermediate range class.

Type 3: A Type 3 target is a unique configuration procured in low unit quantities. Type 3 targets encompass unique threat characteristics or test conditions (i.e. Ground Based Midcourse Defense high velocity engagement scenario) not achievable with a Type 1 or Type 2 configuration.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Consumables - Consumables/ICBM - 1	C/CPAF	Orbital Sciences Corporation : Chandler, AZ	30.157	58.148		-		-		-		-	58.148	146.453	58.148
Consumables - Consumables/IRBM - 1	C/CPAF	Lockheed Martin Space Systems Company : Courtland, AL	25.881	1.536		-		-		-		-	25.881	53.298	25.881
Consumables - Consumables/IRBM - 2	C/CPAF	Orbital Sciences Corporation : Chandler, AZ	159.858	61.089		-		-		-		-	61.089	282.036	61.089
Consumables - Consumables/IRBM - 3	C/CPIF	Lockheed Martin Space Systems Company : Courtland, AL	2.262	-		-		-		-		-	2.262	4.524	2.262
Consumables - Consumables/IRBM - 4	C/FFP	Orbital Sciences Corporation : Chandler, AZ	0.916	-		-		-		-		-	0.916	1.832	0.916
Consumables - Consumables/IRBM - 5	C/FFP	Teledyne Solutions, Inc. : Huntsville, AL	0.896	-		-		-		-		-	0.896	1.792	0.896
Consumables - Consumables/MRBM - 1	C/CPAF	Lockheed Martin Space Systems Company : Courtland, AL	204.048	125.208		-		-		-		-	125.208	454.464	125.208
Consumables - Consumables/MRBM - 2	C/CPAF	Orbital Sciences Corporation : Chandler, AZ	62.142	-		-		-		-		-	62.142	124.284	62.142
Consumables - Consumables/MRBM - 3	C/CPAF	L3 Communications/ Coleman Aerospace : Orlando, FL	41.307	35.821		-		-		-		-	35.821	112.949	35.821
Consumables - Consumables/MRBM - 4	C/CPIF	Orbital Sciences Corporation : Chandler, AZ	1.968	-		-		-		-		-	1.968	3.936	1.968

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Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Consumables - Consumables/MRBM - 5	C/FFP	Teledyne Solutions, Inc. : Huntsville, AL	0.560	-		-		-		-		-	0.560	1.120	0.560
Consumables - Consumables/MRBM - 6	C/CPAF	MRBM T1/T2 RFP : TBD	0.500	-		-		-		-		-	0.500	1.000	0.500
Consumables - Consumables/Multi-Class Components - 1	C/CPAF	Lockheed Martin Space Systems Company : Courtland, AL	90.136	40.807		-		-		-		-	40.807	171.750	40.807
Consumables - Consumables/Multi-Class Components - 2	C/CPAF	Lockheed Martin Space Systems Company : United Kingdom	5.315	8.585		-		-		-		-	8.585	22.485	8.585
Consumables - Consumables/Multi-Class Components - 3	C/CPIF	Lockheed Martin Space Systems Company : Courtland, AL	2.786	-		-		-		-		-	2.786	5.572	2.786
Consumables - Consumables/Multi-Class Components - 4	FFRDC	Massachusetts Institute of Technology, Lincoln Lab : Lexington, MA	2.867	5.297		-		-		-		-	5.297	13.461	5.297
Consumables - Consumables/Multi-Class Components - 5	FFRDC	Sandia National Laboratories : Albuquerque, NM	4.983	1.791		-		-		-		-	1.791	8.565	1.791
Consumables - Consumables/SRBM - 1	C/CPAF	Lockheed Martin Space Systems Company : Courtland, AL	14.321	6.644		-		-		-		-	6.644	27.609	6.644
Consumables - Consumables/SRBM - 2	C/CPAF	Orbital Sciences Corporation : Chandler, AZ	4.192	-		-		-		-		-	4.192	8.384	4.192
Consumables - Consumables/SRBM - 3	C/CPIF	L3 Communications/ Coleman Aerospace : Orlando, FL	4.926	12.416		-		-		-		-	12.416	29.758	12.416

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Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Consumables - Consumables/SRBM - 4	C/CPIF	Lockheed Martin Space Systems Company : Courtland, AL	3.282	-		-		-		-		-	3.282	6.564	3.282
Consumables - Consumables/SRBM - 5	C/CPIF	Orbital Sciences Corporation : Chandler, AZ	5.803	-		-		-		-		-	5.803	11.606	5.803
Consumables - Consumables/SRBM - 6	C/FFP	Orbital Sciences Corporation : Chandler, AZ	1.310	-		-		-		-		-	1.310	2.620	1.310
Consumables - Consumables/SRBM - 7	MIPR	Naval Surface Warfare Center, Port Hueneme : Port Hueneme, CA	11.383	11.506		-		-		-		-	11.506	34.395	11.506
Consumables - Consumables/SRBM - 8	MIPR	Missile Defense Agency : Huntsville, AL	3.990	-		-		-		-		-	3.990	7.980	3.990
Consumables - Consumables/SRBM - 9	FFRDC	Sandia National Laboratories : Albuquerque, NM	0.189	-		-		-		-		-	0.189	0.378	0.189
Consumables - Short Range Ballistic Missiles (SRBM) - 1	C/CPAF	L3 Communications/ Coleman Aerospace : Orlando, FL	0.000	-		10.299	Nov 2014	2.616	Nov 2015	-		2.616	Continuing	Continuing	Continuing
Consumables - Short Range Ballistic Missiles (SRBM) - 2	MIPR	Naval Surface Warfare Center, Port Hueneme : Port Hueneme, CA	0.000	-		4.131	Nov 2014	8.657	Nov 2015	-		8.657	Continuing	Continuing	Continuing
Consumables - Short Range Ballistic Missiles (SRBM) - 3	MIPR	Aviation and Missile Research, Development, and Engineering Center : Huntsville, AL	0.000	-		0.117	Nov 2014	-		-		-	Continuing	Continuing	Continuing

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Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Consumables - Short Range Ballistic Missiles (SRBM) - 4	MIPR	Redstone Test Center : Huntsville, AL	0.000	-		0.129	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Consumables - Short Range Ballistic Missiles (SRBM) - 5	MIPR	Missile and Space Information Center : Huntsville, AL	0.000	-		0.254	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Consumables - Medium Range Ballistic Missiles (MRBM) - 1	C/CPAF	Lockheed Martin Space Systems Company : Courtland, AL	0.000	-		57.911	Nov 2014	35.580	Nov 2015	-		35.580	Continuing	Continuing	Continuing
Consumables - Medium Range Ballistic Missiles (MRBM) - 2	C/CPAF	L3 Communications/ Coleman Aerospace : Orlando, FL	0.000	-		42.276	Nov 2014	59.629	Nov 2015	-		59.629	Continuing	Continuing	Continuing
Consumables - Medium Range Ballistic Missiles (MRBM) - 3	MIPR	Naval Surface Warfare Center, Dahlgren Division : Dahlgren, VA	0.000	-		0.362	Nov 2014	0.119	Nov 2015	-		0.119	Continuing	Continuing	Continuing
Consumables - Medium Range Ballistic Missiles (MRBM) - 4	FFRDC	Johns Hopkins University/Applied Physics Lab : Baltimore, MD	0.000	-		0.452	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Consumables - Medium Range Ballistic Missiles (MRBM) - 5	MIPR	White Sands Missile Range : White Sands, NM	0.000	-		0.016	Nov 2014	0.380	Nov 2015	-		0.380	Continuing	Continuing	Continuing
Consumables - Medium Range Ballistic Missiles (MRBM) - 6	MIPR	Pacific Missile Range Facility : Barking Sands, HI	0.000	-		0.009	Nov 2014	0.208	Nov 2015	-		0.208	Continuing	Continuing	Continuing
Consumables - Medium Range Ballistic Missiles (MRBM) - 7	MIPR	Space and Missile Defense Command : Huntsville, AL	0.000	-		0.740	Nov 2014	1.078	Nov 2015	-		1.078	Continuing	Continuing	Continuing
Consumables - Medium Range Ballistic Missiles (MRBM) - 8	C/CPAF	MRBM RFP : TBD	0.000	-		4.492	Sep 2015	22.258	Nov 2015	-		22.258	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Consumables - Intermediate Range Ballistic Missiles (IRBM) - 1	C/CPAF	Orbital Sciences Corporation : Chandler, AZ	0.000	-		99.791	Nov 2014	91.896	Nov 2015	-		91.896	Continuing	Continuing	Continuing
Consumables - Intermediate Range Ballistic Missiles (IRBM) - 2	MIPR	White Sands Missile Range : White Sands, NM	0.000	-		0.030	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Consumables - Intermediate Range Ballistic Missiles (IRBM) - 3	MIPR	US Army Yuma Proving Ground : Yuma, AZ	0.000	-		0.053	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Consumables - Intercontinental Ballistic Missiles (ICBM) - 1	C/CPAF	Orbital Sciences Corporation : Chandler, AZ	0.000	-		43.232	Nov 2014	27.730	Nov 2015	-		27.730	Continuing	Continuing	Continuing
Consumables - Intercontinental Ballistic Missiles (ICBM) - 2	C/CPFF	Alliant Techsystems : Magna, UT	0.000	-		3.688	Nov 2014	3.771	Nov 2015	-		3.771	Continuing	Continuing	Continuing
Consumables - Intercontinental Ballistic Missiles (ICBM) - 3	MIPR	Defense Financial and Accounting Service : Indianapolis, IN	0.000	-		-		2.656	Nov 2015	-		2.656	Continuing	Continuing	Continuing
Consumables - Intercontinental Ballistic Missiles (ICBM) - 4	MIPR	Naval Air Weapons Station : China Lake, CA	0.000	-		0.077	Nov 2014	0.448	Nov 2015	-		0.448	Continuing	Continuing	Continuing
Consumables - Intercontinental Ballistic Missiles (ICBM) - 5	MIPR	Naval Surface Warfare Center, Dahlgren Division : Dahlgren, VA	0.000	-		-		0.071	Nov 2015	-		0.071	Continuing	Continuing	Continuing
Consumables - Intercontinental Ballistic Missiles (ICBM) - 6	MIPR	Pacific Missile Range Facility : Barking Sands, HI	0.000	-		-		0.107	Nov 2015	-		0.107	Continuing	Continuing	Continuing

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Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Consumables - Intercontinental Ballistic Missiles (ICBM) - 7	MIPR	Redstone Garrison : Huntsville, AL	0.000	-		-		0.040	Nov 2015	-		0.040	Continuing	Continuing	Continuing
Consumables - Intercontinental Ballistic Missiles (ICBM) - 8	MIPR	Reagan Test Site : Kwajalein Atoll	0.000	-		-		2.836	Nov 2015	-		2.836	Continuing	Continuing	Continuing
Consumables - Intercontinental Ballistic Missiles (ICBM) - 9	MIPR	US Army Yuma Proving Ground : Yuma, AZ	0.000	-		0.228	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Consumables - Multi-Class - 1	C/CPAF	Lockheed Martin Space Systems Company : Courtland, AL	0.000	-		34.636	Nov 2014	38.362	Nov 2015	-		38.362	Continuing	Continuing	Continuing
Consumables - Multi-Class - 2	C/CPAF	Lockheed Martin Space Systems Company : United Kingdom	0.000	-		4.289	Nov 2014	3.281	Nov 2015	-		3.281	Continuing	Continuing	Continuing
Consumables - Multi-Class - 3	FFRDC	Massachusetts Institute of Technology, Lincoln Labs : Lexington, MA	0.000	-		3.800	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Consumables - Multi-Class - 4	FFRDC	Sandia National Laboratories : Albuquerque, NM	0.000	-		1.352	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Consumables - Multi-Class - 5	MIPR	Redstone Test Center : Huntsville, AL	0.000	-		0.050	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Consumables - Multi-Class - 6	C/CPAF	Associated Objects RFP : TBD	0.000	-		5.859	Mar 2015	17.536	Dec 2015	-		17.536	Continuing	Continuing	Continuing
Program Planning & Operations - Program Planning and Operations - 1	C/CPAF	Targets MiDAESS Support : Huntsville, AL	67.318	26.874		27.537	Nov 2014	28.004	Nov 2015	-		28.004	Continuing	Continuing	Continuing

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Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Planning & Operations - Program Planning and Operations - 10	MIPR	Missile Defense Agency : Huntsville, AL	39.614	23.361		23.410	Oct 2014	28.293	Oct 2015	-		28.293	Continuing	Continuing	Continuing
Program Planning & Operations - Program Planning and Operations - 11	MIPR	Defense Finance and Accounting Services : Indianapolis, IN	0.000	0.289		-		-		-		-	Continuing	Continuing	Continuing
Program Planning & Operations - Program Planning and Operations - 12	C/FFP	Network Management Resources : Chantilly, VA	0.085	0.188		1.003	Nov 2014	0.707	Nov 2015	-		0.707	Continuing	Continuing	Continuing
Program Planning & Operations - Program Planning and Operations - 13	MIPR	Naval Surface Warfare Center : Crane, IN	0.000	0.284		-		-		-		-	Continuing	Continuing	Continuing
Program Planning & Operations - Program Planning and Operations - 2	C/FFP	CACI : Huntsville, AL	0.432	0.128		-		-		-		-	Continuing	Continuing	Continuing
Program Planning & Operations - Program Planning and Operations - 3	C/FFP	Colsa Corporations : Huntsville, AL	1.335	-		-		-		-		-	1.335	2.670	1.335
Program Planning & Operations - Program Planning and Operations - 4	C/FFP	Tecolote Research, Inc. : Huntsville, AL	0.171	0.064		-		-		-		-	Continuing	Continuing	Continuing
Program Planning & Operations - Program Planning and Operations - 6	FFRDC	Johns Hopkins University, Applied Physics Lab : Baltimore, MD	0.660	0.550		0.568	Nov 2014	0.581	Nov 2015	-		0.581	Continuing	Continuing	Continuing
Program Planning & Operations - Program	MIPR	US Army Aviation & Missile Command : Huntsville, AL	2.205	1.060		1.080	Nov 2014	0.930	Nov 2015	-		0.930	Continuing	Continuing	Continuing

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Planning and Operations - 7															
Program Planning & Operations - Program Planning and Operations - 8	MIPR	Aviation & Missile Research, Dev & Eng Center : Huntsville, AL	1.921	1.172		1.393	Nov 2014	1.803	Nov 2015	-		1.803	Continuing	Continuing	Continuing
Program Planning & Operations - Program Planning and Operations - 9	MIPR	US Air Force Space & Missile Systems Center (SMC) : Albuquerque, NM	1.200	1.041		0.770	Nov 2014	0.582	Nov 2015	-		0.582	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 1	C/CPAF	Lockheed Martin Space Systems Company : Courtland, AL	11.281	8.314		7.836	Nov 2014	8.650	Nov 2015	-		8.650	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 11	MIPR	Naval Surface Warfare Center : Crane, IN	1.947	1.601		0.258	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 12	MIPR	Redstone Arsenal Garrison : Huntsville, AL	2.774	0.368		0.039	Nov 2014	0.040	Nov 2015	-		0.040	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 13	MIPR	Redstone Technical Test Center : Huntsville, Al	0.502	-		-		-		-		-	0.502	1.004	0.502
Resources - Resources/ Logistics - 14	MIPR	US Army Joint Munitions Command : Hawthorne Army Depot, NV	0.055	0.009		-		-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 15	MIPR	US Naval Weapons Station : Earl, NJ	0.035	-		-		-		-		-	0.035	0.070	0.035
Resources - Resources/ Logistics - 16	MIPR	US Property & Fiscal Office for Arizona : Phoenix, AZ	2.535	2.129		1.901	Nov 2014	0.429	Nov 2015	-		0.429	Continuing	Continuing	Continuing

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Resources - Resources/ Logistics - 17	MIPR	US Army White Sands Missile Range : White Sands, NM	0.132	0.406		-		-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 18	MIPR	Defense Finance & Accounting Service : Indianapolis, IN	0.660	1.066		0.684	Nov 2014	0.317	Nov 2015	-		0.317	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 19	C/FFP	Northrop Grumman Space Systems : Albuquerque, NM	0.620	-		-		-		-		-	0.620	1.240	0.620
Resources - Resources/ Logistics - 2	C/CPFF	Alliant Techsystems, Inc. (ATK) : Magna, UT	0.790	-		-		-		-		-	0.790	1.580	0.790
Resources - Resources/ Logistics - 20	C/FFP	Wyle Laboratories : Huntsville, AL	0.123	0.421		0.362	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 21	MIPR	US Air Force Space & Missile Systems Center (SMC) : Albuquerque, NM	2.330	0.567		5.026	Nov 2014	9.615	Nov 2015	-		9.615	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 22	MIPR	Redstone Test Center : Huntsville, AL	0.642	0.126		-		-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 23	C/FFP	Venturi Aerospace : Huntsville, AL	0.076	0.113		1.926	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 24	C/FFP	TASC, Inc. : Albuquerque, NM	3.248	2.352		0.775	Nov 2014	0.792	Nov 2015	-		0.792	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 25	MIPR	Tooele Army Depot : Tooele, UT	0.610	0.512		-		-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 26	MIPR	US Army Yuma Proving Ground : Yuma, AZ	0.000	0.415		-		-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 27	MIPR	Naval Surface Warfare Center : Dahlgren, VA	0.000	0.020		-		-		-		-	Continuing	Continuing	Continuing

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Resources - Resources/ Logistics - 28	MIPR	Reagan Test Site : Kwajalein Atoll, Marshall Islands	0.000	0.133		-		-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 29	MIPR	Pacific Missile Range Facility : Kekaha, HI	0.000	0.306		-		-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 3	C/FFP	Aerojet Corporation : Albuquerque, NM	0.342	-		0.248	Nov 2014	0.253	Nov 2015	-		0.253	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 30	MIPR	Vandenberg Air Force Base : Vandenberg, CA	0.000	0.048		-		-		-		-	0.048	0.096	0.048
Resources - Resources/ Logistics - 31	MIPR	US Army Garrison - Natick : Natick, MA	0.000	0.048		-		-		-		-	0.048	0.096	0.048
Resources - Resources/ Logistics - 32	MIPR	Eglin Air Force Base : Eglin AFB, FL	0.000	0.036		-		-		-		-	0.036	0.072	0.036
Resources - Resources/ Logistics - 33	MIPR	Air Force Research Laboratory : Wright Patterson AFB, OH	0.000	0.185		-		-		-		-	0.185	0.370	0.185
Resources - Resources/ Logistics - 34	C/CPFF	Inuteq, Corp. : Beltsville, MD	0.000	-		0.791	Nov 2014	0.730	Nov 2015	-		0.730	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 4	C/FFP	Alliant Techsystems, Inc. (ATK) : Magna, UT	2.530	2.641		0.203	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 5	MIPR	Aviation & Missile Research, Dev & Eng Center : Huntsville, AL	2.444	3.590		1.417	Nov 2014	1.448	Nov 2015	-		1.448	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 6	MIPR	Hill Air Force Base : Ogden, UT	2.333	1.494		0.121	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 7	MIPR	Missile Defense Agency : Huntsville, AL	5.985	-		0.918	Oct 2014	0.938	Oct 2015	-		0.938	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Resources - Resources/ Logistics - 8	MIPR	Naval Air Warfare Center, China Lake : China Lake, CA	1.475	0.589		-		-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Logistics - 9	MIPR	New Mexico State University Physical Sciences Lab : Las Cruces, NM	0.162	-		-		-		-		-	0.162	0.324	0.162
Resources - Resources/ Systems Engineering - 1	C/CPAF	Lockheed Martin Space Systems Company : Courtland, AL	37.752	17.560		15.691	Nov 2014	17.042	Nov 2015	-		17.042	Continuing	Continuing	Continuing
Resources - Resources/ Systems Engineering - 10	FFRDC	Sandia National Laboratories : Albuquerque, NM	1.629	1.711		0.509	Dec 2014	0.520	Dec 2015	-		0.520	Continuing	Continuing	Continuing
Resources - Resources/ Systems Engineering - 12	MIPR	Defense Finance & Accounting Service : Indianapolis, IN	0.382	-		-		-		-		-	0.382	0.764	0.382
Resources - Resources/ Systems Engineering - 13	C/CPAF	Orbital Sciences Corporation : Chandler, AZ	0.000	0.283		-		-		-		-	Continuing	Continuing	Continuing
Resources - Resources/ Systems Engineering - 14	MIPR	Naval Air Warfare Center : Point Mugu, CA	0.162	0.610		1.614	Nov 2014	1.650	Nov 2015	-		1.650	Continuing	Continuing	Continuing
Resources - Resources/ Systems Engineering - 2	FFRDC	Aerospace Corporation : El Segundo, CA	5.534	3.243		2.779	Nov 2014	2.540	Nov 2015	-		2.540	Continuing	Continuing	Continuing
Resources - Resources/ Systems Engineering - 3	C/FFP	Northrop Grumman Space Systems : Albuquerque, NM	4.843	-		-		-		-		-	4.843	9.686	4.843
Resources - Resources/ Systems Engineering - 4	C/FFP	Teledyne Solutions, Inc. : Huntsville, AL	0.016	-		-		-		-		-	0.016	0.032	0.016
Resources - Resources/ Systems Engineering - 5	C/FFP	Wyle Laboratories : Huntsville, AL	1.323	-		-		-		-		-	1.323	2.646	1.323

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603915C / *Ballistic Missile Defense Targets*	Project (Number/Name) MT05 / *BMDS Targets Program*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Resources - Resources/ Systems Engineering - 6	FFRDC	Johns Hopkins University, Applied Physics Lab : Baltimore, MD	0.835	0.333		0.765	Nov 2014	0.782	Nov 2015	-		0.782	Continuing	Continuing	Continuing
Resources - Resources/ Systems Engineering - 7	MIPR	US Air Force Space & Missile Systems Center (SMC) : Albuquerque, NM	0.904	-		4.091	Nov 2014	4.183	Nov 2015	-		4.183	Continuing	Continuing	Continuing
Resources - Resources/ Systems Engineering - 8	MIPR	Aviation & Missile Research, Dev & Eng Center : Huntsville, AL	17.276	9.655		8.241	Nov 2014	9.093	Nov 2015	-		9.093	Continuing	Continuing	Continuing
Resources - Resources/ Systems Engineering - 9	C/CPAF	L3 Communications/ Coleman Aerospace : Orlando, FL	0.922	-		-		-		-		-	0.922	1.844	-
Flight Test Execution - Flight Test Execution	Various	OSC/Lockheed Martin/NAVSEA/ Edwards AFB/ Yuma/Eglin AFB/ L-3 Coleman/AFRL/ Hickam AFB/NAWC/ Redstone Airfield/ RTC/ASI/PMRF/ Wake Island : AZ/AL/ NM/CA/FL/OH/HI/ Marshall Islands	0.000	-		-		51.501	Oct 2015	-		51.501	Continuing	Continuing	Continuing
		Subtotal	916.128	484.743		430.229		490.682		-		490.682	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603915C / *Ballistic Missile Defense Targets*	Project (Number/Name) MT05 / *BMDS Targets Program*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	916.128	484.743		430.229		490.682		-		490.682	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

Significant Event Complete ▲ Significant Event Planned △ Milestone Decision Complete ★ Milestone Decision Planned ☆ Element Test Complete ◆ Element Test Planned ◇ System Level Test Complete ⬟ System Level Test Planned ⬭ Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ARAV-A (SRBM) Pre-Ship Readiness Review (Ship Set 13)	▲																											
ARAV-A (SRBM) Pre-Ship Readiness Review (Ship Set 10)	▲																											
ARAV-A (SRBM) Pre-Ship Readiness Review (Ship Set 11)	▲																											
ARAV-A (SRBM) Pre-Ship Readiness Review (Ship Set 12)	▲																											
eMRBM Pre-Ship Readiness Review (Ship Set 1)	▲																											
ARAV-TTO-E (SRBM) Pre-Ship Readiness Review (Ship Set 2)	▲																											
LV-2 Pre-Ship Readiness Review (Ship Set 5)		▲																										
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 14)				▲																								
MRBM Type 3 Pre-Ship Readiness Review (Ship Set 1)				▲																								
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 9)					▲																							
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 12)					▲																							
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 13)					▲																							
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 11)					▲																							
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 1)						△																						
FMA-1 (SRBM) Pre-Ship Readiness Review (Ship Set 15)						△																						
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 2)							△																					
SRALT (SRBM) Pre-Ship Readiness Review (Ship Set 5)							△																					
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 3)								△																				
MRBM Type 3 Pre-Ship Readiness Review (Ship Set 3)										△																		

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

Significant Event Complete △ Significant Event Planned △ | Milestone Decision Complete ☆ Milestone Decision Planned ☆ | Element Test Complete ◇ Element Test Planned ◇ | System Level Test Complete ⬭ System Level Test Planned ⬭ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ARAV-TTO-E (SRBM) Pre-Ship Readiness Review (Ship Set 1)										△																		
ICBM Pre-Ship Readiness Review (Ship Set 1)											△																	
LV-2 Pre-Ship Readiness Review (Ship Set 6)											△																	
MRBM Type 3 Pre-Ship Readiness Review (Ship Set 4)												△																
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 15)												△																
ARAV-TTO-E (SRBM) Pre-Ship Readiness Review (Ship Set 3)												△																
ARAV-TTO-E (SRBM) Pre-Ship Readiness Review (Ship Set 4)												△																
ELRALT Pre-Ship Readiness Review (Ship Set 2)													△															
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 4)														△														
ICBM Pre-Ship Readiness Review (Ship Set 2)															△													
ARAV-G (SRBM) Pre-Ship Readiness Review (Ship Set 1)															△													
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 5)																△												
MRBM Type 3 Pre-Ship Readiness Review (Ship Set 2)																	△											
ARAV-G (SRBM) Pre-Ship Readiness Review (Ship Set 2)																	△											
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 6)																		△										
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 7)																		△										
MRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 1)																			△									
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 8)																			△									
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 9)																			△									
MRBM Type 3/Configuration 2 Pre-Ship Readiness Review (Ship Set 5)																			△									

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬡ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ARAV-TTO-E (SRBM) Pre-Ship Readiness Review (Ship Set 5)																			△									
MRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 2)																						△						
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 10)																						△						
MRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 3)																							△					
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 11)																							△					
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 12)																							△					
MRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 5)																								△				
MRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 4)																									△			
ICBM Pre-Ship Readiness Review (Ship Set 3)																										△		
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 13)																										△		
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 14)																										△		
SRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 1)																											△	
MRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 6)																												△

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ARAV-A (SRBM) Pre-Ship Readiness Review (Ship Set 13)	1	2014	1	2014
ARAV-A (SRBM) Pre-Ship Readiness Review (Ship Set 10)	1	2014	1	2014
ARAV-A (SRBM) Pre-Ship Readiness Review (Ship Set 11)	1	2014	1	2014
ARAV-A (SRBM) Pre-Ship Readiness Review (Ship Set 12)	1	2014	1	2014
eMRBM Pre-Ship Readiness Review (Ship Set 1)	1	2014	1	2014
ARAV-TTO-E (SRBM) Pre-Ship Readiness Review (Ship Set 2)	1	2014	1	2014
LV-2 Pre-Ship Readiness Review (Ship Set 5)	2	2014	2	2014
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 14)	4	2014	4	2014
MRBM Type 3 Pre-Ship Readiness Review (Ship Set 1)	4	2014	4	2014
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 9)	1	2015	1	2015
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 12)	1	2015	1	2015
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 13)	1	2015	1	2015
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 11)	1	2015	1	2015
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 1)	2	2015	2	2015
FMA-1 (SRBM) Pre-Ship Readiness Review (Ship Set 15)	2	2015	2	2015
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 2)	3	2015	3	2015
SRALT (SRBM) Pre-Ship Readiness Review (Ship Set 5)	3	2015	3	2015
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 3)	4	2015	4	2015
MRBM Type 3 Pre-Ship Readiness Review (Ship Set 3)	2	2016	2	2016
ARAV-TTO-E (SRBM) Pre-Ship Readiness Review (Ship Set 1)	2	2016	2	2016
ICBM Pre-Ship Readiness Review (Ship Set 1)	3	2016	3	2016
LV-2 Pre-Ship Readiness Review (Ship Set 6)	3	2016	3	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MRBM Type 3 Pre-Ship Readiness Review (Ship Set 4)	4	2016	4	2016
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 15)	4	2016	4	2016
ARAV-TTO-E (SRBM) Pre-Ship Readiness Review (Ship Set 3)	4	2016	4	2016
ARAV-TTO-E (SRBM) Pre-Ship Readiness Review (Ship Set 4)	4	2016	4	2016
ELRALT Pre-Ship Readiness Review (Ship Set 2)	1	2017	1	2017
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 4)	2	2017	2	2017
ICBM Pre-Ship Readiness Review (Ship Set 2)	3	2017	3	2017
ARAV-G (SRBM) Pre-Ship Readiness Review (Ship Set 1)	3	2017	3	2017
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 5)	4	2017	4	2017
MRBM Type 3 Pre-Ship Readiness Review (Ship Set 2)	1	2018	1	2018
ARAV-G (SRBM) Pre-Ship Readiness Review (Ship Set 2)	1	2018	1	2018
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 6)	2	2018	2	2018
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 7)	2	2018	2	2018
MRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 1)	3	2018	3	2018
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 8)	3	2018	3	2018
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 9)	3	2018	3	2018
MRBM Type 3/Configuration 2 Pre-Ship Readiness Review (Ship Set 5)	3	2018	3	2018
ARAV-TTO-E (SRBM) Pre-Ship Readiness Review (Ship Set 5)	3	2018	3	2018
MRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 2)	2	2019	2	2019
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 10)	2	2019	2	2019
MRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 3)	3	2019	3	2019
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 11)	3	2019	3	2019
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 12)	3	2019	3	2019
MRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 5)	4	2019	4	2019
MRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 4)	1	2020	1	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MT05 / *BMDS Targets Program*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ICBM Pre-Ship Readiness Review (Ship Set 3)	2	2020	2	2020
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 13)	2	2020	2	2020
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 14)	2	2020	2	2020
SRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 1)	3	2020	3	2020
MRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 6)	4	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603915C / *Ballistic Missile Defense Targets*	Project (Number/Name) MD40 / *Program Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program Wide Support*	19.945	16.427	24.839	22.574	-	22.574	27.692	24.799	23.558	24.970	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015, Program Wide Support reflects a proportional change as a result of an increase and in FY 2016, reflects a proportional change as a result of a decrease in Ballistic Missile Defense Targets.

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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	16.427	24.839	22.574
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MD40 / *Program Wide Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	16.427	24.839	22.574

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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MD40 / *Program Wide Support*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total 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.	0.000	8.118		22.604	Jan 2015	-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Facilities and Maintenance (Reqn)	Reqn	Various Multi : AL, CO, CA, VA etc.	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Infrastructure Support (MIPR)	MIPR	Various; Multi : AL, VA	10.224	6.260		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Infrastructure Support (FFP)	C/FFP	Northrop Grumman; Multi : AL, VA	9.460	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various; Multi : AL, CA, CO, VA	0.261	1.426		0.781		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi:AL, CA, CO, VA	0.000	-		-		5.560	Nov 2015	-		5.560	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support, International, and Materiel and Readiness	MIPR	Various Multi: : AK, AL, CA, CO, HI, VA	0.000	0.623		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations, Sustainment and GPC	Allot	Various, Multi : AL, CO, CA, VA etc	0.000	-		1.454		1.500	Dec 2015	-		1.500	Continuing	Continuing	Continuing
Program Wide Support - Facilities and Maintenance SRM	MIPR	Various : Multi: AK, AL, CA, VA	0.000	-		-		15.514	Jan 2016	-		15.514	Continuing	Continuing	Continuing
		Subtotal	19.945	16.427		24.839		22.574		-		22.574	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603915C / *Ballistic Missile Defense Targets*	Project (Number/Name) MD40 / *Program Wide Support*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	19.945	16.427		24.839		22.574		-		22.574	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MD40 / *Program Wide Support*

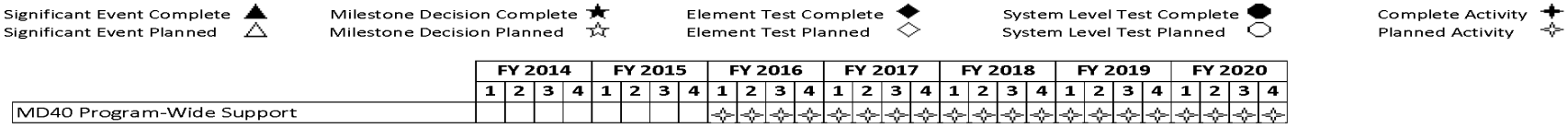

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603915C / *Ballistic Missile Defense Targets*	**Project (Number/Name)** MD40 / *Program Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	-	96.300	-	96.300	109.674	117.106	208.531	198.363	Continuing	Continuing
MD98: *Directed Energy Prototype Development*	-	-	-	19.870	-	19.870	23.919	52.470	82.723	77.671	Continuing	Continuing
MD99: *Discrimination Sensor Prototype Development*	-	-	-	43.810	-	43.810	61.153	26.933	114.379	109.767	Continuing	Continuing
MT99: *Technology Maturation Initiatives Test*	-	-	-	28.219	-	28.219	19.248	31.447	0.144	-	-	79.058
MC98: *Cyber Operations*	-	-	-	0.166	-	0.166	0.169	0.259	0.176	0.179	Continuing	Continuing
MD40: *Program Wide Support*	-	-	-	4.235	-	4.235	5.185	5.997	11.109	10.746	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

The Technology Maturation Initiatives program element is new in FY 2016. The FY 2016 increase of $96.300 million reflects:
- An increase of $56.802 million for advanced component development & prototype efforts in discrimination and directed energy to address an emerging threat
- A transfer of $35.263 million in funding and content which has progressed past the advanced research level for an advanced component and development prototype program from the following:
--$31.078 million from the Discrimination Sensor Technology program element, 0603177C
--$4.185 million from Weapons Technology program element, 0603178C
- A transfer of $4.235 million from multiple Missile Defense Agency (MDA) program elements to MD40 Program Wide Support

A. Mission Description and Budget Item Justification

Technology Maturation Initiatives builds off of the technology successfully tested under the Weapons Technology Program Element (0603178C) and Discrimination Sensor Technology Program Element (0603177C). This program element combines individual technology breakthroughs and develops and demonstrates prototype advanced components and systems to address complex discrimination and tracking challenges for the Ballistic Missile Defense System (BMDS) in support of the Strategic Command's Prioritized Capabilities List, and addresses evolving threats to the homeland from the Pacific theatre.

The MDA will develop two prototype platforms, one near-term sensor platform and one mid-term directed energy platform for precision track.

The Discrimination Sensor Prototype Development project incrementally develops, integrates and tests next-generation sensors and detectors on Unmanned Aerial Vehicles (UAVs) to demonstrate airborne Launch-on-Remote, Engage-on-Remote, discrimination and handover improvements for missile defense. These advanced

sensors improve the probability of engagement success for stressing threats, expand the Ballistic Missile Defense battle space and increase the ability to negate larger raid sizes. The Discrimination Sensor prototype significantly enhances the following BMDS priorities:

- Discriminating lethal objects from countermeasures
- End-to-end correlation of sensor track and discrimination data
- Timely and accurate kill assessment
- Precisely tracking boosting missiles from launch detection through destruction
- Providing track information to the shooter with sufficient quality to enable launch-on-remote/engage-on-remote

The Directed Energy Prototype Development project develops, integrates and tests low power laser systems on an UAV. This low power laser prototype test platform addresses a broad spectrum of directed energy mission applications while developing a missile defense concept of operations doctrine for incorporating lasers into the BMDS. The Agency will begin design of an UAV-borne laser flight demonstrator selected from the five Industry concepts competitively awarded in FY 2015 under the Weapons Technology program element. The Agency is addressing the next step in laser power and aperture size by integrating and testing a low power laser, nominally 10 kilowatts, on an UAV to fully explore the directed energy multi-mission platform construct and develop a sound directed energy concept of operations.

The Technology Maturation Initiatives Test project captures the cost to test the prototype systems developed under the Directed Energy Prototype Development project and the Discrimination Sensor Prototype Development project under realistic conditions in conjunction with on-going Ballistic Missile Defense System (BMDS) testing and through dedicated live fire tests to inform continued prototype testing, full development and limited fielding decisions.

The Cyber Operations project sustains the Missile Defense Agency Department of Defense Information Assurance Certification and Accreditation Program and Controls Validation Testing activities for Technology Maturation Initiatives.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	96.300	-	96.300
Total Adjustments	-	-	96.300	-	96.300
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	-	-	96.300	-	96.300

Change Summary Explanation

The FY 2016 increase of $96.300 million reflects:

- An increase of $56.802 million for advanced component development & prototype efforts in discrimination and directed energy to address an emerging threat
- A transfer of $35.263 million in funding and content which has progressed past the advanced research level for an advanced component and development prototype program from the following:
--$31.078 million from the Discrimination Sensor Technology program element, 0603177C
--$4.185 million from Weapons Technology program element, 0603178C
- A transfer of $4.235 million from multiple Missile Defense Agency (MDA) program elements to MD40 Program Wide Support

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MD98 / *Directed Energy Prototype Development*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD98: *Directed Energy Prototype Development*	-	-	-	19.870	-	19.870	23.919	52.470	82.723	77.671	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, $4.185 million transferred from the Weapons Technology Program Element (PE), 0603178C and $15.685 million was added for advanced component development & prototype efforts in directed energy to address an emerging threat. The increase will fund contract award(s) and complete trade studies for a low power laser demonstrator for missile defense. The low power directed energy concepts developed in the Weapons Technology PE and by Industry are technically mature enough to develop a prototype system.

A. Mission Description and Budget Item Justification

The Directed Energy Prototype Development project develops, integrates and tests the technologies required to demonstrate the complete acquisition, tracking and lethality engagement sequence of a high energy laser system for boost-phase missile defense. The low power laser demonstrator combines tracking technology developed under the Discriminating Sensor Technology Program Element (PE) with laser technology developed under the Weapons Technology program element with industry concepts for a cost-effective demonstrator. The low power laser demonstrator integrates the lasers, detectors, beam control system, processors, power supplies and thermal management systems into a high altitude, long endurance unmanned aerial vehicle (UAV) for boost phase ballistic missile defense applications. The MDA will test the low power laser platform under realistic conditions in conjunction with on-going Ballistic Missile Defense System (BMDS) tests. The MDA will use a low power surrogate high energy laser (HEL) to verify pointing and stability accuracy and develop a laser concept of operations under realistic BMDS scenarios. The Directed Energy Prototype Development project provides the necessary technology, test data, and operations familiarity to successfully transition to a high power directed energy weapon capable of destroying a boosting missile before it can deploy countermeasures.

In FY 2016, the Agency is funding the design of an UAV-borne low power laser demonstrator selected from the five Industry defined concepts competitively awarded in FY 2015 under the Weapons Technology PE (0603178C). The $19.870 million request funds systems engineering, component trade studies and aircraft modifications required for a low power laser demonstrator Preliminary Design Review in FY 2016, leading to a Critical Design Review in FY 2017 and eventually a BMDS flight test in FY 2020.

The technology, individually and jointly developed and tested by the MDA, the Air Force and the Defense Advanced Research Projects Agency under the Weapons Technology PE, underpins multiple low power laser demonstrator Industry concepts. This low power laser demonstrator provides additional collaborative development and test opportunities to investigate laser beam pointing, stability and jitter effects under various altitude and flight conditions.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Directed Energy Prototype Development	-	-	19.870
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD98 / *Directed Energy Prototype Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Description: N/A ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** In FY 2016, $4.185 million transferred from the Weapons Technology Program Element (PE), 0603178C and $15.685 million was added for advanced component development & prototype efforts in directed energy to address an emerging threat. The increase will fund contract award(s) and complete trade studies for a low power laser demonstrator for missile defense. The low power directed energy concepts developed in the Weapons Technology PE and by Industry are technically mature enough to develop a prototype system. Conduct the systems engineering and preliminary design necessary to define a low power laser demonstrator that integrates the lasers, detectors, beam control system, processors, power supplies and thermal management systems into a high altitude, long endurance Unmanned Aerial Vehicle (UAV) for missile defense. - Analyze and evaluate Industry concepts for integrating and testing a multi-kilowatt class laser into an UAV for missile defense applications -- Determine the best laser/aircraft combination to cost effectively address the directed energy missile defense mission space -- Select the best Industry concept and award a four year contract to build and test a low power laser demonstrator - Perform the directed energy requirements flow down and engineering analysis for a low power laser demonstrator - Define a preliminary directed energy concept of operations for laser equipped UAV participation in Ballistic Missile Defense System tests - Conduct Preliminary Design Review (PDR) for the low power laser demonstrator			
Accomplishments/Planned Programs Subtotals	-	-	19.870

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD98 / *Directed Energy Prototype Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy for Directed Energy Prototype Development consists of a contract(s) to industry via the Advanced Technology Innovation Broad Agency Announcement and competitive procurement(s) to develop and demonstrate a low power laser demonstrator system in realistic test environments. The Missile Defense Agency will leverage Agency and partner subject matter experts and use government model based assessments to inform Better Buying Power philosophy acquisition decisions. Directed Energy Prototype Development shapes future BMDS acquisition decisions by advancing and documenting the technology readiness levels of emerging and developing technology, while simultaneously assessing the performance and contributions of the prototype systems to the Ballistic Missile Defense System architecture.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD98 / *Directed Energy Prototype Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Directed Energy Prototype Development - Low Power Laser Demonstrator	C/TBD	TBD : TBD	0.000	-		-		17.770		-		17.770	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		17.770		-		17.770	-	-	-

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Directed Energy Prototype Development - Agency Operations – Civilian Salaries and Travel	Allot	MDA Multi : AL, NM	0.000	-		-		1.020	Oct 2015	-		1.020	Continuing	Continuing	Continuing
Directed Energy Prototype Development - Low Power Laser Demonstrator – Advisory and Assistance Services	C/CPFF	Various : NM, AL	0.000	-		-		1.080	Oct 2015	-		1.080	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		2.100		-		2.100	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		19.870		-		19.870	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD98 / *Directed Energy Prototype Development*

Significant Event Complete / Significant Event Planned
Milestone Decision Complete / Milestone Decision Planned
Element Test Complete / Element Test Planned
System Level Test Complete / System Level Test Planned
Complete Activity / Planned Activity

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Low Power Laser Demonstrator (LPLD) Contract Award										△																		
LPLD Preliminary Design Review (PDR)												△																
LPLD Critical Design Review (CDR)															△													
LPLD Integration Complete																				△								
LPLD Hardware in the Loop Test Complete																								△				
LPLD CONUS Flight Test																									⬭			
LPLD Capability Demonstrations - 1																											◇	
LPLD Capability Demonstrations - 2																												◇

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD98 / *Directed Energy Prototype Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Low Power Laser Demonstrator (LPLD) Contract Award	2	2016	2	2016
LPLD Preliminary Design Review (PDR)	4	2016	4	2016
LPLD Critical Design Review (CDR)	3	2017	3	2017
LPLD Integration Complete	4	2018	4	2018
LPLD Hardware in the Loop Test Complete	4	2019	4	2019
LPLD CONUS Flight Test	1	2020	1	2020
LPLD Capability Demonstrations - 1	3	2020	3	2020
LPLD Capability Demonstrations - 2	4	2020	4	2020

Note

LPLD -- Low Power Laser Demonstrator

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MD99 / *Discrimination Sensor Prototype Development*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD99: *Discrimination Sensor Prototype Development*	-	-	-	43.810	-	43.810	61.153	26.933	114.379	109.767	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, $2.859 million was transferred from program element (PE) 0603177C, Discrimination Sensor Technology, and $40.951 million was added for prototype development of discrimination sensors. The technology developed in the Discrimination Sensors Technology PE is technically mature enough to develop prototype systems. This activity was previously planned in the Discrimination Sensor Technology PE (0603177C).

A. Mission Description and Budget Item Justification

The Missile Defense Agency (MDA) Discrimination Sensor Prototype Development (DSPD) project builds off of the technology developed and demonstrated in the Discrimination Sensor Technology (DST) PE (0603177C). Areas of concentration include advanced detectors, infrared sensors, and algorithms for ground, sea, air and space systems. The DSPD project pursues a cost-effective incremental upgrade philosophy that demonstrates precision track at extended ranges, simple scene discrimination and then complex scene discrimination. This project develops a compact high-precision advanced sensor to improve identifying, acquiring, tracking and discriminating incoming Ballistic Missile threats, specifically addressing U.S. Strategic Command's Prioritized Capabilities List requirements. DSPD enhances the Ballistic Missile Defense System (BMDS) capability to discriminate lethal objects in a threat cluster, and track and handover the threat object with engage on remote precision. In FY 2016, the DST PE (0603177C) funds the demonstration of Aegis Launch-on-Remote (LoR) real time stereo tracking with Multi-Spectral Targeting System Cs (MTS-Cs). Aegis LoR is the capability that allows Aegis Ballistic Missile Defense (BMD) to launch an interceptor before its own radar acquires the threat. Aegis BMD LoR involves Command, Control, Battle Management and Communications (C2BMC) providing information about the paths (called tracks) of ballistic missile threats, to Aegis BMD from forward based radars. It expands the space where the system can intercept the threat and the defended area. The DSPD project uses the results from the DST test and takes the next step to prove Aegis Engage-on-Remote (EoR) capability. EoR engagement allows the use of active and passive off board sensor information to launch and guide the Standard Missile - 3 (SM-3) Block IIA missile to final intercept. The increased kinematic envelope of the SM-3 Block IIA when combined with EoR will expand the battlespace and increase the number of threats engaged over previous baselines.

The MDA collaborates with the Office of the Assistant Secretary of Defense for Research and Engineering, the United States Navy and the United States Air Force in a systems engineering based strategy to develop, test and evaluate DSPD.

In FY 2016, the MDA will begin development of a next-generation ruggedized airborne processor and a next-generation advanced sensor. These next-generation prototypes operate at the strategic ranges required to augment BMDS radar, improve the BMDS discrimination capability and provide precision track of large raids. These advanced sensor systems have the capacity to track multiple targets simultaneously, substantially reducing the number of sensor assets required for large raids. This project funds the development and integration of both a mid-range advanced sensor and a long range advanced sensor that functions at operationally representative ranges. The advanced sensors will be integrated onto Unmanned Aerial Vehicles (UAVs) and tested in an operationally relevant environment. These incremental demonstrations are planned in 4Q FY 2016 for the mid-range advanced sensor and 1Q FY 2018 for the long-range advanced sensor.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*

The MDA will also partner with the National Laboratories, Industry and the Services to develop concepts for the cost effective integration of the sensor technology successfully demonstrated under the DST PE into limited fielding upgrade kits. The concept information will inform further development and/or limited fielding decisions for the MDA.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Discrimination Sensor Prototype Development	-	-	43.810
Articles:	-	-	-

Description: The Discrimination Sensor Prototype Development project incrementally develops and tests two airborne advanced sensor prototypes. The initial advanced sensor prototype will characterize performance and the second prototype is an upgraded advanced sensor for participation in Ballistic Missile Defense System (BMDS) tests under operationally relevant conditions and at operationally relevant ranges. The sensors upgrade the proven Multi-Spectral Targeting System (MTS) / MQ-9 Reaper combination demonstrated under the Discrimination Sensor Technology Program Element to perform tracking and discrimination of lethal objects.

FY 2014 Accomplishments:
N/A

FY 2015 Plans:
N/A

FY 2016 Plans:
In FY 2016, $2.859 million was transferred from program element (PE) 0603177C, Discrimination Sensor Technology, and $40.951 million was added for prototype development of discrimination sensors. The technology developed in the Discrimination Sensors Technology PE is technically mature enough to develop prototype systems. This activity was previously planned in the Discrimination Sensor Technology PE (0603177C).

- Develop and test an initial advanced sensor, MTS-C and MQ-9 Reaper prototype system:
-- Complete integration and component test of an advanced sensor
-- Perform system integration laboratory testing to verify subsystem performance
-- Conduct ground demonstrations against resident space objects and target of opportunity to verify system performance
-- Conduct CONUS system checkout flights of an advanced sensor to validate tracking performance in preparation for a series of BMDS tests in FY 2017
-- Analyze BMDS test data to verify advanced sensor precision track and discrimination capability
-- Demonstrate Discrimination Sensor Prototype Development system compatibility with the BMDS architecture

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Use the lessons learned and test data from the initial advanced sensor prototype development to design an upgraded advanced sensor for MTS-C / MQ-9 Reaper integration that supports improved BMDS discrimination capability: -- Design and fabricate a next-generation airborne processor to allow multiple sensor data streams to be downlinked to the Ballistic Missile Defense Enterprise Sensors Laboratory simultaneously to precisely track multiple objects and enhance discrimination - Develop concepts with Industry and the Services for the development of precision tracking limited fielding upgrade kits to incorporate airborne tracking assets into the BMDS - Develop concepts with Industry for a next-generation sensor with significantly reduced size and significantly increased efficiency for future integration into high altitude, long endurance unmanned aerial vehicle and space assets			
Accomplishments/Planned Programs Subtotals	-	-	43.810

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*

D. Acquisition Strategy

The acquisition strategy for Discrimination Sensor Prototype Development consists of a contract(s) to industry via the Advanced Technology Innovation Broad Agency Announcement and competitive procurement(s) and agreements with Federally Funded Research and Development Centers to develop and demonstrate an advanced sensors prototype systems in realistic test environments. The Missile Defense Agency will leverage Agency and partner subject matter experts and use government model based assessments to inform Better Buying Power philosophy acquisition decisions. Discrimination Sensor Prototype Development shapes future BMDS acquisition decisions by advancing and documenting the technology readiness levels of emerging and developing technology, while simultaneously assessing the performance and contributions of the prototype systems to the Ballistic Missile Defense System architecture.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Discrimination Sensor Prototype Development - Advanced Sensor Dev Support	MIPR	Aerospace : CA	0.000	-		-		1.684	Nov 2015	-		1.684	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor Development	C/CPFF	General Atomics : CA	0.000	-		-		36.206	Nov 2015	-		36.206	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor Performance Analysis Aegis EOR Concept Assessment Contracts	C/Various	Modern Technology Solutions Inc., Johns Hopkins University/ Applied Physics Lab, Torch : VA, MD, AL	0.000	-		-		1.225	Nov 2015	-		1.225	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor Performance Analysis Aegis EOR HWIL Contracts	C/Various	Modern Technology Solutions Inc., Johns Hopkins University/ Applied Physics Lab, Torch : VA, MD, AL	0.000	-		-		0.655	Nov 2015	-		0.655	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor Performance Analysis Aegis EOR Hardware in the Loop (HWIL)	MIPR	MIT LL, Aviation and Missile Research, Development, and Engineering Center (AMRDEC) : MA, AL	0.000	-		-		2.780	Nov 2015	-		2.780	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor Performance Analysis Aegis Engage-on-Remote (EOR) Concept Assessment	MIPR	MIT LL/AMRDEC : MA, AL	0.000	-		-		0.580	Nov 2015	-		0.580	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		43.130		-		43.130	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Discrimination Sensor Prototype Development - Advanced Sensor – Engineering and Technical Services	MIPR	Defense Technical Information Center : VA	0.000	-		-		0.680	Nov 2015	-		0.680	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		0.680		-		0.680	-	-	-

Remarks

N/A

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		43.810		-		43.810	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*

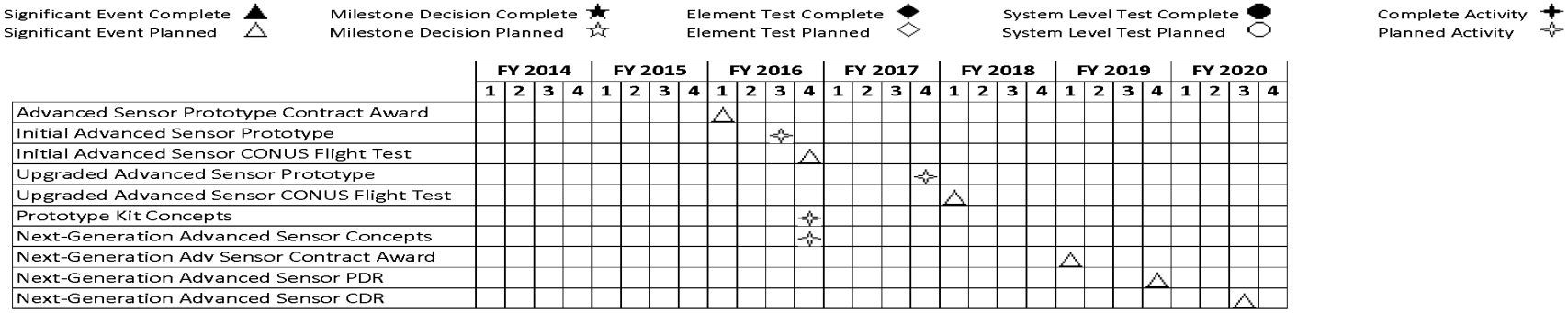

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Advanced Sensor Prototype Contract Award	1	2016	1	2016
Initial Advanced Sensor Prototype	3	2016	3	2016
Initial Advanced Sensor CONUS Flight Test	4	2016	4	2016
Upgraded Advanced Sensor Prototype	4	2017	4	2017
Upgraded Advanced Sensor CONUS Flight Test	1	2018	1	2018
Prototype Kit Concepts	4	2016	4	2016
Next-Generation Advanced Sensor Concepts	4	2016	4	2016
Next-Generation Adv Sensor Contract Award	1	2019	1	2019
Next-Generation Advanced Sensor PDR	4	2019	4	2019
Next-Generation Advanced Sensor CDR	3	2020	3	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MT99 / *Technology Maturation Initiatives Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT99: *Technology Maturation Initiatives Test*	-	-	-	28.219	-	28.219	19.248	31.447	0.144	-	-	79.058
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, $28.219 million was transferred from Program Element (PE) 0603177C, Discrimination Sensor Technology (DST) for prototype testing. The technology developed in the DST PE is technically mature enough to develop and test prototype systems. This activity was previously planned in the DST PE (0603177C).

A. Mission Description and Budget Item Justification

The Technology Maturation Initiatives Test project funds the management and execution of Technology Maturation Initiatives prototype system participation in Ballistic Missile Defense System (BMDS) level tests as an associated operation and through dedicated live fire tests.

The Technology Maturation Initiatives Test project funds all costs associated with Technology Maturation Initiatives dedicated live fire tests, costs to participate in other Ballistic Missile Defense level tests as an associated operation, Hardware-in-the-Loop testing, and performance analysis costs for live and post processing of flight test data. This includes unmanned aerial vehicle flight and maintenance costs, and ground control station operations and support equipment costs. It also funds shipping of the test assets to test ranges, labor, travel, range support and Command Control Battle Management and Communications (C2BMC) test support specific to Technology Maturation Initiatives.

In FY 2016, the Technology Maturation Initiatives Test project funds a Terrier-Terrier-Oriole-Extended (TTO-E) target for a dedicated Aegis launch-on-remote airborne sensor test in FY 2017. This target is budgeted for in this PE to consolidate test costs for the Technology Maturation Initiatives project.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Technology Maturation Initiatives Test	-	-	28.219
Articles:	-	-	-
Description: The Technology Maturation Initiatives Test project funds the management and execution of both Technology Maturation Initiatives prototype test participation in association with on-going Ballistic Missile Defense System (BMDS) tests and dedicated Technology Maturation Initiatives prototype BMDS level live fire test events.			
FY 2014 Accomplishments: N/A			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MT99 / *Technology Maturation Initiatives Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
N/A ***FY 2016 Plans:*** In FY 2016, $28.219 million was transferred from Program Element (PE) 0603177C, Discrimination Sensor Technology (DST) for prototype testing. The technology developed in the DST PE is technically mature enough to develop and test prototype systems. This activity was previously planned in the DST PE (0603177C). - Conduct system level Hardware-in-the-Loop (HWIL) testing in conjunction with Enterprise Sensor Laboratory (ESL) and Experimental Laboratory (X-Lab) for the Standard Missile -3 Flight Test Standard Missile-01 Event 2 (SFTM-01 E2) test -- Conduct an airborne sensor tracking exercise in conjunction with SFTM-01 E2 in preparation for a Flight Test Standard Missile Discrimination Sensor Technology -1 (FTM DST-1) live fire engagement in 1Q FY 2017 -- Convert 2-Dimensional Object Sighting Message (OSM) track feeds from the MTS-Cs into one 3-Dimensional track to demonstrate Link-16 capability with Aegis ships and Launch-on-Remote performance - Fund a Terrier-Terrier-Oriole-Extended (TTO-E) target for the airborne sensor Aegis live fire test (FTM DST-1)			
Accomplishments/Planned Programs Subtotals	-	-	28.219

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MT99 / *Technology Maturation Initiatives Test*

D. Acquisition Strategy

The MDA Integrated Master Test Plan (IMTP) establishes and documents the test requirements for the Ballistic Missile Defense System (BMDS) with the specific focus on collecting the data needed for the Verification, Validation, and Accreditation (VV&A) of the BMDS Models and Simulations (M&S). This paradigm uses critical factor analysis to drive test design, planning, and execution for accrediting M&S, which is used to validate and assess system performance. With this test approach, MDA will establish confidence that the M&S used to evaluate the BMDS represent real world behavior, thereby enabling simulation-based performance assessment to verify system functionality.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MT99 / *Technology Maturation Initiatives Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Command Control Battle Management and Communications	Various	Northrop Grumman, Lockheed Martin, Space and Naval Warfare Center : CO, CA	0.000	-		-		4.074	Mar 2016	-		4.074	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Live Fire Test Prep L-3	C/CPFF	L-3, Aeromet : OK	0.000	-		-		0.918	Jan 2016	-		0.918	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Live Fire Test Prep MIPRs	MIPR	NAVAIR/Naval Air Warfare Center, Pt. Mugu, Aviation and Missile Research, Development, and Engineering Center, Arnold Engineering Development Complex : CA, AL, TN	0.000	-		-		0.991	Nov 2015	-		0.991	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Live Fire Test Prep, Pacific Missile Range Facility	MIPR	Pacific Missile Range Facility : HI	0.000	-		-		2.113	Jun 2016	-		2.113	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Live Fire Test Prep, Various	C/Various	ASRC Federal, Johns Hopkins University/Applied Physics Lab, Corvid : MD, AL	0.000	-		-		1.243	Nov 2015	-		1.243	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Technology Maturation	C/CPFF	General Atomics : CA	0.000	-		-		2.975	Nov 2015	-		2.975	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MT99 / *Technology Maturation Initiatives Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Initiatives Test - SFTM-01 E2, General Atomics															
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Target Purchase and Test Prep	MIPR	Naval Surface Warfare Center, Port Hueneme Division (NSWC PHD) : CA	0.000	-		-		14.738	Nov 2015	-		14.738	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Transportation Costs for Reapers	MIPR	US Air Force : CA	0.000	-		-		1.167	Mar 2016	-		1.167	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		28.219		-		28.219	-	-	-

Remarks

SFTM-01 E2 - Standard Missile -3 Flight Test Standard Missile-01 Event 2

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		28.219		-		28.219	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MT99 / *Technology Maturation Initiatives Test*

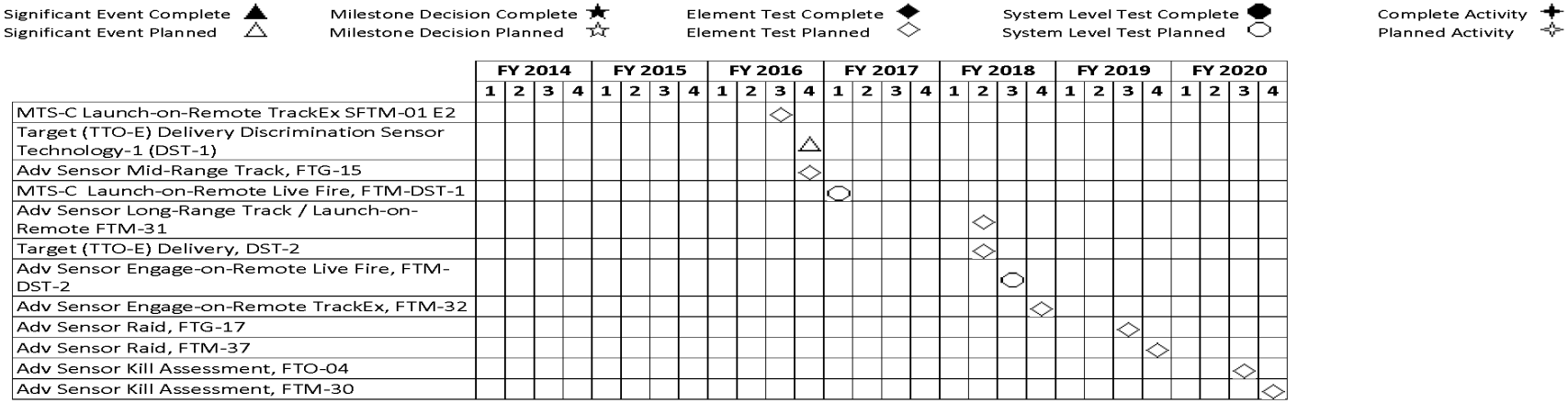

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MT99 / *Technology Maturation Initiatives Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MTS-C Launch-on-Remote TrackEx SFTM-01 E2	3	2016	3	2016
Target (TTO-E) Delivery Discrimination Sensor Technology-1 (DST-1)	4	2016	4	2016
Adv Sensor Mid-Range Track, FTG-15	4	2016	4	2016
MTS-C Launch-on-Remote Live Fire, FTM-DST-1	1	2017	1	2017
Adv Sensor Long-Range Track / Launch-on-Remote FTM-31	2	2018	2	2018
Target (TTO-E) Delivery, DST-2	2	2018	2	2018
Adv Sensor Engage-on-Remote Live Fire, FTM-DST-2	3	2018	3	2018
Adv Sensor Engage-on-Remote TrackEx, FTM-32	4	2018	4	2018
Adv Sensor Raid, FTG-17	3	2019	3	2019
Adv Sensor Raid, FTM-37	4	2019	4	2019
Adv Sensor Kill Assessment, FTO-04	3	2020	3	2020
Adv Sensor Kill Assessment, FTM-30	4	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MC98 / *Cyber Operations*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MC98: *Cyber Operations*	-	-	-	0.166	-	0.166	0.169	0.259	0.176	0.179	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, this project transferred from the Weapons Technology program element, 0603178C. The increase in FY 2018 reflects the need for Information Assurance Controls Validation Testing (CVT) recertification every three years.

A. Mission Description and Budget Item Justification

The funding in this project sustains the Missile Defense Agency (MDA) Department of Defense (DoD) Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for the MDA Discrimination Sensor Technology mission systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the DIACAP documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&M on all MDA information systems.

This project monitors and tracks Cybersecurity mitigations detailed in Information Technology security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA Senior Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation (IV&V) 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 (FISMA).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Network / System Certification and Accreditation (C and A)	-	-	0.166
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: N/A			
FY 2015 Plans: N/A			
FY 2016 Plans: In FY 2016, this project transferred from the Weapons Technology program element, 0603178C. The increase in FY 2018 reflects the need for Information Assurance Controls Validation Testing (CVT) recertification every three years.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MC98 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conduct cyber security and information assurance engineering and architecture planning for Technology Maturation Initiatives information technology systems - Plan and test the information assurance controls for Ballistic Missile Defense System Technology Maturation Initiatives systems - Develop Technology Maturation Initiatives DoD Information Assurance Certification and Accreditation Program (DIACAP) certification and accreditation packages - Conduct Controls Validation Testing (CVT) for Technology Maturation Initiatives mission systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies - Conduct annual information assurance reviews on the Technology Maturation Initiatives enclaves to assess compliance in implementing and maintaining Information Assurance controls			
Accomplishments/Planned Programs Subtotals	-	-	0.166

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy for Cyber operations consists of using Missile Defense Agency (MDA) civilian employees and the existing competitively awarded Missile Defense Agency Engineering and Support Services (MiDAESS) contract.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MC98 / *Cyber Operations*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C and A) - Agency Operations – Civilian Salaries and Travel	Allot	Missile Defense Agency : NM	0.000	-		-		0.166	Oct 2015	-		0.166	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		0.166		-		0.166	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		0.166		-		0.166	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MC98 / *Cyber Operations*

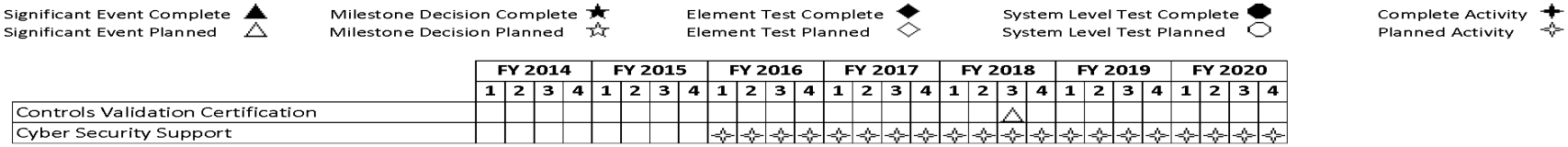

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MC98 / *Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Controls Validation Certification	3	2018	3	2018
Cyber Security Support	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MD40 / *Program Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program Wide Support*	-	-	-	4.235	-	4.235	5.185	5.997	11.109	10.746	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2016, Program Wide Support was proportionately allocated to the Technology Maturation Initiatives Program Element.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	-	-	4.235
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: - FY 2014 Accomplishments were captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2015 Plans: - FY 2015 Accomplishments are captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2016 Plans: - Beginning in FY 2016, Program Wide support was redistributed across RDT&E Program Elements with a proportional allocation to the Technology Maturation Initiatives Program Element. - See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	-	4.235

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD40 / *Program Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, VA	0.000	-		-		4.235		-		4.235	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		4.235		-		4.235	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		4.235		-		4.235	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD40 / *Program Wide Support*

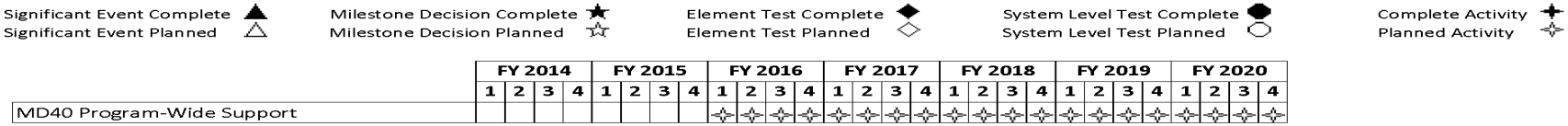

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD40 / *Program Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604873C / *Long Range Discrimination Radar (LRDR)*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	50.500	137.564	-	137.564	154.327	147.562	132.905	77.679	Continuing	Continuing
MD96: *Long Range Discrim Radar (LRDR)*	-	-	50.500	131.514	-	131.514	147.031	140.005	125.825	73.471	Continuing	Continuing
MD40: *Program Wide Support*	-	-	-	6.050	-	6.050	7.296	7.557	7.080	4.208	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

Beginning in FY 2015, funding was realigned to the Long Range Discrimination Radar (LRDR) Program Element 0604873C, Project MD96, from Ballistic Missile Defense Sensors Program Element 0603884C, Project MD96.

The FY 2016 increase reflects a ramp up for hardware and software design/development efforts, conducting the Preliminary Design Review and initiating procurement of long-lead items for the Long Range Discrimination Radar (LRDR).

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense (BMD) Vision Study, conducted by Missile Defense Agency (MDA) with United States Strategic Command (USSTRATCOM), identified the need to enhance the discrimination capabilities of our sensors and weapon systems. One of the critical areas identified in the study to be addressed by the future BMDS was the need to provide a more robust discrimination capability to support the defense of the Homeland. As part of the Ballistic Missile Defense System (BMDS) Integrated Discrimination strategy, the addition of a Long Range Discrimination Radar (LRDR) to the BMDS would address this critical need by providing persistent 24 hours a day, 7 days a week, 365 days a year precision tracking and discrimination capability. The development, integration and fielding of the LRDR will provide an improved persistent midcourse BMDS discrimination capability in the Pacific architecture, optimize the Ground-Based Midcourse Defense (GMD) interceptor inventory, and address evolving threats. In addition the radar will provide larger hit assessment coverage potentially supporting improved warfighting capability to manage the Ground Based Interceptor (GBI) inventory and improving the capacity of the BMDS.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0604873C *I Long Range Discrimination Radar (LRDR)*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	50.500	137.564	-	137.564
Total Adjustments	-	50.500	137.564	-	137.564
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	50.500			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	-	-	137.564	-	137.564

Change Summary Explanation

FY 2015 and 2016 changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act which realigned funds to the Long Range Discrimination Radar (LRDR) Program Element 0604873C, Project MD96, from Ballistic Missile Defense Sensors Program Element 0603884C, Project MD96.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604873C / *Long Range Discrimination Radar (LRDR)*	Project (Number/Name) MD96 / *Long Range Discrim Radar (LRDR)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD96: *Long Range Discrim Radar (LRDR)*	-	-	50.500	131.514	-	131.514	147.031	140.005	125.825	73.471	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2015, funding was realigned to the Long Range Discrimination Radar (LRDR) Program Element 0604873C, Project MD96, from Ballistic Missile Defense Sensors Program Element 0603884C, Project MD96.

The FY 2016 increase reflects a ramp up for hardware and software design/development efforts, conducting the Preliminary Design Review and initiating procurement of long-lead items for the Long Range Discrimination Radar (LRDR).

A. Mission Description and Budget Item Justification

The BMD Vision Study, conducted by MDA with USSTRATCOM, identified the need to enhance the discrimination capabilities of our sensors and weapon systems. This need was affirmed by the USSTRATCOM's Integrated Air and Missile Defense Prioritized Capabilities List for Program Objective Memorandum FY15. The funds in this project will be utilized by the BMD Sensors Program to meet this need through the following activities:
-Development and deployment of a Long Range Discrimination Radar (LRDR) by FY 2020 to provide an improved persistent midcourse Ballistic Missile Defense System (BMDS) discrimination capability in the Pacific architecture and to increase the defensive capacity of the Ground-Based Midcourse Defense (GMD) interceptor inventory and address evolving threats.
-System engineering, software development, and testing support for LRDR development and deployment within the Pacific Sensor architecture.
-Modeling and Simulation (M&S) efforts to include: integration of LRDR digital simulations into the Ballistic Missile Defense System (BMDS), M&S architecture, and Verification, Validation, and Accreditation of LRDR models
-In addition, the inherent capabilities of the LRDR will be leveraged to support auxiliary missions, including augmentation of United States Air Force (USAF) Space Surveillance and Space Awareness capabilities

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Long Range Discrimination Radar (LRDR)	-	50.500	131.514
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: N/A			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604873C / *Long Range Discrimination Radar (LRDR)*	**Project (Number/Name)** MD96 / *Long Range Discrim Radar (LRDR)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Complete Long Range Discrimination Radar engineering, environmental, installation, security, integration, availability, discrimination, and modeling & simulation requirements for integrating LRDR into the BMDS architecture. -Complete siting and environmental analyses, and final selection of location -Initiate civil engineering effort for installation planning -Complete development of Request for Proposal, release Request for Proposal, review proposals, evaluate candidates, and complete source selection ***FY 2016 Plans:*** -Increase due to anticipated contract award in FY 2015 and ramp up for hardware and software design/development efforts, conducting major program-level reviews and initiating procurement of long-lead items in FY 2016 -Conduct System Requirements Review and perform requirements verification -Conduct radar Contract Integrated Baseline Review -Initiate development engineering for radar hardware, software and equipment shelter -Conduct system-level Preliminary Design Review -Conduct Developmental Baseline Review in first quarter FY 2016 -Begin preparations for system-level Critical Design Review -Begin procurement of transmit/receive module components to include low noise amplifier, driver amplifier, power amplifier, multi-function controller chip, limiter and circulator -Qualify production line and initiate production of radar transmit/receive modules -Complete environmental, geotechnical, and other studies for environmental compliance and to inform military construction (MILCON) design effort			
Accomplishments/Planned Programs Subtotals	-	50.500	131.514

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603884C: *SENSORS MILCON*	33.504	-	-	-	-	116.821	109.112	59.194	-	-	318.631
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604873C / *Long Range Discrimination Radar (LRDR)*	**Project (Number/Name)** MD96 / *Long Range Discrim Radar (LRDR)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing
• 31299903: *MILCON PLANNING and DESIGN*	10.891	58.704	-	-	-	8.161	8.323	8.450	8.745	-	103.274

Remarks

D. Acquisition Strategy

The Long Range Discrimination Radar (LRDR) acquisition strategy has been approved. MDA will follow robust acquisition practices to ensure delivery of a best value solution that maximizes mission performance and minimizes lifecycle costs. The Joint Requirements Oversight Council was briefed and concurred with LRDR requirements on 16 September 2014. A full and open competition will be conducted in order to award a single contract for the development, installation, and initial operations and sustainment of the radar system. The radar prime contract will contain both fixed-price and cost-reimbursable line items in order to properly balance acquisition costs and risks. Performance and cost incentives will be used to motivate contractor performance. The radar prime contractor will deliver a full technical data package, which will enable the government to effectively and affordably sustain the system. MDA will synchronize the radar development contract efforts with a simultaneous MILCON effort which will be executed through the US Army Corps of Engineers. The LRDR is expected to become operational no later than 2020.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604873C / *Long Range Discrimination Radar (LRDR)*	Project (Number/Name) MD96 / *Long Range Discrim Radar (LRDR)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Long Range Discrimination Radar (LRDR) - Prime Contractor	C/TBD	TBD : TBD	0.000	-		37.490	Sep 2015	127.946	Nov 2015	-		127.946	Continuing	Continuing	Continuing
Long Range Discrimination Radar (LRDR) - Site Activation & Studies	C/TBD	MDA : AL	0.000	-		13.010	Nov 2014	3.568	Nov 2015	-		3.568	Continuing	Continuing	Continuing
		Subtotal	0.000	-		50.500		131.514		-		131.514	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		50.500		131.514		-		131.514	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604873C / *Long Range Discrimination Radar (LRDR)*	**Project (Number/Name)** MD96 / *Long Range Discrim Radar (LRDR)*

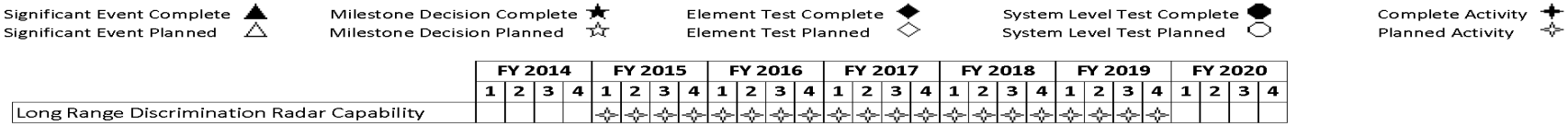

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604873C / *Long Range Discrimination Radar (LRDR)*	**Project (Number/Name)** MD96 / *Long Range Discrim Radar (LRDR)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Long Range Discrimination Radar Capability	1	2015	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604873C / *Long Range Discrimination Radar (LRDR)*	Project (Number/Name) MD40 / *Program Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program Wide Support*	-	-	-	6.050	-	6.050	7.296	7.557	7.080	4.208	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2016, Program Wide Support was proportionately allocated to Long Range Discrimination Radar (LRDR)

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	-	-	6.050
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: - FY 2014 Accomplishments were captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2015 Plans: - FY 2015 Accomplishments are captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2016 Plans: - Beginning in FY 2016, Program Wide Support was redistributed across RDT&E Program Elements with a proportional allocation to Long Range Discrimination Radar (LRDR) - See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	-	6.050

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604873C / *Long Range Discrimination Radar (LRDR)*	**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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604873C / *Long Range Discrimination Radar (LRDR)*	**Project (Number/Name)** MD40 / *Program Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Facilities and Maintenance SRM (MIPR)	MIPR	Various : Multi: AL, VA, Aust, Japan	0.000	-		-		6.050		-		6.050	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		6.050		-		6.050	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		6.050		-		6.050	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604873C / *Long Range Discrimination Radar (LRDR)*	**Project (Number/Name)** MD40 / *Program Wide Support*

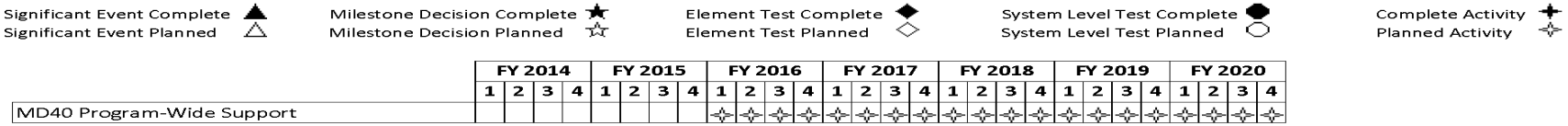

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604873C / *Long Range Discrimination Radar (LRDR)*	**Project (Number/Name)** MD40 / *Program Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	99.500	278.944	-	278.944	279.565	71.663	14.004	14.251	Continuing	Continuing
MD97: *Improved HD Interceptors*	-	-	99.500	266.676	-	266.676	266.348	67.993	13.258	13.479	Continuing	Continuing
MD40: *Program Wide Support*	-	-	-	12.268	-	12.268	13.217	3.670	0.746	0.772	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

Beginning in FY 2015, Improved Homeland Defense (HLD) Interceptors was transferred from PE Ballistic Missile Defense Midcourse Defense Segment (0603882C) MD08 Ground Based Midcourse project in accordance with Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

A. Mission Description and Budget Item Justification

The intercontinental ballistic missile (ICBM) threat that endangers the United States is projected to make significant progress over the next decade in: quantity of threats; rapid launch time line with no warning; and complexity with the use of countermeasures. To counter this evolving threat, Missile Defense Agency (MDA) is adding key Homeland Defense capabilities to the Ballistic Missile Defense System (BMDS) (i.e., Long Range Discriminating Radar (LRDR) and Discrimination Improvements for Homeland Defense (DIHD)) and Ground-Based Midcourse Defense (GMD) Redesigned Kill Vehicle (RKV). The RKV will address the following three areas: design to the evolving threat for increased performance; improve reliability, availability, maintainability, testability, and producibility; and increase in-flight communications to improve usage of off-board sensors information and situational awareness to combatant commanders for enabling improvements in tactics such as shoot-assess-shoot.

In FY 2016, three significant events are planned: a Preliminary Design Review (PDR), a Critical Design Review (CDR) of key components, and long lead purchases to provide a fully qualified and integrated RKV for a controlled flight test in FY 2018. To support a FY 2018 test, the Program will perform a CDR for those components requiring the longest purchase lead time. In FY 2016 the long lead material will be purchased. RKV subassemblies driving long lead procurement include the kill vehicle sensor and propulsion systems. Long lead components to be procured include the focal plane array, sensor optics, structure, thrusters and associated tooling. Procurement of these long lead components in FY2016 is required to support component and sub-assembly development testing as well as the FY2018 flight test. In addition, consideration of kill vehicle components from multiple technology offerings are to be evaluated at the design reviews allowing the government to select the best components. The two design reviews and material purchases in FY 2016 are reasons for the increase in requested funding from FY 2015 to FY 2016. In addition to concept development, government costs, and pre-contract costs, only one quarter of full effort for development will be on contract in FY 2015 versus a full year in FY 2016.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0604874C *I Improved Homeland Defense (HLD) Interceptors*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	99.500	278.944	-	278.944
Total Adjustments	-	99.500	278.944	-	278.944
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	99.500			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	-	-	278.944	-	278.944

Change Summary Explanation

FY 2015 and 2016 changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act which transferred Improved Homeland Defense (HLD) Interceptors from PE Ballistic Missile Defense Midcourse Defense Segment (0603882C) MD08 Ground Based Midcourse project.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	Project (Number/Name) MD97 / *Improved HD Interceptors*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD97: *Improved HD Interceptors*	-	-	99.500	266.676	-	266.676	266.348	67.993	13.258	13.479	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2015, Improved Homeland Defense (HLD) Interceptors was transferred from PE Ballistic Missile Defense Midcourse Defense Segment (0603882C) MD08 Ground Based Midcourse project in accordance with Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

A. Mission Description and Budget Item Justification

The intercontinental ballistic missile (ICBM) threat that endangers the United States is projected to make significant progress over the next decade in: quantity of threats; rapid launch timeline with no warning; and complexity with the use of countermeasures. To counter this evolving threat, Missile Defense Agency (MDA) is adding key Homeland Defense capabilities to the Ballistic Missile Defense System (BMDS) (i.e., Long Range Discriminating Radar (LRDR) and Discrimination Improvements for Homeland Defense (DIHD)) and Ground-Based Midcourse Defense (GMD) Redesigned Kill Vehicle (RKV). The RKV will address the following three areas: design to the evolving threat for increased performance; improve reliability, availability, maintainability, testability, and producibility; and increase in-flight communications to improve usage of off-board sensors information and situational awareness to combatant commanders for enabling improvements in tactics such as shoot-assess-shoot.

MDA is conducting market research, completing Material Solution Analysis and is developing the RKV Acquisition Strategy. MDA is completing the RKV requirements documents to support a development contract award in FY15 that will follow a robust acquisition and systems engineering approach following the MDA acquisition management policies and processes which are tailored to DoD 5000.02 regulations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Improved Homeland Defense (HLD) Interceptors	-	99.500	266.676
Articles:	-	-	-
Description: Improved Homeland Defense Interceptor provides for capability improvements to the Ground-based Midcourse Defense (GMD) component of the Ballistic Missile Defense System (BMDS). Improvements will include design work for reliability and performance updates common to the current Exoatmospheric Kill Vehicle (EKV) and GMD Redesigned Kill Vehicle (RKV) (leveraging Common Kill Vehicle Technology) built with a modular, open architecture and designed to common interfaces and standards, making upgrades easier and broadening the vendor and supplier base. Additionally, the GMD RKV will address the following three areas: design to the evolving threat for increased performance; improve reliability, availability, performance and producibility; and increase in-flight communications to improve usage of off-board sensors information and situational awareness to combatant commanders for enabling improvements in tactics such as shoot-assess-shoot. To fully comprehend the planned GMD RKV improvements, GMD will develop and deploy improvements to the Ground Systems architecture for increased in-			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	**Project (Number/Name)** MD97 / *Improved HD Interceptors*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
flight communications and both GMD RKV and fire control software to improve the effectiveness of on-board and off-board communication and discrimination. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** -Provide technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities, to the Program Director with critical program status and decision quality data -Complete Market Analysis, Material Solution Analysis and Receive approval of the Redesigned Kill Vehicle (RKV) Acquisition Strategy at the Acquisition Strategy Board (ASB). -Conduct the Technology Baseline Review (TBR), the MDA equivalent to the MS A, and award the RKV Development Contract. -Complete Independent Government Estimate and Cost Analysis Requirements Document (CARD) for the RKV Development Program and submit to the Office of Secretary of Defense Cost Assessment and Program Evaluation (CAPE) for the preparation of an Independent Cost Estimate (ICE) -Initiate Preliminary Design efforts to Improve Homeland Defense for a RKV initiate long-lead for Design Verification Testing that follows Preliminary Design Review in FY 2016 -Initiate RKV Component Reliability Program to support and eliminate known risks and identify reliability improvements -Initiate development efforts to Improve Homeland Defense for Ground Systems upgrades required to support the RKV -Conduct trade studies for various technologies for Government decisions at the RKV component and system PDR -Initiate and complete System Requirements Review RKV -Initiate activities to support an FY 2016 Preliminary Design Review and Critical Design Review -Initiate long-lead material acquisitions to support design verification testing ***FY 2016 Plans:*** -Increase from FY 2015 to FY 2016 due to three significant events: 1) Preliminary Design Review (PDR); 2) Critical Design Review (CDR) of key components; and 3) Long lead purchases to provide a fully qualified and integrated RKV for a controlled flight test in FY 2018. To support a FY 2018 test, the Program will perform a CDR for those components requiring the longest purchase lead time. In FY 2016 the long lead material will be purchased. In addition, consideration of kill vehicle components from multiple technology offerings are to be evaluated at the design reviews allowing the government to select the best components. The two design reviews and material purchases in FY 2016 are reasons for the increase in requested funding from FY 2015 to FY 2016. In addition to concept development, government costs, and pre-contract costs, only one quarter of full effort for development will be on contract in FY 2015 versus a full year in FY 2016.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	**Project (Number/Name)** MD97 / *Improved HD Interceptors*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Provide technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities, to the Program Director with critical program status and decision quality data -Includes robust system engineering activities that follow the FY 2015 contract award and system requirements review to include component Preliminary Design Reviews (PDR), system level PDR, Design Verification Testing, Component Critical Design Reviews (CDRs) and preparation for Component Qualification Testing -Complete component and system PDRs and order remaining long lead hardware for Design Verification Testing -Initiate robust subsystem Design Verification Testing to include Electromagnetic Environmental Effects (E3), temperature, vibration and shock environments and Highly Accelerated Lifecycle Testing to ensure increased reliability and producibility -Conduct a Development Baseline Review (DBR)following PDR, the MDA equivalent of milestone B to establish the Product Development phase and approve moving from the Technology Development phase to Development phase -Conduct Critical Design Review for Redesigned Kill Vehicle (RKV) components -Following the completion of the component CDRs, MDA will procure long lead items for Component Qualification Testing that occurs in FY 2017 to include robust ground testing, Hardware in the Loop and Computer in the Loop testing, and flight test articles -Initiate detailed design activities that support FY 2017 RKV system level Critical Design Review, test planning, and equipment and labs for Component Qualification Testing -Initiate development of special tooling and other special test equipment for the system -Initiate long-lead material acquisitions to support RKV and Ground Based Interceptors (GBI) system level ground and flight testing in FY 2018/ FY 2019			
Accomplishments/Planned Programs Subtotals	-	99.500	266.676

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603294C: *Common Kill Vehicle Technology*	67.796	25.639	46.753	-	46.753	75.262	71.476	86.814	99.701	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0604887C: *Ballistic Missile Defense Midcourse Defense Segment Test*	-	79.877	64.618	-	64.618	73.485	81.385	73.848	94.954	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	**Project (Number/Name)** MD97 / *Improved HD Interceptors*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

The threat continues to grow as our potential adversaries are acquiring a greater number of ballistic missiles, increasing their range and making them more complex, survivable, reliable, and accurate. The Agency will redesign the kill vehicle (RKV) to keep pace with the threats to the U.S. homeland. The RKV will be built with a modular, open architecture and designed with common interfaces and standards, making upgrades easier and broadening our vendor and supplier base. The design for growth allows future upgradability. Eventually, the new RKV will replace the kill vehicle on our current GBI fleet.

Overall, the RKV will be developed to improve: reliability, maintainability, producibility, survivability, affordability and testability. The RKV will be designed to utilize the enhanced capabilities being developed in the Long Range Discriminating Radar (LRDR) and Discrimination Improvements for Homeland Defense (DIHD). The redesign will improve performance to meet emerging threats and will maximize the operational capacity of the GMD weapon system. The goal of this effort is to develop and field an integrated set of capabilities to improve BMDS reliability, lethality, and discrimination. The end result will be a deployed future BMDS architecture more capable of discriminating and destroying a reentry vehicle.

The Missile Defense Agency (MDA) is developing the Ground-Based Midcourse Defense (GMD) Redesigned Kill Vehicle (RKV) acquisition strategy The RKV acquisition strategy will include a best-of-breed design approach where possible with the Government as the design authority responsible to ensure overall RKV design and development integration. The Government will implement rigorous systems engineering processes and use Federally Funded Research and Development Centers and University Affiliated Research Centers in support of the design and development. The MDA intends to award a development contract for the RKV in FY 2015, with a goal to field in 2020.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	**Project (Number/Name)** MD97 / *Improved HD Interceptors*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Improved Homeland Defense (HLD) Interceptors - Advanced Concepts KV Simulation and Analysis	C/TBD	TBD : TBD	0.000	-		2.000		-		-		-	Continuing	Continuing	Continuing
Improved Homeland Defense (HLD) Interceptors - RKV Development	C/TBD	TBD : TBD	0.000	-		71.169		157.955		-		157.955	Continuing	Continuing	Continuing
Improved Homeland Defense (HLD) Interceptors - Requirements Development	C/TBD	TBD : TBD	0.000	-		4.463		-		-		-	-	4.463	-
		Subtotal	0.000	-		77.632		157.955		-		157.955	-	-	-

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Improved Homeland Defense (HLD) Interceptors - Concept Definition and Program Planning	C/TBD	TBD : TBD	0.000	-		6.555		-		-		-	Continuing	Continuing	Continuing
Improved Homeland Defense (HLD) Interceptors - Contract Support Services	C/CPFF	Various : AL/VA	0.000	-		3.045		3.105		-		3.105	Continuing	Continuing	Continuing
Improved Homeland Defense (HLD)	MIPR	MDA : AL/VA	0.000	-		3.080		3.160		-		3.160	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	**Project (Number/Name)** MD97 / *Improved HD Interceptors*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Interceptors - Government Civilian Salaries															
Improved Homeland Defense (HLD) Interceptors - Other Govt Agencies	MIPR	Various : AL/VA	0.000	-		3.928		4.005		-		4.005	Continuing	Continuing	Continuing
Improved Homeland Defense (HLD) Interceptors - Small Business Innovation Research (SBIR)	MIPR	MDA : AL/VA	0.000	-		-		4.395		-		4.395	Continuing	Continuing	Continuing
Improved Homeland Defense (HLD) Interceptors - System and Component Engineering	C/TBD	TBD : TBD	0.000	-		-		72.065		-		72.065	Continuing	Continuing	Continuing
Improved Homeland Defense (HLD) Interceptors - Travel	MIPR	MDA : AL/VA	0.000	-		0.360		0.367		-		0.367	Continuing	Continuing	Continuing
		Subtotal	0.000	-		16.968		87.097		-		87.097	-	-	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Improved Homeland Defense (HLD) Interceptors - Qualification and Subsystem Testing	C/TBD	TBD : TBD	0.000	-		-		21.624		-		21.624	Continuing	Continuing	Continuing
Improved Homeland Defense (HLD)	C/TBD	TBD : TBD	0.000	-		4.900		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	Project (Number/Name) MD97 / *Improved HD Interceptors*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Interceptors - Test Facilities															
		Subtotal	0.000	-		4.900		21.624		-		21.624	-	-	-

Remarks

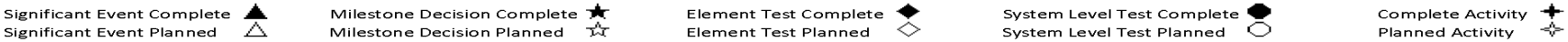
N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		99.500		266.676		-		266.676	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	**Project (Number/Name)** MD97 / *Improved HD Interceptors*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Preliminary Design Review (PDR)										☆																		
Key Component Critical Design Review (CDR)												☆																
Critical Design Review (CDR)														☆														
Complete Qualification Test																△												
GM CTV-03 (GM Flight Test)																			△									
FTG-17 (GM Intercept Flight Test)																							△					

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	**Project (Number/Name)** MD97 / *Improved HD Interceptors*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Preliminary Design Review (PDR)	2	2016	2	2016
Key Component Critical Design Review (CDR)	4	2016	4	2016
Critical Design Review (CDR)	2	2017	2	2017
Complete Qualification Test	4	2017	4	2017
GM CTV-03 (GM Flight Test)	3	2018	3	2018
FTG-17 (GM Intercept Flight Test)	3	2019	3	2019

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	Project (Number/Name) MD40 / *Program Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program Wide Support*	-	-	-	12.268	-	12.268	13.217	3.670	0.746	0.772	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2016, Program Wide Support was proportionately allocated to the Improved Homeland Defense (HLD) Interceptors

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	-	-	12.268
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: - FY 2014 Accomplishments were captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2015 Plans: - FY 2015 Accomplishments are captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2016 Plans: - Beginning in FY 2016, Program Wide Support was redistributed across RDT&E Program Elements with a proportional allocation to Homeland Defense (HLD) Interceptors - See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	-	12.268

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	**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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	**Project (Number/Name)** MD40 / *Program Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Facilities and Maintenance (MIPR)	MIPR	Various : Multi: AL, VA	0.000	-		-		4.944		-		4.944	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	Various : MDA Multi: AL, CO, CA, VA,	0.000	-		-		2.182		-		2.182	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, VA	0.000	-		-		5.142		-		5.142	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		12.268		-		12.268	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		12.268		-		12.268	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	**Project (Number/Name)** MD40 / *Program Wide Support*

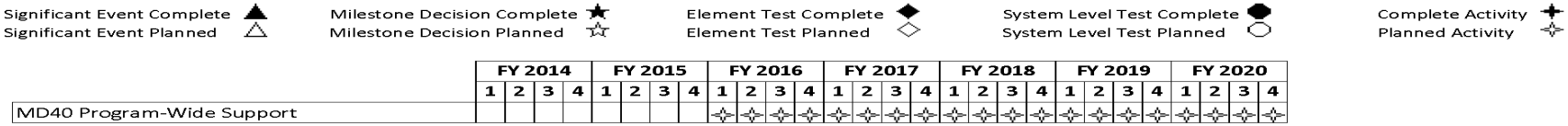


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604874C / *Improved Homeland Defense (HLD) Interceptors*	**Project (Number/Name)** MD40 / *Program Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	111.366	26.225	-	26.225	74.400	69.852	86.191	65.578	Continuing	Continuing
MT07: *THAAD Test*	-	-	111.366	25.072	-	25.072	70.883	66.275	81.599	62.026	Continuing	Continuing
MD40: *Program Wide Support*	-	-	-	1.153	-	1.153	3.517	3.577	4.592	3.552	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

Beginning in FY 2015 THAAD Test funding was transferred to new Program Element 0604876C - Ballistic Missile Defense Terminal Defense Segment Test, Project MT07 from Program Element 0603881C: Ballistic Missile Defense Terminal Defense Segment, Project MT07.

A. Mission Description and Budget Item Justification

THAAD System Test conducts Ballistic Missile Defense System (BMDS) Flight Tests and Ground Tests with other BMDS elements (including BMDS Command and Control, Battle Management, and Communication, PATRIOT and Aegis) in accordance with BMDS Integrated Master Test Plan. THAAD System Test coordinates with Operational Test Agencies, conducts flight test operations, performs post-flight test reporting, and performs data distribution and data storage at Pacific Missile Range Facility and the Reagan Test Site.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	111.366	26.225	-	26.225
Total Adjustments	-	111.366	26.225	-	26.225
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	111.366			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	-	-	26.225	-	26.225

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0604876C *I Ballistic Missile Defense Terminal Defense Segment Test*

Change Summary Explanation

FY 2015 and 2016 changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act transferring THAAD Test funding to new Program Element 0604876C - Ballistic Missile Defense Terminal Defense Segment Test from Program Element 0603881C: Ballistic Missile Defense Terminal Defense Segment.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	Project (Number/Name) MT07 / *THAAD Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT07: *THAAD Test*	-	-	111.366	25.072	-	25.072	70.883	66.275	81.599	62.026	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2015 THAAD Test funding was transferred to new Program Element 0604876C - Ballistic Missile Defense Terminal Defense Segment Test from Program Element 0603881C: Ballistic Missile Defense Terminal Defense Segment.

FY 2016 THAAD Test funding decreased from FY 2015 because THAAD is not executing a flight test in FY 2016, compared to two flight tests executed in FY 2015. Additionally, the FY 2016 request increased by $8M compared to the PB 2015 estimate due primarily to re-phasing of pre-mission planning requirements for FTT-15.

A. Mission Description and Budget Item Justification

Terminal High Altitude Area Defense (THAAD) System Test conducts Ballistic Missile Defense System (BMDS) Flight Tests and Ground Tests with other BMDS elements (including BMDS Command Control, and Battle Management, and Communication, PATRIOT, and Aegis) in accordance with BMDS Integrated Master Test Plan. THAAD System Test coordinates with Operational Test Agencies, conducts flight test operations, performs post-flight test reporting, and performs data distribution and data storage at Pacific Missile Range Facility and the Reagan Test Site.

THAAD Flight Test Execution includes mission planning, pre-flight integration testing, conduct of readiness reviews, test asset transportation, flight test execution and data collection, post flight test reporting and data distribution.

Ground Test Execution includes mission planning, BMDS test integration, conduct of readiness reviews, ground test execution and data collection, and post-test reporting and data distribution.

Resources include sustainment and maintenance of test equipment and facilities. It provides maintenance, repair, and fueling of THAAD Battery assets utilized in testing.

Wargames & Exercises provides support to the various Combatant Commanders with model and simulations and subject matter expertise during various exercises.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Flight Test Execution	-	98.376	16.277
Articles:	-	-	-
Description: THAAD Flight Test Execution includes mission planning, pre-flight integration testing, conduct of readiness reviews, test asset transportation, flight test execution and data collection, post flight test reporting and data distribution.			
FY 2014 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	**Project (Number/Name)** MT07 / *THAAD Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-FY 2014 Accomplishments were captured in PE 0603881C: Ballistic Missile Defense Terminal Defense Segment, budget project MT07: THAAD Test ***FY 2015 Plans:*** -Conduct flight test planning, range interface, coordination with Operational Test Agencies (OTAs) and execution of flight test operations at Wake Island for Flight Test Operational-02 (FTO-02 E2) (BMDS Operational Flight Test) to further demonstrate, in an operational scenario, THAAD`s ability to conduct coordinated engagements with Aegis and PATRIOT operating with BMDS Command and Control, Battle Management, and Communications (C2BMC) and forward-based Army Navy / Transportable Radar Surveillance (AN/TPY-2) while engaging a Short Range Ballistic Missile. - Conduct flight test planning, range interface, coordination with Operational Test Agencies (OTAs) and execution of flight test operations at Wake Island for Flight Test THAAD-18 (FTT-18) to demonstrate THAAD's ability to intercept an Intermediate Range Ballistic Missile (IRBM) target using the THAAD radar, launcher, fire control and communications, Interceptor closed-loop operations, and engagement functions. ***FY 2016 Plans:*** -Reduction in flight test cost from FY 2015 to FY 2016 due to no flight test being executed in FY 2016. In FY 2015 THAAD planned and executed FTO-02 (BMDS Operational Flight Test) and FTT-18. In FY 2016, THAAD is not scheduled to conduct any flight tests and plans to complete post-mission analysis work for FTO-02 and FTT-18, and initiate test planning activities for FTT-15. -Complete Flight Test Operational-02 (FTO-02) post-test reporting and data distribution to provide data for analysis and integration into Ballistic Missile Defense System (BMDS) Modeling and Simulation. FY 2016 funds are needed to finalize post flight test activities as FTO-O2 is schedule to be conducted in fourth quarter FY 2015. -Complete Flight Test THAAD-18 (FTT-18) post-test reporting and data distribution to provide data for analysis and integration into BMDS Modeling and Simulation. FY 2016 funds are needed to finalize these post flight test activities as FTT-18 is schedule to be conducted in fourth quarter FY 2015. -Initiate pre-mission planning for Flight Test THAAD-15 (FTT-15), to include long lead activities like range safety and weapon system performance analysis. FY 2016 funds are requested because long lead planning activities are required to begin approximately 12 months prior to a flight test event and FTT-15 is scheduled for second quarter FY 2017.			
Title: Ground Test Execution	-	4.917	5.106
Articles:	-	-	-
Description: Ground Test Execution includes mission planning, BMDS test integration, conduct of readiness reviews, ground test execution and data collection, post-test reporting and data distribution.			
FY 2014 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	**Project (Number/Name)** MT07 / *THAAD Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-FY 2014 Accomplishments were captured in PE 0603881C: Ballistic Missile Defense Terminal Defense Segment, budget project MT07: THAAD Test ***FY 2015 Plans:*** -Continue THAAD participation in Missile Defense Agency (MDA) Ground Test operational scenario events (GT-04 and GT-06 campaigns) to ensure THAAD`s ability to conduct coordinated engagements with Aegis and PATRIOT operating with Command and Control, Battle Management, Communications (C2BMC) and forward-based Army Navy Transportable Radar Surveillance and Control (AN/TPY-2) -Provide pre-mission planning, pre and post mission analysis, reporting support, and execution to BMDS Ground Test campaigns -Continue Performance Assessments to evaluate system performance and interoperability within the integrated Ballistic Missile Defense System (BMDS) ***FY 2016 Plans:*** -Continue THAAD participation in Missile Defense Agency (MDA) Ground Test operational scenario events (GT-06 and GT-07 campaigns) to ensure THAAD`s ability to conduct coordinated engagements with Aegis and PATRIOT operating with Command and Control, Battle Management, Communications (C2BMC) and forward-based Army Navy Transportable Radar Surveillance and Control (AN/TPY-2) -Provide pre-mission planning, pre and post mission analysis, reporting support, and execution to BMDS Ground Test campaigns -Continue Performance Assessments to evaluate system performance and interoperability within the integrated Ballistic Missile Defense System (BMDS)			
Title: Resources	-	7.707	3.507
Articles:	-	-	-
Description: Resources include sustainment and maintenance of test labs and facilities. It provides maintenance, repair, and fueling of THAAD Battery assets utilized in testing. ***FY 2014 Accomplishments:*** -FY 2014 Accomplishments were captured in PE 0603881C: Ballistic Missile Defense Terminal Defense Segment, budget project MT07: THAAD Test ***FY 2015 Plans:*** -Provide data management, facilities operations, and post-test reporting in support of Ballistic Missile Defense System (BMDS) System Tests to ensure data collection and readiness for mission execution -Provide on-site range support for Terminal High Altitude Area Defense (THAAD) maintenance, repair, and fueling to ensure readiness of the THAAD test assets			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	**Project (Number/Name)** MT07 / *THAAD Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continue Performance Assessments to evaluate system performance and interoperability within the integrated Ballistic Missile Defense System (BMDS) ***FY 2016 Plans:*** -Reduction from FY 2015 to FY 2016 due to the completion of improvements to the operations facilities and infrastructure required for continued support of BMD System Tests -Provide data management, facilities operations, and post-test reporting in support of Ballistic Missile Defense System (BMDS) System Tests to ensure data collection and readiness for mission execution -Provide on-site range support for Terminal High Altitude Area Defense (THAAD) maintenance, repair, and fueling to ensure readiness of the THAAD test assets -Continue Performance Assessments to evaluate system performance and interoperability within the integrated Ballistic Missile Defense System (BMDS)			
Title: Wargames and Exercises	-	0.366	0.182
Articles:	-	-	-
Description: See planned accomplishments ***FY 2014 Accomplishments:*** - FY 2014 Accomplishments were captured in PE 0603881C: Ballistic Missile Defense Terminal Defense Segment, budget project MT07: THAAD Test ***FY 2015 Plans:*** -Provide support to the various Combatant Commands (COCOM's) with model and simulations and subject matter expertise during the exercise events. Continue to assist in the development/refining of Tactics, Techniques, and Procedures (TTP's) as well as Pre-Planned Responses (PPR's) to incorporate in further exercises, ground, and flight test events. Demonstrate THAAD capability and limitations to the warfighter community in the Integrated and Missile Defense (IAMD) environment. ***FY 2016 Plans:*** -Provide support to the various COCOM's with model and simulations and subject matter expertise during the exercise events. Continue to assist in the development/refining of Tactics, Techniques, and Procedures (TTP's) as well as Pre-Planned Responses (PPR's) to incorporate in further exercises, ground, and flight test events. Demonstrate THAAD capability and limitations to the warfighter community in the Integrated and Missile Defense (IAMD) environment			
Accomplishments/Planned Programs Subtotals	-	111.366	25.072

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	**Project (Number/Name)** MT07 / *THAAD Test*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0208866C: *O&M*	377.672	403.512	432.068	-	432.068	446.563	446.873	461.472	460.216	-	3,028.376
• 0208866C: MD07: *THAAD Procurement*	-	449.824	464.067	-	464.067	362.605	330.002	317.414	313.631	3,289.952	5,527.495
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	251.899	163.892	228.021	-	228.021	230.306	257.014	218.533	247.707	Continuing	Continuing

Remarks

D. Acquisition Strategy

THAAD awards Indefinite Delivery Indefinite Quantity (IDIQ) Task Orders on the Advanced Capability Development (ACD) contract for the continuation of THAAD 2.0 development and test as described and approved in the MDA Integrated Master Test Plan. The discrete task orders allow management and tracking of Development work.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	**Project (Number/Name)** MT07 / *THAAD Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Test Execution - Execution, Support and Planning	MIPR	MDA / AMRDEC / Wake Island : AL / CO / HI / Wake Island	0.000	-		58.323		3.862	Oct 2015	-		3.862	Continuing	Continuing	Continuing
Flight Test Execution - Planning, Analysis, and Execution	SS/IDIQ	Lockheed Martin : Sunnyvale, CA / Huntsville, AL	0.000	-		40.053		12.415	Oct 2015	-		12.415	Continuing	Continuing	Continuing
Ground Test Execution - BMDS Ground Test Support	MIPR	US Army AMRDEC : Huntsville, AL	0.000	-		4.917		5.106	Oct 2015	-		5.106	Continuing	Continuing	Continuing
Resources - MDA Test Program Support	MIPR	MDA : AL / CO / VA	0.000	-		-		0.393		-		0.393	Continuing	Continuing	Continuing
Resources - Test and Range Infrastructure	MIPR	US Army AMRDEC / White Sands Missile Range : Huntsville, AL / White Sands, NM	0.000	-		7.707		3.114	Oct 2015	-		3.114	Continuing	Continuing	Continuing
Wargames and Exercises - Wargames and Exercises	MIPR	MDA / Space and Missile Defense Command : Huntsville, AL	0.000	-		0.366		0.182	Oct 2015	-		0.182	Continuing	Continuing	Continuing
		Subtotal	0.000	-		111.366		25.072		-		25.072	-	-	-

Remarks

-Reductions R-3 Cost Category Items related to Flight Test Execution from FY 2015 to FY 2016 are due to no flight test being executed in FY 2016. In FY 2015 THAAD planned and executed FTO-02 (BMDS Operational Flight Test) and FTT-18. In FY 2016, THAAD is not scheduled to conduct any flight tests and plans to complete post-mission analysis work for FTO-02 and FTT-18, and initiate test planning activities for FTT-15.

-Reductions in FY 2016 R-3 Cost Category Items for Resources from FY 2015 to FY 2016 due to the completion of improvements to the operations facilities and infrastructure required for continued support of BMD System Tests.

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		111.366		25.072		-		25.072	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	Project (Number/Name) MT07 / *THAAD Test*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	**Project (Number/Name)** MT07 / *THAAD Test*

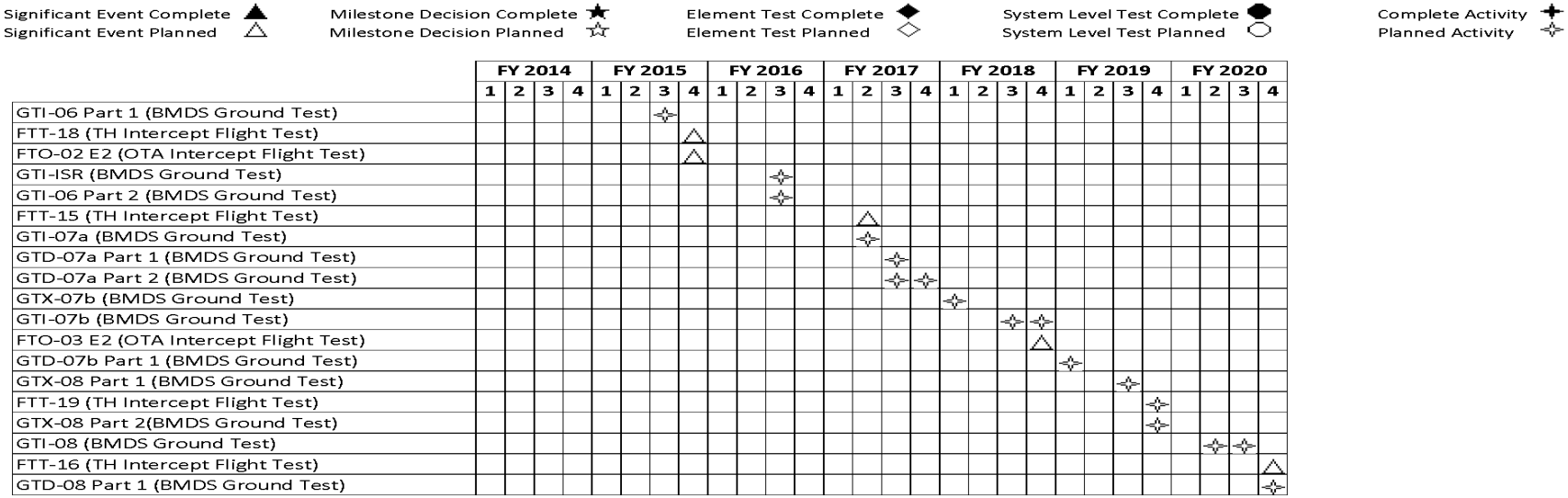


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	**Project (Number/Name)** MT07 / *THAAD Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GTI-06 Part 1 (BMDS Ground Test)	3	2015	3	2015
FTT-18 (TH Intercept Flight Test)	4	2015	4	2015
FTO-02 E2 (OTA Intercept Flight Test)	4	2015	4	2015
GTI-ISR (BMDS Ground Test)	3	2016	3	2016
GTI-06 Part 2 (BMDS Ground Test)	3	2016	3	2016
FTT-15 (TH Intercept Flight Test)	2	2017	2	2017
GTI-07a (BMDS Ground Test)	2	2017	2	2017
GTD-07a Part 1 (BMDS Ground Test)	3	2017	3	2017
GTD-07a Part 2 (BMDS Ground Test)	3	2017	4	2017
GTX-07b (BMDS Ground Test)	1	2018	1	2018
GTI-07b (BMDS Ground Test)	3	2018	4	2018
FTO-03 E2 (OTA Intercept Flight Test)	4	2018	4	2018
GTD-07b Part 1 (BMDS Ground Test)	1	2019	1	2019
GTX-08 Part 1 (BMDS Ground Test)	3	2019	3	2019
FTT-19 (TH Intercept Flight Test)	4	2019	4	2019
GTX-08 Part 2(BMDS Ground Test)	4	2019	4	2019
GTI-08 (BMDS Ground Test)	2	2020	3	2020
FTT-16 (TH Intercept Flight Test)	4	2020	4	2020
GTD-08 Part 1 (BMDS Ground Test)	4	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	Project (Number/Name) MD40 / *Program Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program Wide Support*	-	-	-	1.153	-	1.153	3.517	3.577	4.592	3.552	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2016, Program Wide Support was proportionately allocated to the Ballistic Missile Defense Terminal Defense Segment Test

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	-	-	1.153
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: - FY 2014 Accomplishments were captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2015 Plans: - FY 2015 Accomplishments were captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2016 Plans: - Beginning in FY 2016, Program Wide Support was redistributed across RDT&E Program Elements with a proportional allocation to Ballistic Missile Defense Terminal Defense Segment Test - See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	-	1.153

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	**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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	Project (Number/Name) MD40 / *Program Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, VA, Aust, Japan	0.000	-		-		0.725		-		0.725	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support International and Materiel and Readiness	MIPR	Various : Multi: AL, VA, Aust, Japan	0.000	-		-		0.428		-		0.428	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		1.153		-		1.153	-	-	-

Remarks

N/A

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		1.153		-		1.153	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	**Project (Number/Name)** MD40 / *Program Wide Support*

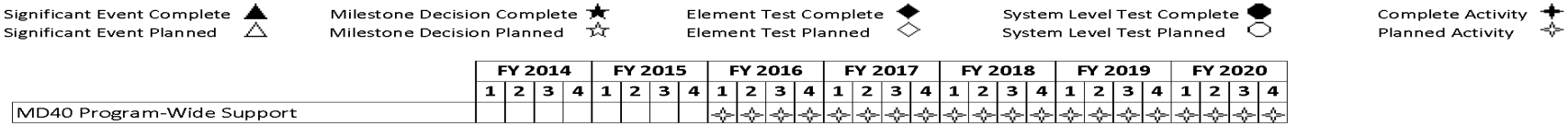


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604876C / *Ballistic Missile Defense Terminal Defense Segment Test*	**Project (Number/Name)** MD40 / *Program Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604878C / *Aegis BMD Test*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	89.628	55.148	-	55.148	89.861	131.351	101.903	80.390	Continuing	Continuing
MT09: *AEGIS BMD Test*	-	-	89.628	52.723	-	52.723	85.613	124.624	96.474	76.035	Continuing	Continuing
MD40: *Program Wide Support*	-	-	-	2.425	-	2.425	4.248	6.727	5.429	4.355	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

Beginning in FY 2015, the MT09 Aegis BMD Test project was transferred to PE 0604878C: Aegis BMD Test from PE 0603892C: Aegis BMD MT09 Aegis BMD Test project in accordance with Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

FY 2016 Budget Accomplishments for PE 0603892C Budget Project MT09 is restructured for direct traceability to the Integrated Master Test Plan (IMTP) and efficient management of testing execution efforts. Test funding falls under the following accomplishments: Aegis BMD Ground Test Execution, Aegis BMD Test Resources, and Engineering & Analysis.

The Aegis BMD Test Program is split into multiple functional areas - the initial Aegis BMD capability which includes the Aegis BMD Weapons System (ABMD) 3.x, 4.x, and the SM-3 Block IA and IB guided missiles; the follow-on/upgraded capability that includes baseline 9.B.x, 9.C.x (ABMD 5.0, 5.0 Capability Upgrade), the SM-3 Block IIA Cooperative Development Program and other Aegis BMD Programs with advanced capabilities.

A. Mission Description and Budget Item Justification

The Aegis Ballistic Missile Defense (BMD) mission is to deliver an enduring, operationally effective and supportable BMD capability to defend the nation, deployed forces, friends and allies, and to increase this capability by delivering evolutionary improvements as part of the Ballistic Missile Defense System (BMDS) upgrades. The Aegis BMD element of the BMDS capitalizes upon and evolves from the existing United States Navy Aegis Weapons System (AWS) and Standard Missile (SM) infrastructures. Aegis BMD provides a forward-deployable, mobile capability to detect and track Ballistic Missiles of all ranges, and the ability to destroy Short-Range Ballistic Missiles (SRBMs), Medium-Range Ballistic Missiles (MRBMs), and Intermediate-Range Ballistic Missiles (IRBMs) in the midcourse phase of flight and shorter range missiles in the terminal phase of flight. Aegis BMD also provides a Long Range Surveillance and Track (LRS&T) capability to the BMDS. Upgrades to both the Aegis BMD Weapon System and the SM-3 missile configuration enable Aegis BMD to provide effective, supportable defensive capability against longer range, more sophisticated threats and an enduring Aegis Ashore defensive capability.

Proving Missile Defense:
- Working with the Services' Operational Test Agencies (OTA), with the support of the Director of Operational Test and Evaluation (DOT&E), Missile Defense Agency (MDA) has developed a test program to improve confidence in missile defense capabilities under development and ensure the capabilities transferred to the warfighter are operationally effective, suitable, and survivable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0604878C *I Aegis BMD Test*

- As part of the Agency's rigorous test program, System Pre-Flight predictions provide confidence in test execution by predicting element performance and exercising element interfaces. System Post-Flight Reconstruction replicates the Ballistic Missile Defense System configuration and actual environmental conditions and target dynamics observed in flight to anchor modeling and simulation models and results.
- The Integrated Master Test Plan (IMTP) is event-oriented and extends until the collection of all identified data is completed to ensure adequate test investments.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	89.628	55.148	-	55.148
Total Adjustments	-	89.628	55.148	-	55.148
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	89.628			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	-	-	55.148	-	55.148

Change Summary Explanation

FY 2015 and 2016 changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604878C / *Aegis BMD Test*	Project (Number/Name) MT09 / *AEGIS BMD Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT09: *AEGIS BMD Test*	-	-	89.628	52.723	-	52.723	85.613	124.624	96.474	76.035	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2015, the MT09 Aegis BMD Test project was transferred to PE 0604878C: Aegis BMD Test from PE 0603892C: Aegis BMD MT09 Aegis BMD Test project in accordance with Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

FY 2016 Budget Accomplishments for PE 0603892C Budget Project MT09 is restructured for direct traceability to the Integrated Master Test Plan (IMTP) and efficient management of testing execution efforts. Test funding falls under the following accomplishments: Aegis BMD Ground Test Execution, Aegis BMD Test Resources, and Engineering & Analysis.

Decrease from FY 2015 to FY 2016 is attributed to no Aegis BMD flight test missions scheduled for FY 2016 execution out of PE 0604878C. Flight tests are planned for execution in PE 0604881C in accordance with the Integrated Master Test Plan (IMTP). Associated test funding for planning pre- and post-mission analysis, and test resources is captured in this PE.

A. Mission Description and Budget Item Justification

The Aegis Ballistic Missile Defense (BMD) mission is to deliver an enduring, operationally effective and supportable BMD capability to defend the nation, deployed forces, friends and allies, and to increase this capability by delivering evolutionary improvements as part of the Ballistic Missile Defense System (BMDS) upgrades. The FY2016 Aegis BMD Test Program will concentrate on two capability aspects that will give Aegis BMD an increased regional negation capability and defense of the fleet. Each of these programs have been in development for over 5 years, and address evolving threats as defined by national intelligence agencies. Upgrades to both the Aegis BMD Weapon System and the Standard Missile configurations enable Aegis BMD to provide effective, supportable defensive capability against longer range, more sophisticated threats and an enduring Aegis Ashore defensive capability.

Aegis BMD will concentrate on increased capabilities developmental testing in FY2016 - and within the Aegis BMD budget, these are separate programs from the initial capability (ABMD 3.x, 4.x, and SM-3 Blocks IA and IB). One being the Block IIA Program that is a cooperative development with the Japanese and subject to International Agreements.

Proving Missile Defense:
- Working with the Navy Integrated Warfare System (IWS) Services' Operational Test Agencies (OTA), with the support of the Director of Operational Test and Evaluation (DOT&E), Missile Defense Agency (MDA) has developed a test program to improve missile defense capabilities under development and ensure the capabilities transferred to the warfighter are operationally effective, suitable, and survivable FY 2016 testing is concentrated in these areas.
- As part of the Agency's rigorous test program, System Pre-Flight predictions provide confidence in test execution by predicting element performance and exercising element interfaces. System Post-Flight Reconstruction replicates the Ballistic Missile Defense System configuration and actual environmental conditions and target dynamics observed in flight to anchor modeling and simulation results.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604878C / *Aegis BMD Test*	**Project (Number/Name)** MT09 / *AEGIS BMD Test*

- The Integrated Master Test Plan (IMTP) is event-oriented and extends until the collection of all identified data is completed to ensure adequate test investments.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Aegis Ballistic Missile Defense (BMD) Testing	-	39.110	-
Articles:	-	-	-
Description: See description below ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** - Continue to conduct Aegis BMD-specific analysis during pre and post-mission analysis phases. - Begin test planning for FY 2016 Aegis flight test missions: prepare target, develop models and simulations, and ready the range for test. - Continue to conduct Post Flight Analysis for test conducted in FY 2015 Aegis flight test missions. - Prepare for and conduct Ballistic Missile Defense System (BMDS) Flight and Ground Test events as reflected in the Integrated Master Test Plan (IMTP) and the Exhibit R-4 schedule. - Participate in BMD special technology experiments. ***FY 2016 Plans:*** Decrease from FY 2015 is attributed to no flight test missions scheduled for FY 2016 execution according to the Integrated Master Test Plan (IMTP). All remaining efforts are realigned within new MT09 Budget Accomplishment Structure: Aegis BMD Ground Test Execution and Aegis BMD Test Resources.			
Title: BMDS Level Testing	-	38.222	-
Articles:	-	-	-
Description: See description below. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** - Perform operational flight testing (FTO-2 Events 1 and 2) of the integrated BMDS as defined in phase II of the European Phased Adaptive Approach (EPAA) to support deployment to Europe by the end of CY 2015. - Perform operational flight test demonstrating a validation of coordinated BMD engagement capabilities between multiple Aegis BMD Ships.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604878C / *Aegis BMD Test*	**Project (Number/Name)** MT09 / *AEGIS BMD Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Perform ground testing of all BMDS elements planned for deployment in EPAA Phase II to verify their operation capability on an integrated architecture. ***FY 2016 Plans:*** Decrease from FY 2015 is attributed to no flight test missions scheduled for FY 2016 execution according to the Integrated Master Test Plan (IMTP). All remaining efforts are realigned within new MT09 Budget Accomplishment Structure: Aegis BMD Ground Test Execution and Aegis BMD Test Resources			
Title: Aegis BMD Ground Test Execution	-	-	8.335
Articles:	-	-	-
Description: Aegis BMD Ground Test Program performs comprehensive testing of Aegis BMD Components and their interoperability with the BMDS using accredited Modeling & Simulation that provides the evidence required for the MDA and Combatant Commanders to transition the capability to the Operational Baseline. More specifically, ground testing is used to collect data for Aegis BMD characterization and assessment, flight test risk reduction, and exploration of scenarios where flight testing is either impracticable or impossible. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** - Participate in Ballistic Missile Defense System (BMDS) Ground Tests in accordance with the Missile Defense Agency's (MDA's) Integrated Master Test Plan (IMTP) to collect data for Aegis BMD characterization and assessment, flight test risk reduction, and exploration of scenarios where flight testing is either impracticable or impossible. - Conduct planning to ensure BMDS Test Site (BTS) capabilities support Aegis Ballistic Missile Defense (BMD) testing, exercise flight test, and demonstration requirements. This includes upgrades to the ground testing labs to ensure compliance with operational and test baselines. - Manage the complex transition and proliferation of Command, Control, Computer, Communications & Intelligence (C4I) systems and Aegis BMD baselines to ensure interoperability with CCMD systems. - Develop BTS upgrade plan to support test execution in order to validate the results of the testing. - Participate in System Level Ground Testing as an element of the layered BMDS to collect data for Aegis BMD characterization and assessment and exploration of scenarios where flight testing is either impracticable or impossible.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604878C / *Aegis BMD Test*	**Project (Number/Name)** MT09 / *AEGIS BMD Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
New accomplishment developed to align within new MT09 restructure for traceability to the IMTP: - Funding previously captured in Project MT09, BMDS Level Testing and Project MT09, Aegis Ballistic Missile Defense (BMD) Testing			
Title: Aegis BMD Test Resources	-	-	32.028
Articles:	-	-	-

Description: Conducts test and evaluation through ground and flight testing to improve confidence in missile defense capabilities under development and ensure the capabilities transferred to the warfighter are operationally effective, suitable, and survivable. This data is used to recreate, or reconstruct, a test event to validate the results of the flight test.

FY 2014 Accomplishments:
N/A

FY 2015 Plans:
N/A

FY 2016 Plans:
- Provides Test and Evaluation (T&E) infrastructure support for Aegis Ballistic Missile Defense (BMD) Test Missions as reflected in the Missile Defense Agency's (MDA's) Integrated Master Test Plan (IMTP) to collect truth data for post-event analysis.
- Execute the Aegis BMD mission as applied to a layered Ballistic Missile Defense System (BMDS) Defense to ensure a technical capability and interoperability.
- Collect Aegis BMD data for modeling and simulation (M&S) anchoring used in comprehensive ground testing.
- Exercise tactical communications as they support the BMDS Mission to ensure interoperability with the BMDS and CCMD systems.
- Participate as part of the overall MDA BMDS mission to ensure a technical capability exists.
- Conduct Aegis BMD-specific analysis during pre- and post-mission analysis phases to solidify pre-mission expectations of mission success and validate test results.
- Begin test planning for FY 2017 Aegis BMD flight test mission to include preparation of targets, development of M&S, and preparation of the range to ensure all missions are executable and apply to the technical program objectives.
- Conduct post-test analysis for all flight testing conducted in FY 2015 for Aegis BMD missions to validate results
- Prepare for and conduct BMDS flight events as reflected in the IMTP and the Exhibit R-4 schedule in accordance with Congressional and Presidential guidance.
- Participate in BMDS Special Technology experiments and demonstrations to expand the capabilities of the Aegis BMD to use a diverse set of inputs.

New accomplishment developed to align within new MT09 restructure for traceability to IMTP:

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604878C / *Aegis BMD Test*	**Project (Number/Name)** MT09 / *AEGIS BMD Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Funding previously captured in Project MT09, BMDS Level Testing and Project MT09, Aegis Ballistic Missile Defense (BMD) Testing			
Title: Engineering & Analysis	-	12.296	12.360
Articles:	-	-	-

Description: The Engineering and Analysis effort provides engineering support for planning and execution of BMDS ground and flight test events, including test architectures, objectives, and assessment criteria, and modeling and simulation pre- and post-test analysis support.

FY 2014 Accomplishments:
N/A

FY 2015 Plans:
Provide engineering support for planning, execution, and analysis of the test events listed in the Integrated Master Test Plan (IMTP):
- Design test architecture, define target requirements, and generate appropriate scenarios for ground and flight tests.
- Track Critical Engagement Condition (CEC) and Empirical Measurement Events (EME) data requirements and sufficiency.
- Participate in major test reviews.
- Utilize models and simulations (M&S) for pre-test assessment and post-test review, as well as M&S updates.
- Provide Systems Engineering and Integration (SE&I) test configuration management; risk assessment; and anomaly/deficiency review, assessment and closure to support data gathering for BMDS hardware/software reliability improvements.
- Develop and establish hardware-in-the-loop (HWIL) M&S integration test cases for ground and flight tests (pre-post mission).
- Provide modeling and technical analysis support during Combatant Command (COCOM) wargames and exercises.

FY 2016 Plans:
- Design test architectures, and generate appropriate scenarios.
- Define test objectives and evaluation criteria for all System level test events to anchor Models and Simulations (M&S) and address data collection requirements.
- Participate in major test reviews, analysis team meetings, and mission planning events.
- Utilize models and simulations (M&S) to perform pre-test assessments and post-test reviews, and utilize analysis results to refine and update M&S parameters.
- Provide Systems Engineering and Integration (SE&I) test configuration management; risk assessment; and anomaly/deficiency review, assessment and closure to support data gathering for BMDS hardware/software reliability improvements.
- Analyze test results to identify shortfalls so that objectives can be reassigned to future events to provide required verification and model validation data.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604878C / *Aegis BMD Test*	**Project (Number/Name)** MT09 / *AEGIS BMD Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Develop and provide capability upgrades to test analysis tools (e.g., Modular Analysis and Reporting Suite (MARS)) in concert with the BMDS evolution to enhance analysis capability and efficiency. - Populate the MARS database with data from the most recently completed tests to support as-built analysis and capability assessments. - Develop and provide infrastructure, software, and associated MDA/IA compliance for the RApid Scenario Prototype (RASP) capability. - Develop and establish hardware-in-the-loop (HWIL) M&S integration test cases (pre/post mission).			
Accomplishments/Planned Programs Subtotals	-	89.628	52.723

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing
• 0604880C: *Land Based SM-3 (LBSM3)*	124.568	123.444	34.970	-	34.970	40.787	30.486	20.193	22.079	Continuing	Continuing
• 0604881C: *AEGIS SM-3 Block IIA Co-Development*	297.169	263.695	172.645	-	172.645	66.828	-	-	-	-	800.337

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604878C / *Aegis BMD Test*	**Project (Number/Name)** MT09 / *AEGIS BMD Test*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Missile Defense (BMD) Testing - Aegis Ballistic Missile Defense (BMD) Testing - MT09 -	MIPR	NSWC Dahlgren : Dahlgren, VA	0.000	-		6.604	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Testing - Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 201112202597076	MIPR	PMRF Barking Sounds : Kauai, HI	0.000	-		2.559	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Testing - Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 201112202597078	MIPR	NAWC/PM : Pt Mugu, CA	0.000	-		2.612	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Testing - Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 201112202630564	SS/CPFF	JHU/APL : Columbia, MD	0.000	-		10.171	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Testing - Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 201112202630567	MIPR	Aegis BMD : VA	0.000	-		3.283	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Testing - Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 201112202630569	SS/CPIF	Lockheed Martin : Moorestown, NJ	0.000	-		4.849	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Testing - Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 20111220263057	MIPR	SPAWAR : San Diego, CA	0.000	-		3.674	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Testing	MIPR	NSWC/PHD : PT. HUENEME, CA	0.000	-		5.358	Oct 2014	-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604878C / *Aegis BMD Test*	Project (Number/Name) MT09 / *AEGIS BMD Test*	

Test and Evaluation ($ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
- Aegis Ballistic Missile Defense (BMD) Testing - MT09 - 20111220266947															
BMDS Level Testing - BMDS Level Testing - MT09	MIPR	NSWC PHD : PT. HUENEME, CA	0.000	-		2.699	Oct 2014	-		-		-	Continuing	Continuing	Continuing
BMDS Level Testing - BMDS Level Testing - MT09 - 201112202535339	MIPR	JHU/APL : COLUMBIA, MD	0.000	-		6.284	Oct 2014	-		-		-	Continuing	Continuing	Continuing
BMDS Level Testing - BMDS Level Testing - MT09 - 20111220253534	MIPR	NAVSEA : VA	0.000	-		8.006	Oct 2014	-		-		-	Continuing	Continuing	Continuing
BMDS Level Testing - BMDS Level Testing - MT09 - 201112202535342	MIPR	SPAWAR : SAN DIEGO CA	0.000	-		1.153	Oct 2014	-		-		-	Continuing	Continuing	Continuing
BMDS Level Testing - BMDS Level Testing - MT09 - 201112202535344	MIPR	CORONA : CA	0.000	-		1.273	Oct 2014	-		-		-	Continuing	Continuing	Continuing
BMDS Level Testing - BMDS Level Testing - MT09 - 201112202535347	MIPR	LOCKHEED MARTIN : MOORESTOWN NJ	0.000	-		3.153	Oct 2014	-		-		-	Continuing	Continuing	Continuing
BMDS Level Testing - BMDS Level Testing - MT09 - 201112202535348	MIPR	MDA : Arlington VA	0.000	-		15.654	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis BMD Ground Test Execution - Aegis BMD Ground Test Execution - MT09 - CORONA	MIPR	CORONA : CA	0.000	-		-		0.477	Nov 2015	-		0.477	Continuing	Continuing	Continuing
Aegis BMD Ground Test Execution - Aegis BMD Ground Test Execution - MT09 - LM	MIPR	Lockheed Martin : Moorestown, NJ	0.000	-		-		2.265	Nov 2015	-		2.265	Continuing	Continuing	Continuing
Aegis BMD Ground Test Execution - Aegis BMD Ground Test Execution - MT09 - MDA	MIPR	MDA : Arlington, VA	0.000	-		-		3.685	Nov 2015	-		3.685	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604878C / *Aegis BMD Test*	Project (Number/Name) MT09 / *AEGIS BMD Test*	

Test and Evaluation ($ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Aegis BMD Ground Test Execution - Aegis BMD Ground Test Execution - MT09 - PHD	MIPR	NSWC PHD : Pt. Hueneme, CA	0.000	-		-		0.191	Nov 2015	-		0.191	Continuing	Continuing	Continuing
Aegis BMD Ground Test Execution - Aegis BMD Ground Test Execution - MT09 - SSCPAC	MIPR	SPAWAR : San Diego, CA	0.000	-		-		1.717	Nov 2015	-		1.717	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - APL	SS/CPFF	JHU/APL : Columbia MD	0.000	-		-		10.866	Nov 2015	-		10.866	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - Aegis	MIPR	Aegis BMD : VA	0.000	-		-		1.250	Nov 2015	-		1.250	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - CORONA	MIPR	NSWC Corona : CA	0.000	-		-		3.000	Nov 2015	-		3.000	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - NAVSEA	MIPR	NAVSEA : VA	0.000	-		-		0.200	Nov 2015	-		0.200	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - NAWC/PM	MIPR	NAWC/PM : Pt. Mugu, CA	0.000	-		-		0.700	Nov 2015	-		0.700	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - NSWCDD	MIPR	NSWC Dahlgren : Dahlgren, VA	0.000	-		-		3.830	Nov 2015	-		3.830	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - PHD	MIPR	NSWC PHD : Pt. Hueneme, CA	0.000	-		-		6.100	Nov 2015	-		6.100	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604878C / *Aegis BMD Test*	Project (Number/Name) MT09 / *AEGIS BMD Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - PMRF	MIPR	PMRF Barking Sands : Kauai, HI	0.000	-		-		1.000	Nov 2015	-		1.000	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - SSCPAC	MIPR	SPAWAR : San Diego, CA	0.000	-		-		1.700	Nov 2015	-		1.700	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - Various	MIPR	Various : HI, VA, CA, MA	0.000	-		-		3.382	Nov 2015	-		3.382	Continuing	Continuing	Continuing
Engineering & Analysis - Engineering & Analysis - Engineering & Analysis - Engineering Support	C/CPAF	Northrop Grumman : AL, CO	0.000	-		1.360	Nov 2014	1.561	Nov 2015	-		1.561	Continuing	Continuing	Continuing
Engineering & Analysis - Engineering & Analysis - Engineering & Analysis - FFRDC/UARC	MIPR	Various : AL, CO, VA	0.000	-		6.257	Nov 2014	4.266	Nov 2015	-		4.266	Continuing	Continuing	Continuing
Engineering & Analysis - Engineering & Analysis - Engineering & Analysis - Industry	C/CPAF	Boeing : AL	0.000	-		1.079	Nov 2014	0.702	Nov 2015	-		0.702	Continuing	Continuing	Continuing
Engineering & Analysis - Engineering & Analysis - Engineering & Analysis - OGA	MIPR	AMRDEC : AL	0.000	-		3.600	Nov 2014	5.831	Nov 2015	-		5.831	Continuing	Continuing	Continuing
		Subtotal	0.000	-		89.628		52.723		-		52.723	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604878C / *Aegis BMD Test*	Project (Number/Name) MT09 / *AEGIS BMD Test*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		89.628		52.723		-		52.723	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604878C / *Aegis BMD Test*	**Project (Number/Name)** MT09 / *AEGIS BMD Test*

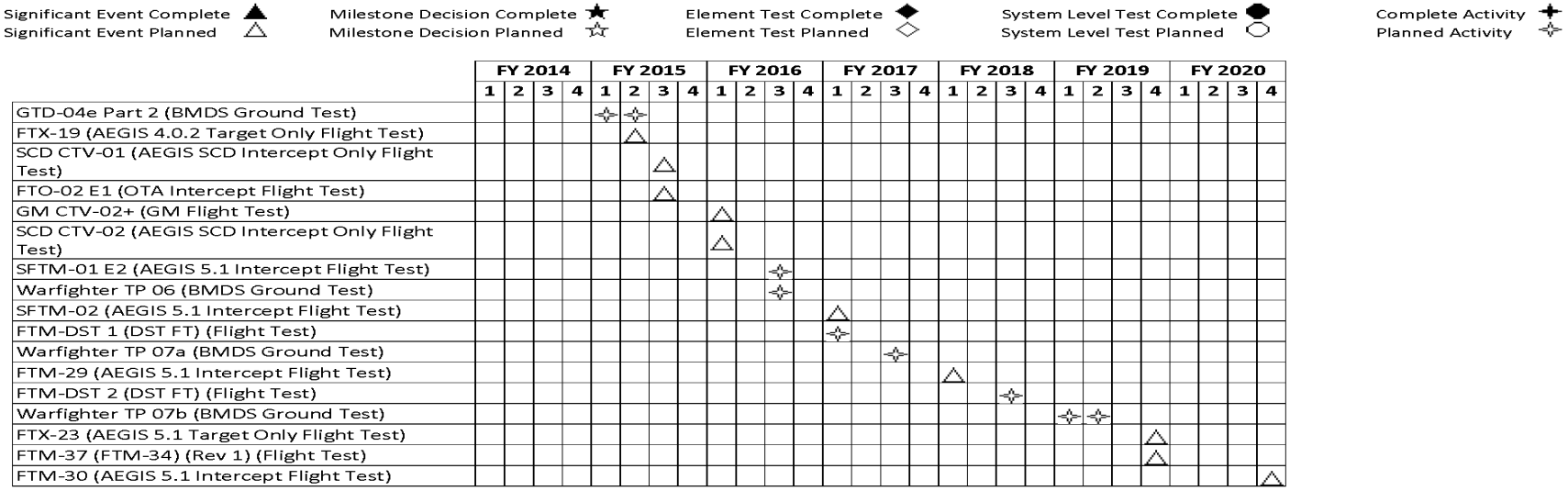


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604878C / *Aegis BMD Test*	**Project (Number/Name)** MT09 / *AEGIS BMD Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GTD-04e Part 2 (BMDS Ground Test)	1	2015	2	2015
FTX-19 (AEGIS 4.0.2 Target Only Flight Test)	2	2015	2	2015
SCD CTV-01 (AEGIS SCD Intercept Only Flight Test)	3	2015	3	2015
FTO-02 E1 (OTA Intercept Flight Test)	3	2015	3	2015
GM CTV-02+ (GM Flight Test)	1	2016	1	2016
SCD CTV-02 (AEGIS SCD Intercept Only Flight Test)	1	2016	1	2016
SFTM-01 E2 (AEGIS 5.1 Intercept Flight Test)	3	2016	3	2016
Warfighter TP 06 (BMDS Ground Test)	3	2016	3	2016
SFTM-02 (AEGIS 5.1 Intercept Flight Test)	1	2017	1	2017
FTM-DST 1 (DST FT) (Flight Test)	1	2017	1	2017
Warfighter TP 07a (BMDS Ground Test)	3	2017	3	2017
FTM-29 (AEGIS 5.1 Intercept Flight Test)	1	2018	1	2018
FTM-DST 2 (DST FT) (Flight Test)	3	2018	3	2018
Warfighter TP 07b (BMDS Ground Test)	1	2019	2	2019
FTX-23 (AEGIS 5.1 Target Only Flight Test)	4	2019	4	2019
FTM-37 (FTM-34) (Rev 1) (Flight Test)	4	2019	4	2019
FTM-30 (AEGIS 5.1 Intercept Flight Test)	4	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604878C / *Aegis BMD Test*	Project (Number/Name) MD40 / *Program Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program Wide Support*	-	-	-	2.425	-	2.425	4.248	6.727	5.429	4.355	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2016, Program Wide Support was proportionately allocated to Aegis BMD Test

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	-	-	2.425
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: - FY 2014 Accomplishments were captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2015 Plans: - FY 2015 Accomplishments are captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2016 Plans: - Beginning in FY 2016, Program Wide Support was redistributed across RDT&E Program Elements with a proportional allocation to Aegis BMD Test - See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	-	2.425

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604878C / *Aegis BMD Test*	**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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604878C / *Aegis BMD Test*	**Project (Number/Name)** MD40 / *Program Wide Support*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	Various : MDA Multi: AL, CO, CA, VA,	0.000	-		-		2.425		-		2.425	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		2.425		-		2.425	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		2.425		-		2.425	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604878C / *Aegis BMD Test*	**Project (Number/Name)** MD40 / *Program Wide Support*

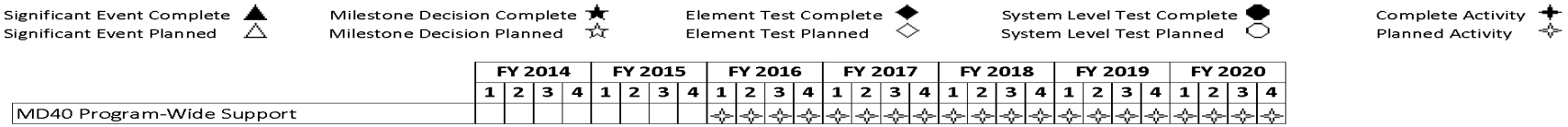


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604878C / *Aegis BMD Test*	**Project (Number/Name)** MD40 / *Program Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
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 0604879C *I Ballistic Missile Defense Sensor Test*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	71.309	86.764	-	86.764	104.271	93.310	102.736	106.377	Continuing	Continuing
MT11: *BMDS Radars Test*	-	-	71.309	82.949	-	82.949	99.341	88.531	97.263	100.614	Continuing	Continuing
MD40: *Program Wide Support*	-	-	-	3.815	-	3.815	4.930	4.779	5.473	5.763	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

Beginning in FY15, funding was realigned to the Ballistic Missile Defense Sensors Test Program Element 0604879C, Project MT11 from Ballistic Missile Defense Sensors Program Element 0603884C, Project MT11.

A. Mission Description and Budget Item Justification

MDA Sensors executes a robust test program that includes flight and ground tests to support both strategic and regional BMDS capabilities against medium- and long-range threats. The Sensors elements of the Ballistic Missile Defense System (BMDS) Integrated Master Test Plan (IMTP) are intended to demonstrate the integrated missile defense capabilities under development and ensure the capabilities delivered to the Warfighter are operationally effective, suitable, and survivable. The Sensors Test Program Element specifically includes the planning, execution, and analysis of flight and ground tests and the associated infrastructure.

The Sensors test program (FY 2013-2015) supports EPAA Phase II Robust Medium Range Ballistic Missile (MRBM) Defense, Discrimination Improvements for Homeland Defense and supports the IMTP for Operational Test and Evaluation of regional and strategic BMDS that will be fielded at the end of calendar year 2015. Refer to R-4 for specific test events.

The Sensors test program (FY 2016-2018) supports EPAA Phase III Robust Long Range Ballistic Missile (IRBM)Defense, Enhanced Homeland Defense and supports the IMTP for Operational Test and Evaluation of the regional and strategic BMDS architecture that will be fielded at the end of Calendar Year 2018 (CY 2018). Refer to R-4 for specific test events.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency					Date: February 2015
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 0604879C *I Ballistic Missile Defense Sensor Test*		
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	71.309	86.764	-	86.764
Total Adjustments	-	71.309	86.764	-	86.764
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	71.309			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	-	-	86.764	-	86.764

Change Summary Explanation

FY 2015 and 2016 changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act which realigned funds to the Ballistic Missile Defense Sensors Test Program Element 0604879C, Project MT11 from Ballistic Missile Defense Sensors Program Element 0603884C, Project MT11.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604879C / *Ballistic Missile Defense Sensor Test*	Project (Number/Name) MT11 / *BMDS Radars Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT11: *BMDS Radars Test*	-	-	71.309	82.949	-	82.949	99.341	88.531	97.263	100.614	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY15, funding was realigned to the Ballistic Missile Defense Sensors Test Program Element 0604879C, Project MT11 from Ballistic Missile Defense Sensors Program Element 0603884C, Project MT11.

The MT11 R-4/4A depicts only test events for which Sensors participation is planned. For a full listing of Ballistic Missile Defense System (BMDS) test events, see the R-4/4A in the BMDS Test and Evaluation Program Element (0603914C).

A. Mission Description and Budget Item Justification

Activities in this project include:
- Planning, analysis, and execution of BMDS flight test events, including pre- and post-test ground testing, such as Digital and Hardware-in-the-Loop (HWIL) Pre-Mission Tests (PMTs) and Post-Flight Reconstruction (PFR)
- Planning, analysis, and execution of BMDS system ground tests
- Test infrastructure funding, including HWIL labs and personnel required to maintain a flight and ground test capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Flight Test Execution	-	-	37.518
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: N/A			
FY 2015 Plans: N/A			
FY 2016 Plans: -Plan and execute Sensors participation in BMDS Flight Tests in accordance with the BMDS Integrated Master Test Plan (IMTP)			
Title: Ground Test Execution	-	-	24.592
Articles:	-	-	-
Description: N/A			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604879C / *Ballistic Missile Defense Sensor Test*	**Project (Number/Name)** MT11 / *BMDS Radars Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
FY 2014 Accomplishments: N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** -Plan and execute Sensors participation in BMDS Ground Tests in accordance with the BMDS Integrated Master Test Plan (IMTP)			
Title: Test Resources	-	-	20.839
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** - Transferred from Element Test and Infrastructure accomplighment in FY 2016 -Continue to configure and maintain Sensors HWILs for use in Ground Test Execution (BMDS and element developmental testing) -Continue to configure and maintain Sensors HWILs for use in BMDS Flight Tests Execution Pre-Mission Testing -Continue to support evolving Single Stimulation Framework (SSF) (software upgrades) integration into the BMDS HWIL Ground Test Execution and Flight Test Execution Infrastructure			
Title: Ballistic Missile Defense System (BMDS) Level Testing	-	51.915	-
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** -Plan and execute Sensors participation in BMDS Ground Tests in accordance with the BMDS Integrated Master Test Plan (IMTP)			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604879C / *Ballistic Missile Defense Sensor Test*	**Project (Number/Name)** MT11 / *BMDS Radars Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Plan and execute Sensors participation in BMDS Flight Tests in accordance with the BMDS IMTP ***FY 2016 Plans:*** -FY 2016 Plans transferred to Flight Test Execution accomplishments and Ground Test Execution accomplishments			
Title: Element Test and Infrastructure	-	19.394	-
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** -Continue to configure and maintain Sensors HWILs for use in BMDS Ground Tests and element-level ground tests -Continue to configure and maintain Sensors HWILs for use in BMDS Flight Tests System Pre-Mission Testing -Continue to support evolving Single Stimulation Framework (SSF) (software upgrades) integration into the BMDS HWIL Ground Test Infrastructure ***FY 2016 Plans:*** -FY 2016 plans transferred to Test Resources accomplishment			
Accomplishments/Planned Programs Subtotals	-	71.309	82.949

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	41.051	46.387	49.570	-	49.570	50.533	51.363	52.217	54.247	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604879C / *Ballistic Missile Defense Sensor Test*	**Project (Number/Name)** MT11 / *BMDS Radars Test*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	50.271	58.503	49.211	-	49.211	58.074	53.655	55.194	57.162	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
• 0604873C: *Long Range Discrimination Radar (LRDR)*	-	50.500	137.564	-	137.564	154.327	147.562	132.905	77.679	Continuing	Continuing
• 13999903: *Planning and Design, Defense Wide*	10.891	38.704	-	-	-	8.233	8.397	8.525	8.822	Continuing	Continuing
• D1400634: *Upgrade Early Warning Radar (UEWR), Clear AFS, AK*	17.204	-	-	-	-	-	-	-	-	-	17.204

Remarks

D. Acquisition Strategy

Test & Evaluation projects use multiple existing development contracts depending on the system(s) involved in the testing.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604879C / *Ballistic Missile Defense Sensor Test*	Project (Number/Name) MT11 / *BMDS Radars Test*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Test Execution - AN/TPY-2 & SBX FT	SS/CPFF	Raytheon : MA	0.000	-		-		24.593	Nov 2015	-		24.593	Continuing	Continuing	Continuing
Flight Test Execution - FT Security, Site Activation & Deployments	Various	Various : HI, CO, AL	0.000	-		-		10.559	Nov 2015	-		10.559	Continuing	Continuing	Continuing
Flight Test Execution - UEWR/CD FT	C/FPIF	deciBel : AL	0.000	-		-		2.366	Nov 2015	-		2.366	Continuing	Continuing	Continuing
Ground Test Execution - AN/TPY-2 & SBX GT	SS/CPFF	Raytheon : MA	0.000	-		-		12.507	Nov 2015	-		12.507	Continuing	Continuing	Continuing
Ground Test Execution - UEWR/CD GT	C/FPIF	deciBel : AL	0.000	-		-		12.085	Nov 2015	-		12.085	Continuing	Continuing	Continuing
Test Resources - AN/TPY-2 & SBX SSF Integration & Infrastructure, Sys Test Lab	SS/CPFF	Raytheon : MA	0.000	-		-		16.190	Nov 2015	-		16.190	Continuing	Continuing	Continuing
Test Resources - UEWR SSF Integration & Infrastructure, Sys Test Lab	C/FPIF	deciBel : AL	0.000	-		-		4.649	Nov 2015	-		4.649	Continuing	Continuing	Continuing
Ballistic Missile Defense System (BMDS) Level Testing - AN/TPY-2 & SBX FT & GT	SS/CPAF	Raytheon : MA	0.000	-		39.648	Nov 2014	-		-		-	-	39.648	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604879C / *Ballistic Missile Defense Sensor Test*	**Project (Number/Name)** MT11 / *BMDS Radars Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ballistic Missile Defense System (BMDS) Level Testing - UEWR/CD FT & GT	C/FPIF	deciBel : MA/AL	0.000	-		12.267	Nov 2014	-		-		-	-	12.267	-
Element Test and Infrastructure - TPY-2 & SBX SSF Integration & Infrastructure, Sys Test Lab	SS/CPAF	Raytheon : MA	0.000	-		14.805	Nov 2014	-		-		-	-	14.805	-
Element Test and Infrastructure - UEWR SSF Integration & Infrastructure, Sys Test Lab	C/CPIF	Raytheon, deciBel : AL/MA	0.000	-		4.589	Nov 2014	-		-		-	-	4.589	-
		Subtotal	0.000	-		71.309		82.949		-		82.949	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		71.309		82.949		-		82.949	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604879C / *Ballistic Missile Defense Sensor Test*	**Project (Number/Name)** MT11 / *BMDS Radars Test*

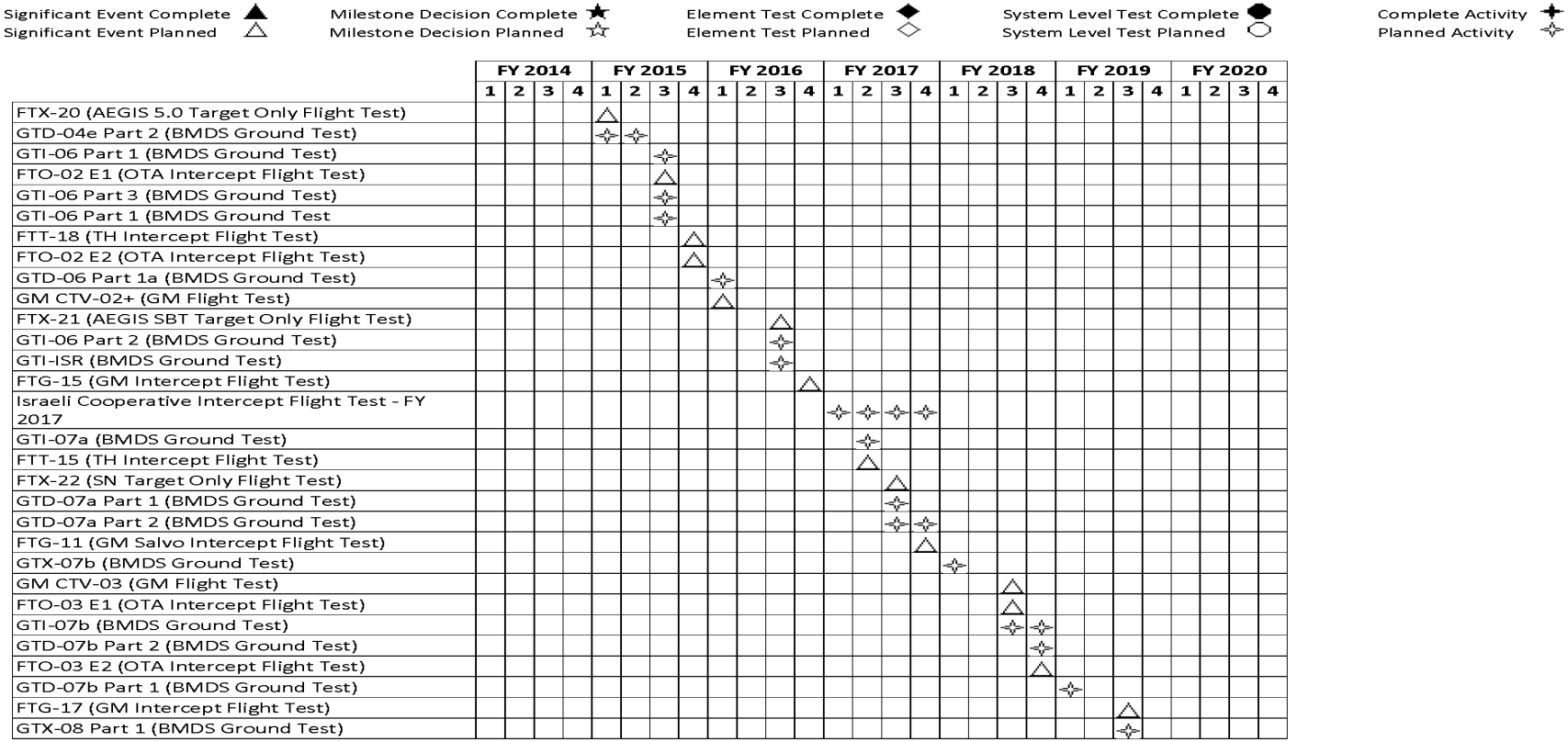


Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604879C / *Ballistic Missile Defense Sensor Test*	**Project (Number/Name)** MT11 / *BMDS Radars Test*

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ⬢ System Level Test Planned ⬡ | Complete Activity ✦ Planned Activity ✧

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
FTM-35 (AEGIS 5.1 Intercept Flight Test)																								△				
FTT-19 (TH Intercept Flight Test)																								✧				
GTX-08 Part 2(BMDS Ground Test)																								✧				
GTI-08 (BMDS Ground Test)																										✧	✧	
FTG-13 (GM Intercept Flight Test)																											△	
FTO-04 (OTA Intercept Flight Test)																											△	
FTX-26 (SN Target Only Flight Test)																											△	
FTT-16 (TH Intercept Flight Test)																												△
GTD-08 Part 1 (BMDS Ground Test)																												✧

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604879C / *Ballistic Missile Defense Sensor Test*	**Project (Number/Name)** MT11 / *BMDS Radars Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTX-20 (AEGIS 5.0 Target Only Flight Test)	1	2015	1	2015
GTD-04e Part 2 (BMDS Ground Test)	1	2015	2	2015
GTI-06 Part 1 (BMDS Ground Test)	3	2015	3	2015
FTO-02 E1 (OTA Intercept Flight Test)	3	2015	3	2015
GTI-06 Part 3 (BMDS Ground Test)	3	2015	3	2015
GTI-06 Part 1 (BMDS Ground Test	3	2015	3	2015
FTT-18 (TH Intercept Flight Test)	4	2015	4	2015
FTO-02 E2 (OTA Intercept Flight Test)	4	2015	4	2015
GTD-06 Part 1a (BMDS Ground Test)	1	2016	1	2016
GM CTV-02+ (GM Flight Test)	1	2016	1	2016
FTX-21 (AEGIS SBT Target Only Flight Test)	3	2016	3	2016
GTI-06 Part 2 (BMDS Ground Test)	3	2016	3	2016
GTI-ISR (BMDS Ground Test)	3	2016	3	2016
FTG-15 (GM Intercept Flight Test)	4	2016	4	2016
Israeli Cooperative Intercept Flight Test - FY 2017	1	2017	4	2017
GTI-07a (BMDS Ground Test)	2	2017	2	2017
FTT-15 (TH Intercept Flight Test)	2	2017	2	2017
FTX-22 (SN Target Only Flight Test)	3	2017	3	2017
GTD-07a Part 1 (BMDS Ground Test)	3	2017	3	2017
GTD-07a Part 2 (BMDS Ground Test)	3	2017	4	2017
FTG-11 (GM Salvo Intercept Flight Test)	4	2017	4	2017
GTX-07b (BMDS Ground Test)	1	2018	1	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604879C / *Ballistic Missile Defense Sensor Test*	**Project (Number/Name)** MT11 / *BMDS Radars Test*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GM CTV-03 (GM Flight Test)	3	2018	3	2018
FTO-03 E1 (OTA Intercept Flight Test)	3	2018	3	2018
GTI-07b (BMDS Ground Test)	3	2018	4	2018
GTD-07b Part 2 (BMDS Ground Test)	4	2018	4	2018
FTO-03 E2 (OTA Intercept Flight Test)	4	2018	4	2018
GTD-07b Part 1 (BMDS Ground Test)	1	2019	1	2019
FTG-17 (GM Intercept Flight Test)	3	2019	3	2019
GTX-08 Part 1 (BMDS Ground Test)	3	2019	3	2019
FTM-35 (AEGIS 5.1 Intercept Flight Test)	4	2019	4	2019
FTT-19 (TH Intercept Flight Test)	4	2019	4	2019
GTX-08 Part 2(BMDS Ground Test)	4	2019	4	2019
GTI-08 (BMDS Ground Test)	2	2020	3	2020
FTG-13 (GM Intercept Flight Test)	3	2020	3	2020
FTO-04 (OTA Intercept Flight Test)	3	2020	3	2020
FTX-26 (SN Target Only Flight Test)	3	2020	3	2020
FTT-16 (TH Intercept Flight Test)	4	2020	4	2020
GTD-08 Part 1 (BMDS Ground Test)	4	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604879C / *Ballistic Missile Defense Sensor Test*	Project (Number/Name) MD40 / *Program Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program Wide Support*	-	-	-	3.815	-	3.815	4.930	4.779	5.473	5.763	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2016, Program Wide Support was proportionately allocated to Ballistic Missile Defense Sensor Test

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	-	-	3.815
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: - FY 2014 Accomplishments were captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2015 Plans: - FY 2015 Accomplishments are captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2016 Plans: - Beginning in FY 2016, Program Wide Support was redistributed across RDT&E Program Elements with a proportional allocation to Ballistic Missile Defense Sensor Test - See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	-	3.815

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604879C / *Ballistic Missile Defense Sensor Test*	**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: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604879C / *Ballistic Missile Defense Sensor Test*	**Project (Number/Name)** MD40 / *Program Wide Support*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations and Support Services (Reqn)	MIPR	Various : Multi: AL, VA	0.000	-		-		3.815		-		3.815	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		3.815		-		3.815	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		3.815		-		3.815	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604879C / *Ballistic Missile Defense Sensor Test*	**Project (Number/Name)** MD40 / *Program Wide Support*

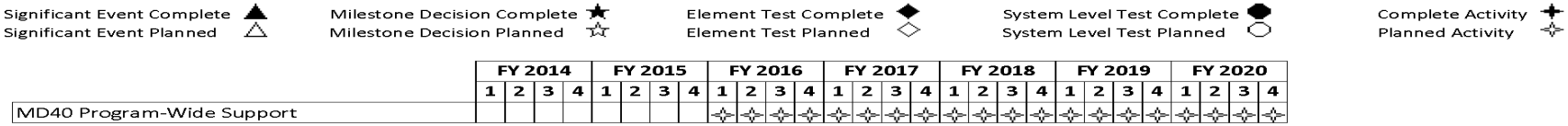


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604879C / *Ballistic Missile Defense Sensor Test*	**Project (Number/Name)** MD40 / *Program Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604880C / *Land Based SM-3 (LBSM3)*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	1,015.686	124.568	123.444	34.970	-	34.970	40.787	30.486	20.193	22.079	Continuing	Continuing
MD68: *AEGIS Ashore*	992.771	113.720	94.999	33.432	-	33.432	38.859	28.925	19.117	20.883	Continuing	Continuing
MT68: *Aegis Ashore Test*	0.650	4.031	21.300	-	-	-	-	-	-	-	-	25.981
MD40: *Program-Wide Support*	22.265	6.817	7.145	1.538	-	1.538	1.928	1.561	1.076	1.196	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

Decrease in funding from FY 2015 to FY 2016 is due to the completion of Aegis Ashore fielding in Romania. Future Aegis Ashore sites transition to Procurement as the life cycle of the program continues to evolve.

A. Mission Description and Budget Item Justification

This program supports the development of a land-based Standard Missile-3 (SM-3) capability, hereafter referred to as Aegis Ashore. On 17 September 2009, the President announced an overarching plan to provide regional missile defense to U.S. deployed forces, allies and partners in Europe called the European Phased Adaptive Approach (EPAA). The United States will also pursue Phased Adaptive Approaches (PAA) in the Asia Pacific and the Middle East by building on current efforts. The PAA envisions tailoring U.S. Ballistic Missile Defense (BMD) capabilities to specific theater needs to enhance integrated regional missile defenses to protect defended assets against medium, intermediate, and ultimately intercontinental range ballistic missiles. Within this policy, an EPAA specifically addresses a timeline to deploy a mix of afloat and land-based BMD capabilities. Aegis Ashore represents one of these land-based capabilities.

Phase II of EPAA (2015): Deploys the first land-based BMD configuration (Aegis Ashore) in Romania, and deploys the SM-3 Block IB on land at the Aegis Ashore site and at sea on multi-mission Aegis ships with BMD capability.

Phase III of EPAA (2018): Deploys a second land-based Aegis Ashore in Poland, and introduces an upgraded Standard Missile, the SM-3 Block IIA. This missile brings improved coverage against medium and intermediate range ballistic threats, and extends coverage to the majority of the European continent.

Aegis Ashore is a key component of Phases II and III in the European PAA and will provide Aegis Ballistic Missile Defense capability against short and medium range ballistic missiles in an ashore configuration. It will be similar to the Aegis At-Sea BMD capability inherent in the DDG-113 series of the Arleigh Burke Class Destroyers to facilitate training and logistical support by the lead service, Navy. Aegis Ashore essentially re-hosts the required BMD components of a Navy Destroyer in an ashore configuration to include: SPY Radar; Vertical Launch System, Computing Infrastructure; Command Control; Communications; Computers and Intelligence (C4I) Systems and Operator Consoles. Aegis Ashore will provide sophisticated engagement strategies and can adapt to threat updates while also being deployed/redeployed worldwide where needed to provide persistent coverage for the Geographic Combatant Commanders.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0604880C *I Land Based SM-3 (LBSM3)*

The initial Aegis Ashore Missile Defense System (AAMDS) will be deployed to Romania in FY 2015. A second AAMDS will be deployed to Poland in FY 2018 as part of the European Phased Adaptive Approach. MDA will use procurement funds to purchase and install AAMDS in Poland (0208866C MD73).

Missile Defense Agency (MDA) approved the acquisition strategy in FY 2010.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	129.374	123.444	32.641	-	32.641
Current President's Budget	124.568	123.444	34.970	-	34.970
Total Adjustments	-4.806	-	2.329	-	2.329
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.778	-			
• SBIR/STTR Transfer	-2.028	-			
• Other Adjustment	-	-	2.329	-	2.329

Change Summary Explanation

FY 2016 increase is due to modernization costs (AAMDTC Weapons System, C4I, VLS, and other equipment)at the Pacific Missile Range Facility to align with the U.S Navy's destroyer modernization plan and ensure the test site configuration is ready to support BMDS testing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604880C / *Land Based SM-3 (LBSM3)*	Project (Number/Name) MD68 / *AEGIS Ashore*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD68: *AEGIS Ashore*	992.771	113.720	94.999	33.432	-	33.432	38.859	28.925	19.117	20.883	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Decrease in funding from FY 2015 to FY 2016 is due to the completion of Aegis Ashore fielding in Romania. Future Aegis Ashore sites transition to Procurement as the life cycle of the program continues to evolve.

A. Mission Description and Budget Item Justification

Deployed sites, referred to as an Aegis Ashore Missile Defense System Complex (AAMDSC), can be modified to support future computer program and missile variants in accordance with the European Phased Adaptive Approach (EPAA) and will be modernized in pace with Navy's destroyer modernization plan. MDA is responsible for maintaining and modernizing the Test Center at PMRF to maintain pace with the Navy destroyer modernization plan and the lead service is responsible for maintaining and modernizing deployed Aegis Ashore sites. The initial AAMDSC deploys to Romania in 2015 employing Aegis BMD 5.0 CU (Capabilities Upgrade) and SM-3 Block IB. A second AAMDSC deploys to Poland in 2018 (funded with Defense Wide Procurement) in accordance with the EPAA. These sites provide an Aegis Ashore exoatmospheric defense against short to medium and intermediate range ballistic missile threats in the later stages of flight. If the threat dictates, additional systems can be purchased and deployed globally to support Geographic Combatant Commanders. The deployed sites are capable of being upgraded to address current and future ballistic missile threats. Research and Development efforts include required modifications to adapt the Aegis Weapon System for land based use, modernization in pace with Navy's destroyer modernization plan, and modifications as required to enhance co-existence with Broadband Wireless Access systems in the European theater.

In support of EPAA Phase III, Aegis Ashore integrates the Aegis BMD 5.1 and Standard Missile (SM-3) Block IIA capabilities into the Aegis Ashore sites. MDA is responsible for any upgrade to BMD capability, BMD specific mission equipment and integration with existing BMDS nodes for all Aegis Ashore sites.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Aegis Weapon System Development	87.788	77.763	17.455
Articles:	-	-	-
Description: Perform activities such as installation and integration to develop and deploy the Aegis Ashore capability in Romania, SPY-1 radar and Broadband Wireless Access (BWA) coexistence efforts at Aegis Ashore sites, and the maintenance and modernization of the Aegis Ashore Missile Defense Test Complex at PMRF.			
FY 2014 Accomplishments: - Conducted Aegis Light-Off (ALO) of Aegis Weapon System in the Pacific Missile Range Facility (PMRF) Deckhouse - Completed Integration and Testing of Aegis Ashore at PMRF - Conducted Aegis Light-Off of Aegis Weapon System in the Romania Deckhouse in New Jersey - Completed integration and test of Aegis Weapon System in Romania Deckhouse in New Jersey - Removed Aegis Weapon System equipment from New Jersey and shipped to Romania			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604880C / *Land Based SM-3 (LBSM3)*	**Project (Number/Name)** MD68 / *AEGIS Ashore*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Disassembled Deckhouse in New Jersey and shipped to Romania - Prepared to receive Aegis Weapon System and equipment for Integration and Testing in Romania - Received Deckhouse and began installation in Romania ***FY 2015 Plans:*** - Complete installation of Deckhouse in Romania - Complete integration and test of Aegis Ashore Weapons System in Romania - Complete installation of Launchers in Romania - Prepare Aegis Ashore system for Navy acceptance - Complete construction of Aegis Ashore Missile Defense System Complex at Romania ***FY 2016 Plans:*** Decrease in funding from FY 2015 to FY 2016 is due to the completion of Aegis Ashore fielding in Romania. Future Aegis Ashore sites transition to Procurement as the life cycle of the program continues to evolve. - Continue to research SPY-1 and Broadband Wireless Access system co-existence in the European Theater - Develop and implement required modifications to enhance co-existence of these systems - Developmental support to maintain the Romania AAMDS Weapon Systems - Maintain the Aegis Ashore Missile Defense Test Complex in Pacific Missile Range Facility - Modernize the AAMDTC Weapons System, C4I, VLS, and other equipment to align with the U.S Navy's destroyer modernization plan and ensure the test site configuration is ready to support BMDS testing			
Title: Site Activation	25.932	17.236	15.977
Articles:	-	-	-
Description: Includes site design, environmental studies, unexploded ordnance clearing, spectrum analysis studies, temporary facilities, utilities, administrative communications equipment and services, infrastructure modifications, generator and commercial power, leased vehicles, material handling equipment, generator fuel, supplies, barriers, guard shacks, temporary lighting, transportation of materials and equipment, translators, and emerging requirements as site activation progresses and until sites are transferred to the Navy. ***FY 2014 Accomplishments:*** - Provided post activation power and fuel for Aegis Ashore Missile Defense Test Complex at PMRF - Provided equipment design, purchase, and installed electronic security systems supporting AA PMRF - Continued site activation for Aegis Ashore site in Romania to include temporary site activation facilities, base operating support, administrative communications, and on-site material handling equipment and services - Designed and purchased equipment for an integrated electronic security system for Romania Aegis Ashore site security.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604880C / *Land Based SM-3 (LBSM3)*	**Project (Number/Name)** MD68 / *AEGIS Ashore*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Shipped 254 containers of Aegis Ashore system components to Romania - Conducted initial engineering studies for Aegis Ashore site in Poland (Geotechnical engineering and Unexploded Ordnance (UXO) - Initiated contract development efforts for Poland base operating support, temporary facilities, and commercial power			
FY 2015 Plans: - Continue site activation for Aegis Ashore site in Romania to include temporary site activation facility maintenance, base operating support, utilities, administrative communications, and on-site material handling equipment and services - Initiate phase 2 of a commercial power extension project to provide commercial power to the Romania Aegis Ashore site. - Continue engineering studies for Aegis Ashore site in Poland - Initiate site activation for Aegis Ashore site in Poland to include temporary site activation facilities, base operating support, utilities, administrative communications, and on-site material handling equipment and services - Complete Poland Aegis Ashore Missile Defense Facility Design - Support transportation of equipment to Romania			
FY 2016 Plans: - Complete Romania Aegis Ashore site activation and demobilize temporary facilities and equipment - Close out all site activation activities for Romania - Continue site activation for Aegis Ashore site in Poland to include temporary site activation facilities, base operating support, utilities, administrative communications, on-site material handling equipment services, and equipment installation - Design, purchase, and install an integrated electronic security system for Poland Aegis Ashore site security			
Accomplishments/Planned Programs Subtotals	113.720	94.999	33.432

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603892C: *AEGIS BMD*	885.704	764.224	843.355	-	843.355	762.740	748.354	564.827	579.585	Continuing	Continuing
• 0604878C: *Aegis BMD Test*	-	89.628	55.148	-	55.148	89.861	131.351	101.903	80.390	Continuing	Continuing
• 0604881C: *AEGIS SM-3 Block IIA Co-Development*	297.169	263.695	172.645	-	172.645	66.828	-	-	-	-	800.337

Remarks

D. Acquisition Strategy

Aegis Ashore awarded a contract for an Aegis Ashore Engineering Agent (AAEA). Broadly stated, the AAEA is responsible for the design, development, integration and test of the Aegis Weapons System capability into a reconstitutable deckhouse. Furthermore, the AAEA will support Aegis Ashore deployment to Romania and Poland.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604880C / *Land Based SM-3 (LBSM3)*	**Project (Number/Name)** MD68 / *AEGIS Ashore*

Competition is the intended Acquisition Strategy for Aegis Ashore Poland.

The Global Deployment (GD) program office is utilizing Naval Facilities Engineering Command (NAVFAC) and CENAU to award and administer contracts for base operating support, commercial power, temporary site activation facilities, and integrated electronic security systems for Romania and Poland sites.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604880C / *Land Based SM-3 (LBSM3)*	Project (Number/Name) MD68 / *AEGIS Ashore*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Weapon System Development - AN/ USQ-T46D(V)15 BFTT Installation/Integration Support	MIPR	Various : MD, NM, VA	0.000	0.628		-		-		-		-	Continuing	Continuing	Continuing
Aegis Weapon System Development - AWS Deckhouse design and engineering - MD68	MIPR	NAVFAC : Huntsville, AL	26.709	0.928		-		-		-		-	-	27.637	36.748
Aegis Weapon System Development - AWS Design, SEPM, Integration , Test and Certification - MD68 - 20117143581603	MIPR	NSWC Dahlgren : Dahlgren, VA	38.006	5.677		10.500	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Weapon System Development - AWS Development and Hardware - MD68	Various	Lockheed Martin : Moorestown, NJ, NAVSEA, and BAE	759.700	17.905		42.500	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Weapon System Development - AWS Spare Replenishment and Milstrip- MD68	MIPR	Aegis Techrep : Moorestown, NJ	0.000	1.545		-		2.012	Nov 2015	-		2.012	Continuing	Continuing	Continuing
Aegis Weapon System Development - AWS Tech Assist- MD68	MIPR	NSWC PHD : Port Hueneme, CA	0.000	-		-		1.000	Nov 2015	-		1.000	Continuing	Continuing	Continuing
Aegis Weapon System Development - Aegis Weapon System Development	C/CPFF	Lockheed Martin : Moorestown, NJ	0.000	15.594		-		-		-		-	Continuing	Continuing	Continuing
Aegis Weapon System Development - C4I (SW, T&E, Spares, SEPM, ILS) - MD68	MIPR	SPAWAR : San Diego, CA	25.952	13.381		-		-		-		-	Continuing	Continuing	Continuing
Aegis Weapon System Development - C4I, VLS	MIPR	NAVSEA-LM/BAE, SPAWAR, NSWC	0.000	-		-		1.500	Nov 2015	-		1.500	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604880C / *Land Based SM-3 (LBSM3)*	Project (Number/Name) MD68 / *AEGIS Ashore*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
and HM&E Sustainment-MD68		CD : San Diego, CA; Baltimore, MD; Minneapolis, MN													
Aegis Weapon System Development - Control Test Vehicle Mission Event Support, RMT / DDS Support	C/CPFF	MDA : Arlington, VA	0.000	0.716		-		-		-		-	Continuing	Continuing	Continuing
Aegis Weapon System Development - DOI-TOWEX- MD68	MIPR	Dept. of Interior : Phoenix, AZ	0.000	0.541		-		0.500	Nov 2015	-		0.500	Continuing	Continuing	Continuing
Aegis Weapon System Development - Deckhouse - MD68	MIPR	NAVFAC : HI	46.987	-		-		-		-		-	-	46.987	-
Aegis Weapon System Development - Deckhouse - MD68 - 2012725224459	MIPR	CENAU : Poland	0.429	10.875		15.500	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Weapon System Development - Design, SEPM, ILS, Test Integration - MD68 - 20117143581602	MIPR	NSWC PHD : Port Hueneme, CA	13.253	5.312		8.400	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Weapon System Development - MD68 - D	MIPR	MDA : Arlington, VA	0.000	1.076		-		0.569	Nov 2015	-		0.569	Continuing	Continuing	Continuing
Aegis Weapon System Development - MD68 - IC	SS/CPFF	JRDC : Huntsville, AL	0.000	3.621		-		-		-		-	Continuing	Continuing	Continuing
Aegis Weapon System Development - MD68 - Microwave Tube Test and Evaluation Support, Site Integration Support Services, C4I NIAPS Support	MIPR	NSWC Corona : CA	0.000	1.241		-		-		-		-	Continuing	Continuing	Continuing
Aegis Weapon System Development - Microwave Tube Test and Evaluation	MIPR	NSWC Crane : Crane, IN	0.000	1.216		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604880C / *Land Based SM-3 (LBSM3)*	Project (Number/Name) MD68 / *AEGIS Ashore*	

Product Development ($ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Support, Site Integration Support Services, C4I NIAPS Support															
Aegis Weapon System Development - Mission Planning / Analysis	C/CPFF	JHU/APL : Columbia, MD	0.000	0.890		-		-		-		-	Continuing	Continuing	Continuing
Aegis Weapon System Development - NSWC DD- Configuration & TDP Maintenance- MD68	MIPR	NSWC Dahlgren : Dahlgren, VA	0.000	-		-		3.000	Nov 2015	-		3.000	Continuing	Continuing	Continuing
Aegis Weapon System Development - PMRF - MD68	MIPR	PMRF : Hawaii	2.403	4.251		-		5.874	Nov 2015	-		5.874	Continuing	Continuing	Continuing
Aegis Weapon System Development - Performance Model Registration	C/CPFF	Raytheon : Tucson, AZ	0.000	2.391		-		-		-		-	Continuing	Continuing	Continuing
Aegis Weapon System Development - SSCPAC, Maintainers & LOGREP- MD68	MIPR	SSC PAC : Pearl Harbor, HI	0.000	-		-		3.000	Nov 2015	-		3.000	Continuing	Continuing	Continuing
Aegis Weapon System Development - Technical Design Agent- MD68 - 20117143581595	MIPR	JHU/APL : Columbia, MD	13.470	-		0.863	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Aegis Weapon System Development - VLS Design and Hardware - MD68	MIPR	NAVSEA-LM/BAE : Baltimore, MD and Minneapolis, MN	29.241	-		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - AAMDTC Post Construction Award Services	MIPR	NAVFAC, USACE : AL, HI	0.479	-		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - DTRA support to construction in Romania and Poland	MIPR	DTRA : Ft. Belvoir, VA	0.000	0.350		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - Engineering Services to	MIPR	USACE : Huntsville, AL	0.000	5.057		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604880C / *Land Based SM-3 (LBSM3)*	Project (Number/Name) MD68 / *AEGIS Ashore*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
support Phased Adaptive Approach/UXO															
Site Activation - GEO Technical (GEO TECH)	MIPR	CENAU : Poland	2.562	-		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - PMRF Equip design, purchase, and install electronic security systems	MIPR	NAVFAC : Hawaii	0.000	0.522		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - PMRF Power and Fuel	MIPR	PMRF : Hawaii	0.000	0.765		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - PMRF Site Activation - MD68	MIPR	PMRF : HI	1.110	-		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - Poland Admin Communication	MIPR	Northrop Grumman : Poland	0.000	-		-		1.300		-		1.300	Continuing	Continuing	Continuing
Site Activation - Poland Base Operating Support and Commerical Power Contract Development	MIPR	NAVFAC : Poland	0.000	0.064		-		3.100		-		3.100	Continuing	Continuing	Continuing
Site Activation - Poland Electromagnetic Interference Study	MIPR	NSWC Dahlgren : Poland	0.000	0.220		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - Poland IESS	MIPR	CENAU : Poland	0.000	-		-		4.881		-		4.881	Continuing	Continuing	Continuing
Site Activation - Poland Temp Facilities Design & Contract Development	MIPR	USACE : Huntsville, AL	0.000	0.350		-		4.058		-		4.058	Continuing	Continuing	Continuing
Site Activation - RDT&E Design for MDA Project # 640 AAMDC, Redzikowo Base, Poland.	MIPR	CENAU : Poland	0.000	1.150		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - Romania Admin Communications	MIPR	DISA, Scott AFB, : IL	0.431	0.082		-		0.013		-		0.013	Continuing	Continuing	Continuing
Site Activation - Romania Admin Communications - MD68	C/CPFF	Northrop Grumman : Colorado Springs, CO	0.378	0.450		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604880C / *Land Based SM-3 (LBSM3)*	Project (Number/Name) MD68 / *AEGIS Ashore*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Site Activation - Romania Aegis Ashore System Transportation	MIPR	USTRANSCOM : Romania	0.000	5.765		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - Romania Base Support Services	MIPR	NAVFAC : Poland	0.000	6.445		-		0.600		-		0.600	Continuing	Continuing	Continuing
Site Activation - Romania Commercial Power Connection - MD68	MIPR	NAVFAC : Naples, Italy	1.500	-		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - Romania Fuel	MIPR	DLA : Romania	0.000	0.400		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - Romania Integrated Electronic Security System - MD68	MIPR	USACE : Huntsville, AL	0.800	2.855		-		0.900		-		0.900	Continuing	Continuing	Continuing
Site Activation - Romania Site Activation - MD68	MIPR	Multiple : Multiple	3.667	-		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - Romania Temp Facilities	MIPR	CENAU : Romania	0.000	0.049		-		1.125		-		1.125	Continuing	Continuing	Continuing
Site Activation - Romania Transportation CONEX Leases	MIPR	AIDPMO : Romania	0.000	1.111		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - Security Escort Service	MIPR	PMRF : Hawaii	0.000	0.010		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - Site Activation - MD68	MIPR	Various : Various	24.609	-		17.236	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Site Activation - USACE NAU support in Romania	MIPR	CENAU : Romania	0.000	0.287		-		-		-		-	Continuing	Continuing	Continuing
Site Activation - UXO Characterization	MIPR	CENAU : Poland	1.085	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	992.771	113.720		94.999		33.432		-		33.432	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604880C / *Land Based SM-3 (LBSM3)*	Project (Number/Name) MD68 / *AEGIS Ashore*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	992.771	113.720		94.999		33.432		-		33.432	-	-	-

Remarks

Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, MIPRs, and civilian salaries on the R-3.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604880C / *Land Based SM-3 (LBSM3)*	**Project (Number/Name)** MD68 / *AEGIS Ashore*

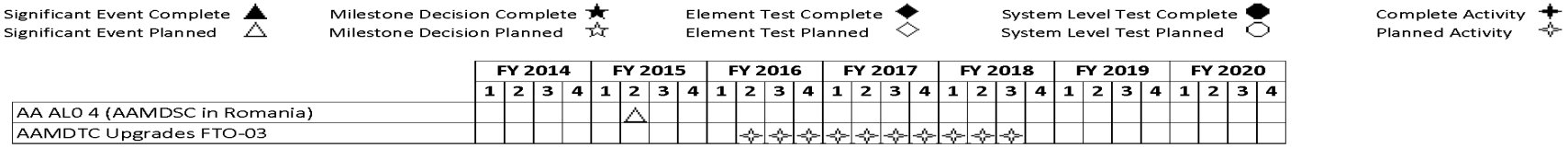

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604880C / *Land Based SM-3 (LBSM3)*	**Project (Number/Name)** MD68 / *AEGIS Ashore*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AA AL0 4 (AAMDSC in Romania)	2	2015	2	2015
AAMDTC Upgrades FTO-03	2	2016	3	2018

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604880C / *Land Based SM-3 (LBSM3)*	Project (Number/Name) MT68 / *Aegis Ashore Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT68: *Aegis Ashore Test*	0.650	4.031	21.300	-	-	-	-	-	-	-	-	25.981
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

No further Aegis Ashore specific testing is required beginning in FY 2016.

A. Mission Description and Budget Item Justification

Prepare for and conduct Ballistic Missile Defense System Flight and Ground Test events as reflected in the Integrated Master Test Plan and the Exhibit R-4 schedule.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Conduct Aegis Ashore Ballistic Missile Defense (BMD) Testing	4.031	21.300	-
Articles:	-	-	-
Description: See Description below. ***FY 2014 Accomplishments:*** - Prepared for and conducted Ballistic Missile Defense System Flight and Ground Test events as reflected in the Integrated Master Test Plan and the Exhibit R-4 schedule ***FY 2015 Plans:*** - Prepare for and conduct Ballistic Missile Defense System Flight and Ground Test events as reflected in the Integrated Master Test Plan and the Exhibit R-4 schedule. ***FY 2016 Plans:*** No further testing required.			
Accomplishments/Planned Programs Subtotals	4.031	21.300	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604880C / *Land Based SM-3 (LBSM3)*	**Project (Number/Name)** MT68 / *Aegis Ashore Test*

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604880C / *Land Based SM-3 (LBSM3)*	Project (Number/Name) MT68 / *Aegis Ashore Test*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Conduct Aegis Ashore Ballistic Missile Defense (BMD) Testing - Aegis Ashore Test MT68	C/CPAF	L3 Communications : Waco, TX	0.000	-		3.944	Oct 2014	-		-		-	-	3.944	-
Conduct Aegis Ashore Ballistic Missile Defense (BMD) Testing - Aegis Ashore Test MT68 - (DT Assist Event)	MIPR	NAWC/ PM : Pt. Mugu, CA	0.000	1.575		2.284	Oct 2014	-		-		-	-	3.859	-
Conduct Aegis Ashore Ballistic Missile Defense (BMD) Testing - Aegis Ashore Test MT68 - 20111219347329	MIPR	NSWC/ PHD : Pt. Heuneme, CA	0.000	-		1.868	Oct 2014	-		-		-	-	1.868	-
Conduct Aegis Ashore Ballistic Missile Defense (BMD) Testing - Aegis	MIPR	JHU/ APL : Laurel, MD	0.400	0.310		-		-		-		-	-	0.710	2.325

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604880C / *Land Based SM-3 (LBSM3)*	Project (Number/Name) MT68 / *Aegis Ashore Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ashore Test MT68 - 201112193488909															
Conduct Aegis Ashore Ballistic Missile Defense (BMD) Testing - Aegis Ashore Test MT68 - 201112193501551	MIPR	Raytheon : Tucson, AZ	0.000	0.400		8.927	Oct 2014	-		-		-	-	9.327	-
Conduct Aegis Ashore Ballistic Missile Defense (BMD) Testing - Aegis Ashore Test MT68 - DT Assist Event	MIPR	PMRF: Barking Sands : Kauai, HI	0.250	1.746		4.277	Oct 2014	-		-		-	-	6.273	-
		Subtotal	0.650	4.031		21.300		-		-		-	-	25.981	2.325

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.650	4.031		21.300		-		-		-	-	25.981	2.325

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604880C / *Land Based SM-3 (LBSM3)*	**Project (Number/Name)** MT68 / *Aegis Ashore Test*

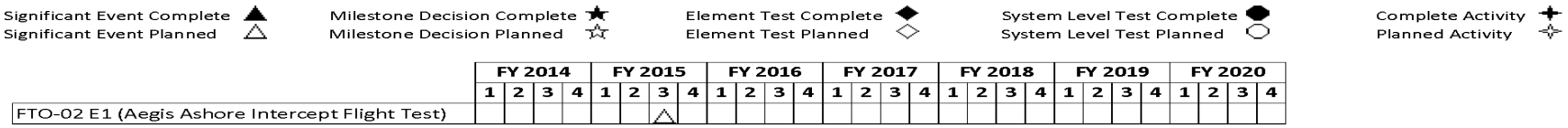

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604880C / *Land Based SM-3 (LBSM3)*	**Project (Number/Name)** MT68 / *Aegis Ashore Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTO-02 E1 (Aegis Ashore Intercept Flight Test)	3	2015	3	2015

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604880C / *Land Based SM-3 (LBSM3)*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	22.265	6.817	7.145	1.538	-	1.538	1.928	1.561	1.076	1.196	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2016, Program Wide Support reflects a proportional decrease as a result of changes to Land Based SM-3.
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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	6.817	7.145	1.538
Articles:	-	-	-
Description: See Description below.			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans: See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	6.817	7.145	1.538

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604880C / *Land Based SM-3 (LBSM3)*	**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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604880C / *Land Based SM-3 (LBSM3)*	Project (Number/Name) MD40 / *Program-Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Facilities and Maintenance (MIPR)	MIPR	Various; Multi : AL, CA, CO, VA	8.870	1.244		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Facilities and Maintenance (Reqn)	Reqn	Various; Multi : AL, CA, CO, VA	2.810	1.573		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various: Multi : AL, CA, CO, VA	1.580	-		0.224		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, CA, CO, VA	9.005	3.479		6.921		1.538		-		1.538	9.005	29.948	-
Program Wide Support - Agency Operations and Support, International, and Materiel and Readiness	MIPR	Department of State; : Washington, DC, Japan, Australia	0.000	0.181		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - FFRDC/UARC	C/CPAF	Various : Multi:AL,VA	0.000	0.340		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	22.265	6.817		7.145		1.538		-		1.538	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	22.265	6.817		7.145		1.538		-		1.538	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604880C / *Land Based SM-3 (LBSM3)*	**Project (Number/Name)** MD40 / *Program-Wide Support*

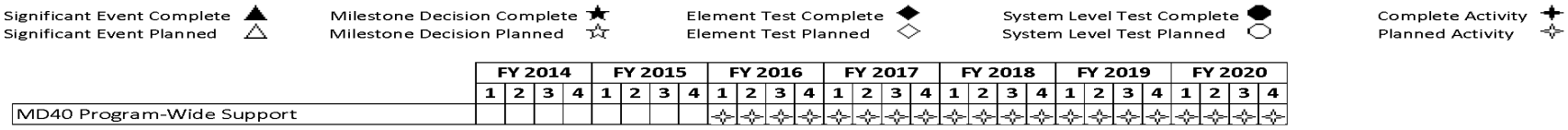

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604880C / *Land Based SM-3 (LBSM3)*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency												Date: February 2015
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 0604881C *I AEGIS SM-3 Block IIA Co-Development*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	1,504.114	297.169	263.695	172.645	-	172.645	66.828	-	-	-	-	2,304.451
MD09: *SM-3 Block IIA Co-Development*	1,469.879	279.140	240.751	139.866	-	139.866	51.371	-	-	-	-	2,181.007
MT09: *SM-3 Block IIA Co-Development Test*	-	1.897	7.680	25.186	-	25.186	12.298	-	-	-	-	47.061
MD40: *Program-Wide Support*	34.235	16.132	15.264	7.593	-	7.593	3.159	-	-	-	-	76.383
MDAP/MAIS Code: 362												

Note

Decrease from FY 2015 to FY 2016 is attributable to the conclusion of the design and technology development efforts associated with a maturing program.

A. Mission Description and Budget Item Justification

The Aegis Ballistic Missile Defense (Aegis BMD) mission is to deliver an enduring, operationally effective and supportable Ballistic Missile Defense capability to defend the nation, deployed forces, friends and allies and to increase this capability by delivering evolutionary improvements as part of Ballistic Missile Defense System (BMDS) upgrades. Aegis BMD provides a forward-deployable, mobile capability to detect and track ballistic missiles of all ranges, and the ability to destroy Short-Range Ballistic Missiles (SRBM), Medium-Range Ballistic Missiles (MRBM), and Intermediate-Range Ballistic Missiles (IRBM) in the midcourse phase of flight. Upgrades to both the Aegis BMD Weapon System and the Standard Missile-3 (SM-3) configuration enable Aegis BMD to provide effective, supportable defensive capability against longer range, more sophisticated threats and an enduring Aegis Ashore defensive capability.

Beginning in 2006, Aegis BMD and the Japanese Ministry of Defense (JMOD) have undertaken a SM-3 Cooperative Development (SCD) program. The objective of the SCD project is the development and initial at-sea flight test of the SM-3 Block IIA missile, and preparation for subsequent production decisions.

In comparison to the SM-3 Block IB missile, key technology improvements planned for the SM-3 Block IIA missile include an increase in velocity and an increase in range provided by a 21-inch diameter rocket motor propulsion stack, more than doubled seeker sensitivity and more than three times divert capability incorporated in an advanced kinetic warhead. Key component technologies developed include, but are not limited to: lightweight nosecone, advanced kinetic warhead, 21-inch second stage rocket motor, and 21-inch third stage rocket motor. Technology risk reduction is conducted to reduce key component development risk. The U.S. and Japan will bear equitable burden to complete the project. The assignment of labor documented in the U.S./Japan Memorandum of Understanding (MOU) SCD Annex represents an equitable sharing of work. The U.S. and Japan will fund the full extent of their participation in the project. No funds are transferred between the U.S. and Japan under the MOU.

Proving Missile Defense:

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0604881C *I AEGIS SM-3 Block IIA Co-Development*

- Working with the Services' Operational Test Agencies (OTA), with the support of the Director of Operational Test and Evaluation (DOT&E), Missile Defense Agency (MDA) developed a test program to improve confidence in missile defense capabilities under development and ensure the capabilities transferred to the war fighter are operationally effective, suitable, and survivable.
- The Integrated Master Test Plan (IMTP) is event-oriented and extends until the collection of all identified data is completed to ensure adequate test investments.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	308.493	263.695	175.871	-	175.871
Current President's Budget	297.169	263.695	172.645	-	172.645
Total Adjustments	-11.324	-	-3.226	-	-3.226
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-6.485	-			
• SBIR/STTR Transfer	-4.839	-			
• Other Adjustment	-	-	-3.226	-	-3.226

Change Summary Explanation

FY 2016 decrease reflects realignment of Department of Defense priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	Project (Number/Name) MD09 / *SM-3 Block IIA Co-Development*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD09: *SM-3 Block IIA Co-Development*	1,469.879	279.140	240.751	139.866	-	139.866	51.371	-	-	-	-	2,181.007
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Decrease from FY 2015 to FY 2016 is attributable to the conclusion of the design and technology development efforts associated with a maturing program.

A. Mission Description and Budget Item Justification

The U.S. and Japan have a mutual interest in the evolutionary development of improvements to the Standard Missile-3 (SM-3). The objective of the SCD project is the development and initial at-sea flight test of the SM-3 Block IIA missile, and preparation for subsequent production decisions. The SM-3 Block IIA missile will increase the area that can be defended by Aegis Ballistic Missile Defense (BMD) and increase the probability of kill against a larger threat set. It will leverage enhanced capability provided by Ballistic Missile Defense System (BMDS) sensor upgrades.

Key technology improvements planned for the SM-3 Block IIA missile include an increase in velocity and an increase in range provided by a 21-inch diameter rocket motor propulsion stack, more than doubled seeker sensitivity and more than three times divert capability incorporated in an advanced kinetic warhead. Key component technologies to be developed include, but are not limited to: lightweight nosecone, advanced kinetic warhead, 21-inch second stage rocket motor, and 21-inch third stage rocket motor. Technology risk reduction will be conducted to reduce key component development risk.

The Scope of Work of the SCD project is defined in three phases:

Phase I took the program through System Design Review (SDR) completion. Aegis BMD executed risk reduction efforts for the Propulsion, Nosecone, Seeker, Divert Attitude Control System (DACS) development efforts, and test plans. Conducted requirements definition for the SM-3 Block IIA missile configuration. Phase I was completed in FY 2009.

Phase II refined the scope of work from System Design Review (SDR) through Critical Design Review (CDR) completion. Aegis BMD refined requirements and defined the performance allocation and component configuration for the development and testing of the SM-3 Block IIA missile. Both the U.S. and Japan designed, fabricated, tested, and evaluated the SM-3 Block IIA missile sections per the agreed work-share agreement. Phase II was completed in FY 2014.

Currently, phase III refines the scope of work from CDR to the completion of the SCD flight test program as defined in the Agreement. This phase defines developmental cost share agreements between the United States and the Government of Japan, completes component engineering and integration, executes cooperative flight tests, and continues discussions on production and maintenance options.

The SCD project will:

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MD09 / *SM-3 Block IIA Co-Development*

- Develop components for the SM-3 Block IIA missile and integrate them into an All Up Round (AUR): e.g., 21 inch 2nd and 3rd stage components (Japan work share); 21 inch nosecone (Japan work share); Advanced kinetic warhead (United States work share); Advanced seeker (United States work share); Large diameter divert and attitude control system (United States work share); Integrate the SM-3 Block IIA missile and Vertical Launch System (VLS) with Aegis ship systems
- Include development of a light weight VLS canister (United States work share)
- Conduct test and evaluation through ground and flight testing using the Aegis Ballistic Missile Defense (BMD) 5.1 system (Joint work share)

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: SM-3 Block IIA Cooperative Development (SCD)	279.140	240.751	139.866
Articles:	-	-	-

Description: This activity develops the SM-3 Block IIA missile which will increase the area that can be defended by Aegis Ballistic Missile Defense (BMD) and increase the probability of kill against a larger threat set. It will leverage enhanced capability provided by Ballistic Missile Defense System (BMDS) sensor upgrades.

FY 2014 Accomplishments:
SM-3 Blk IIA Missile Development:
- Began missile integration testing.
- Continued purchasing SM-3 Blk IIA RDT&E Missile Rounds to support Flight Test program.
- Began missile level Hardware in the Loop (HWIL) integration testing.
- Prepared for Ballistic Missile Defense System Flight and Ground Test events as reflected in the Integrated Master Test Plan and the Exhibit R-4 schedule
- Completed System Critical Design Review (CDR)
- Completed PTV-1 Flight
- Began component level qualification testing
- Delivered Virtual Operational Missile (VOM) Guidance Section Hardware for use in integration testing
- Completed Second Stage Rocket Motor (SSRM)/ Third Stage Rocket Motor (TSRM) Preliminary Environmental Phase (PEP) 2 and Pre Flight Verification Testing (PFVT) firings
- Completed SSRM/TSRM Fast Cook Off (FCO) Hazard Assessment Testing (HAT) testing
- Completed TSRM Attitude Control System (ACS) and Thrust Vector Control (TVC) Sub Assembly Design Verification Testing (DVT)
- Completed Steering Control System (SCS) DVT

Vertical Launch System (VLS) Canister:
- Completed VLS ship integration drawings and VLS technical manuals.
- Prepared for Ballistic Missile Defense System Flight and Ground Test events as reflected in the IMTP and the Exhibit R-4 schedule

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MD09 / *SM-3 Block IIA Co-Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Purchased materials to fabricate canisters in support of the SM-3 Cooperative Development Test Program. The budget reduction in FY 2014 reflects Program of Record activities that will occur after CDR as the Program begins to transition from Development to Integration and Testing. ***FY 2015 Plans:*** SM-3 Blk IIA Missile Development: - Demonstrate Real-time Scene Generator Final Capability - Conduct Throttleable Divert Attitude Control System (TDACS) Design Verification Test - Initiate SM-3 IIA AUR Huntsville I&T Process Proofing - Deliver Inert Operational Missile to Combat Systems Engineering Development Site (CSEDS) - Prepare and conduct TDACS qualification Testing - Conduct Post Near Miss Shock Performance Testing of Kinetic Warhead (KW) and Guidance Section (GS) - Manufacture TDACS Insensitive Munitions Fast Cook-off Units - Deliver Throttleable Divert and Attitude Control System (TDACS), Guidance Section (GS), and Kinetic Warhead (KW) Guidance Unit in support of BMDS Flight Test event - Prepare for and conduct BMDS Flight Test events as reflected in the IMTP and the Exhibit R-4 schedule Vertical Launch System (VLS) Canister: - Conduct Mk 29 Mod 0 Canister In-Process Review - Prepare for and conduct Insensitive Munitions testing - Prepare for and conduct Packaging, Handling, Storage & Transportation testing - Prepare for and conduct BMDS Flight Test events as reflected in the IMTP and the Exhibit R-4 schedule ***FY 2016 Plans:*** Decrease from FY 2015 is attributable to the conclusion of the design and technology development efforts associated with a maturing program. SM-3 Block IIA Missile Development: - Complete Software Functional Qualification testing to ensure successful flight test intercepts - Complete Integration & Test Proofing to ensure proper implementation of manufacturing processes of the SM-3 Block IIA missile - Continue qualification and testing of the Throttleable Divert and Attitude Control System (TDACS) in support of pending flight test to ensure missile components meet performance and manufacturing requirements - Complete Kinetic Warhead (KW) Qualification testing to ensure missile components meet performance and manufacturing requirements			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MD09 / *SM-3 Block IIA Co-Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Complete Guidance Section (GS) Qualification to ensure missile components meet performance and manufacturing requirements - Complete Kinetic Warhead (KW) and Guidance Section (GS) Post Near Miss Shock Performance Testing that provides data for missile hazard classification - Deliver TDACS, GS, and KW Guidance Unit in support of BMDS Flight Test event - Prepare for and conduct BMDS Flight Test events as reflected in the IMTP and the Exhibit R-4 schedule Vertical Launch System (VLS) Canister: - Complete Insensitive Munitions testing - Complete Packaging, Handling, Storage & Transportation testing to allow for missile transportation - Prepare for and conduct BMDS Flight Test events as reflected in the IMTP and the Exhibit R-4 schedule			
Accomplishments/Planned Programs Subtotals	279.140	240.751	139.866

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0604881C: *AEGIS SM-3 Block IIA Co-Development*	297.169	263.695	172.645	-	172.645	66.828	-	-	-	-	800.337

Remarks

D. Acquisition Strategy

The SM-3 Cooperative Development program for the SM-3 Block IIA missile will utilize a performance-based approach that ties program decision milestones to the performance of development prototypes, as well as Propulsion Test Vehicle and Control Test Vehicle flight test article performance. Acquisition of hardware, software modifications and required services will occur in conjunction with contractual and tasking efforts to U.S. Navy work and events, and as defined by signed agreements between the Governments of the United States and Japan.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MD09 / *SM-3 Block IIA Co-Development*

Competition will be used to purchase any products or services, when appropriate.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MD09 / *SM-3 Block IIA Co-Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SM-3 Block IIA Cooperative Development (SCD) - MD09 - D	MIPR	MDA : Arlington, VA	0.000	-		-		5.547	Nov 2015	-		5.547	Continuing	Continuing	Continuing
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA Cooperative Development (SCD) - SM-3 Blk IIA Canister - MD09	MIPR	BAE : MD	42.840	7.016		6.768	Dec 2014	3.130	Nov 2015	-		3.130	Continuing	Continuing	Continuing
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA Cooperative Development (SCD) - SM-3 Blk IIA Development - MD09	SS/CPAF	RAYTHEON : AZ	1,294.757	236.163		212.957	Dec 2014	112.640	Nov 2015	-		112.640	Continuing	Continuing	Continuing
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA Cooperative Development (SCD) - SM-3 Blk IIA Development - MD09 - 20117135426611	MIPR	NSWC/DD/VA : VA	25.058	7.058		6.078	Dec 2014	4.985	Nov 2015	-		4.985	Continuing	Continuing	Continuing
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA Cooperative Development (SCD) - SM-3 Blk IIA Development - MD09 - 20117135426613	C/CPFF	JHU/APL : MD	65.782	21.337		12.971	Nov 2014	8.788	Nov 2015	-		8.788	Continuing	Continuing	Continuing
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA Cooperative Development (SCD) - SM-3 Blk IIA Development - MD09 - 20117135426614	MIPR	MIT/LL : MA	6.705	1.152		0.591	Nov 2014	0.388	Nov 2015	-		0.388	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	Project (Number/Name) MD09 / *SM-3 Block IIA Co-Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA Cooperative Development (SCD) - SM-3 Blk IIA Development - MD09 - 20117135426616	MIPR	NSWC/PHD : CA	8.007	1.078		0.394	Nov 2014	0.412	Nov 2015	-		0.412	Continuing	Continuing	Continuing
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA Cooperative Development (SCD) - SM-3 Blk IIA Development - MD09 - 20117135426619	MIPR	NSWC IH : MD	6.921	1.521		0.493	Nov 2014	0.240	Nov 2015	-		0.240	Continuing	Continuing	Continuing
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA Cooperative Development (SCD) - SM-3 Blk IIA Development - MD09 - CD	MIPR	NSWC/CD : MD	1.400	1.412		-		-		-		-	Continuing	Continuing	Continuing
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA Cooperative Development (SCD) - SM-3 Blk IIA Development - MD09 - Crane	MIPR	NSWC/Crane : IN	0.993	1.055		-		0.355	Nov 2015	-		0.355	Continuing	Continuing	Continuing
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA Cooperative Development (SCD) - SM-3 Blk IIA Development - MD09 CL	MIPR	NAWC/CL : CA	1.827	1.198		-		0.466	Nov 2015	-		0.466	Continuing	Continuing	Continuing
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA	MIPR	NSWC/CO : CA	0.826	0.150		-		0.145	Nov 2015	-		0.145	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MD09 / *SM-3 Block IIA Co-Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Cooperative Development (SCD) - SM-3 Blk IIA Mission Assurance - MD09															
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA Cooperative Development (SCD) - SM-3 Blk IIA Test Risk Reduction - MD09	C/CPFF	TREX : CA	7.780	-		-		-		-		-	Continuing	Continuing	Continuing
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA Cooperative Development (SCD) - Testing & Evaluation - MD09	MIPR	Various : CA, VA, MD	5.825	-		-		2.449	Nov 2015	-		2.449	-	8.274	13.995
SM-3 Block IIA Cooperative Development (SCD) - SM-3 Block IIA Cooperative Development (SCD)- Mission Assurance- MD09	MIPR	NSWC/DD/VA : Dahlgren, VA	1.158	-		0.499	Dec 2014	0.321	Nov 2015	-		0.321	Continuing	Continuing	Continuing
		Subtotal	1,469.879	279.140		240.751		139.866		-		139.866	-	-	-

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MD09 / *SM-3 Block IIA Co-Development*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,469.879	279.140		240.751		139.866		-		139.866	-	-	-

Remarks

Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, MIPRs, and civilian salaries on the R-3.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MD09 / *SM-3 Block IIA Co-Development*

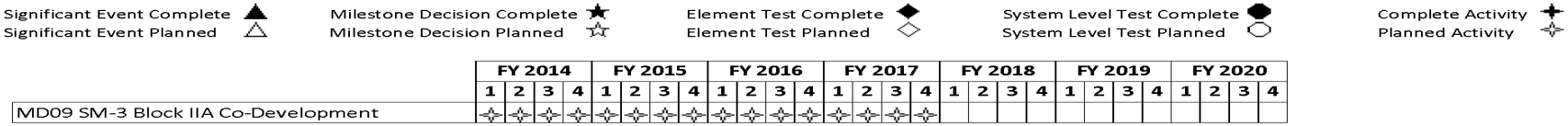


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MD09 / *SM-3 Block IIA Co-Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD09 SM-3 Block IIA Co-Development	1	2014	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	Project (Number/Name) MT09 / *SM-3 Block IIA Co-Development Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT09: *SM-3 Block IIA Co-Development Test*	-	1.897	7.680	25.186	-	25.186	12.298	-	-	-	-	47.061
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Increase from FY 2015 to FY 2016 is due to the first scheduled flight test (SFTM-01) for the SM-3 Block IIA Co-Development program being conducted in third quarter FY 2016 and SFTM-02 being conducted in first quarter FY 2017.

A. Mission Description and Budget Item Justification

Proving Missile Defense:

Working with the Services' Operational Test Agencies (OTA), with the support of the Director of Operational Test and Evaluation (DOT&E), Missile Defense Agency (MDA) has developed a test program to improve confidence in missile defense capabilities under development and ensure the capabilities transferred to the warfighter are operationally effective, suitable, and survivable.

The Integrated Master Test Plan (IMTP) is event-oriented and extends until the collection of all identified data is completed to ensure adequate test investments. The bottom line is that MDA is focused on conducting meaningful ballistic missile testing that demonstrates the capabilities of the Ballistic Missile Defense System.

The Missile Defense Agency and Japan Ministry of Defense conduct the SCD Project for the development and initial Flight Test of the SM-3 Block IIA Missile in accordance with the jointly signed SCD Annex. The Joint signed SM-3 Cooperative Development (SCD) Program Schedule has the following Project Plan as the baseline (dtd October 2013):

* Restrained Firing - COMPLETE
* Propulsion Test Vehicle - 1 (PTV-1) - COMPLETE
* Controlled Test Vehicle - 1 (CTV-1) (Planned for Q3 FY15)
* Controlled Test Vehicle - 2 (CTV-2) (Planned for Q1 FY16)
* SCD FTM - 1 (SFTM-01) (Planned for FY16)
* SCD FTM - 2 (SFTM-02) (Planned for FY17)

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: SM-3 Co-Development Flight Test Execution	1.897	7.680	25.186
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MT09 / *SM-3 Block IIA Co-Development Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Description: This activity conducts test and evaluation through ground and flight testing using the Aegis Ballistic Missile Defense (BMD) 5.1 system to improve confidence in missile defense capabilities under development and ensure the capabilities transferred to the warfighter are operationally effective, suitable, and survivable. ***FY 2014 Accomplishments:*** -Prepared for Ballistic Missile Defense System Flight and Ground Test events as reflected in the Integrated Master Test Plan and the Exhibit R-4 schedule. ***FY 2015 Plans:*** -Prepare for and conduct Ballistic Missile Defense System Flight and Ground Test events as reflected in the Integrated Master Test Plan and the Exhibit R-4 schedule. ***FY 2016 Plans:*** The increase from FY 2015 to FY 2016 is due to the first scheduled flight test (SFTM-01) for the SM-3 Block IIA Co-Development program being conducted in third quarter FY 2016 and SFTM-02 being conducted in first quarter FY 2017. -Begin test planning for FY 2016 Aegis flight test missions: develop models and simulations, and ready the range for test. -Conduct Aegis BMD-specific analysis during pre and post-mission analysis phases. -Prepare for and conduct Ballistic Missile Defense System Flight and Ground Test events as reflected in the Integrated Master Test Plan and the Exhibit R-4 schedule.			
Accomplishments/Planned Programs Subtotals	1.897	7.680	25.186

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MT09 / *SM-3 Block IIA Co-Development Test*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0604880C: *Land Based SM-3 (LBSM3)*	124.568	123.444	34.970	-	34.970	40.787	30.486	20.193	22.079	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MT09 / *SM-3 Block IIA Co-Development Test*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SM-3 Co-Development Flight Test Execution - SM-3 Block IIA Cooperative Development (SCD) - SM-3 Blk IIA Development - MT09	SS/CPAF	Raytheon : Tucson, AZ	0.000	0.200		-		-		-		-	Continuing	Continuing	Continuing
SM-3 Co-Development Flight Test Execution - SM-3 Co-Development Testing - SM-3 Blk IIA Development (SCD) Testing & Evaluation - MT09	MIPR	NSWC PHD : San Diego, CA	0.000	0.625		3.001	Nov 2014	6.982	Nov 2015	-		6.982	Continuing	Continuing	Continuing
SM-3 Co-Development Flight Test Execution - SM-3 Co-Development	MIPR	NSWC/DD/VA : Dahlgren, VA	0.000	0.247		1.334	Nov 2014	3.589	Nov 2015	-		3.589	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	Project (Number/Name) MT09 / *SM-3 Block IIA Co-Development Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Testing - SM-3 Blk IIA Development (SCD) Testing & Evaluation - MT09 - 2012628435314															
SM-3 Co-Development Flight Test Execution - SM-3 Co-Development Testing - SM-3 Blk IIA Development (SCD) Testing & Evaluation - MT09 - 20126284353142	C/CPFF	JHU : APL MD	0.000	0.200		1.334	Nov 2014	7.485	Nov 2015	-		7.485	Continuing	Continuing	Continuing
SM-3 Co-Development Flight Test Execution - SM-3 Co-Development Testing - SM-3 Blk IIA Development (SCD) Testing & Evaluation - MT09 - 20126284353143	MIPR	NAWC : Pt. Mugu CA	0.000	0.500		1.667	Nov 2014	3.663	Nov 2015	-		3.663	Continuing	Continuing	Continuing
SM-3 Co-Development Flight Test Execution - SM-3 Co-Development Testing - SM-3 Blk IIA Development (SCD) Testing & Evaluation - MT09 PMRF	MIPR	PMRF Barking Sands : Kauai, HI	0.000	0.025		-		2.559	Nov 2015	-		2.559	Continuing	Continuing	Continuing
SM-3 Co-Development Flight Test Execution - SM-3 Co-Development Testing - SM-3 Blk IIA Development (SCD) Testing & Evaluation - MT09-Various	MIPR	Various : HI, VA, CA, MA	0.000	0.100		-		0.018	Nov 2015	-		0.018	Continuing	Continuing	Continuing
SM-3 Co-Development Flight Test Execution - SM-3 Co-Development Testing - SM-3 Blk IIA	MIPR	NSWC : IH MD	0.000	-		0.344	Nov 2014	0.890	Nov 2015	-		0.890	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	Project (Number/Name) MT09 / *SM-3 Block IIA Co-Development Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development (SCD) Testing & Evaluation-MT09 - 20126284353146															
		Subtotal	0.000	1.897		7.680		25.186		-		25.186	-	-	-

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

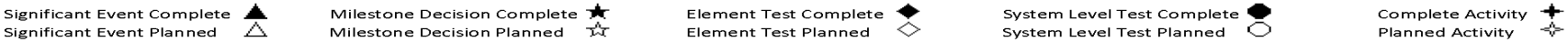
N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	1.897		7.680		25.186		-		25.186	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MT09 / *SM-3 Block IIA Co-Development Test*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SCD PTV-01 (AEGIS SCD Intercept Only Flight Test)	▲																											
SCD CTV-01 (Aegis Flight Test)							◇																					
SCD CTV-02 (AEGIS SCD Intercept Only Flight Test)									△																			
SFTM-01 E2 (AEGIS 5.1 Intercept Flight Test)											✧																	
SFTM-02 (AEGIS 5.1 Intercept Flight Test)													△															

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MT09 / *SM-3 Block IIA Co-Development Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SCD PTV-01 (AEGIS SCD Intercept Only Flight Test)	1	2014	1	2014
SCD CTV-01 (Aegis Flight Test)	3	2015	3	2015
SCD CTV-02 (AEGIS SCD Intercept Only Flight Test)	1	2016	1	2016
SFTM-01 E2 (AEGIS 5.1 Intercept Flight Test)	3	2016	3	2016
SFTM-02 (AEGIS 5.1 Intercept Flight Test)	1	2017	1	2017

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	34.235	16.132	15.264	7.593	-	7.593	3.159	-	-	-	-	76.383
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2016, Program Wide Support reflects a proportional change as a result of adjustments to SM-3 Block IIA Co-Development.
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.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	16.132	15.264	7.593
Articles:	-	-	-
Description: See Description below.			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans: See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	16.132	15.264	7.593

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MD40 / *Program-Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	Allot	Various: Multi : ALless than CAless than COless than VA	1.027	3.311		0.973		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services	MIPR	Defense Manpower Data Center : AL,CA, CO, VA	0.000	0.009		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Service	C/FFP	Various : Multi: AL, CA, CO, VA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/Various	Various; Multi : AL, CO, VA	31.425	12.812		13.579	Mar 2015	7.593	Mar 2016	-		7.593	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services (FFP)	C/FFP	Various : Multi: AL, CA, CO, VA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services (Reqn)	Reqn	Various : Multi: AL, CA, CO, VA	0.000	-		0.712		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Facilities and Maintenance	MIPR	Various: Multi : AK, AL, CA, VA	1.783	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	34.235	16.132		15.264		7.593		-		7.593	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	34.235	16.132		15.264		7.593		-		7.593	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MD40 / *Program-Wide Support*

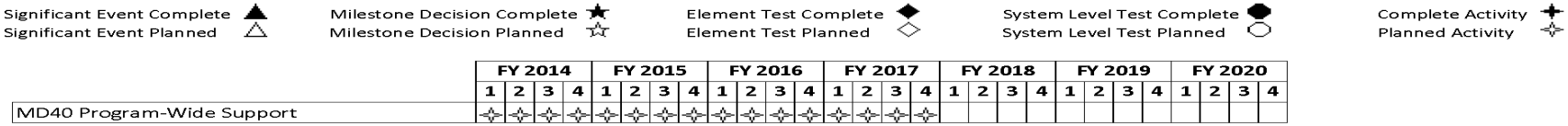


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604881C / *AEGIS SM-3 Block IIA Co-Development*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2014	4	2017

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
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 0604887C *I Ballistic Missile Defense Midcourse Defense Segment Test*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	79.877	64.618	-	64.618	73.485	81.385	73.848	94.954	Continuing	Continuing
MT08: *Midcourse Test*	-	-	79.877	61.777	-	61.777	70.010	77.217	69.914	89.809	Continuing	Continuing
MD40: *Program Wide Support*	-	-	-	2.841	-	2.841	3.475	4.168	3.934	5.145	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

Beginning in FY 2015, Midcourse Defense Segment Test was transferred from PE Ballistic Missile Defense Midcourse Defense Segment (0603882C) MT08 Ground Based Midcourse Test project in accordance with Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

A. Mission Description and Budget Item Justification

Ballistic Missile Defense Midcourse Defense Segment Test provides the Ground-based Midcourse Defense (GMD) program with an enhanced test program that includes expanding our flight and ground test programs to demonstrate our Initial Homeland Defense and Enhanced Homeland Defense capabilities against long-range threats. The GMD elements of the BMDS Integrated Master Test Plan (IMTP) are intended to demonstrate the integrated missile defense capabilities under development and ensure the capabilities delivered to the Warfighter are operationally effective, suitable, and survivable.

MT08 Midcourse Test consists of three accomplishment areas; Resources, Flight Test Execution, and Ground Test Execution. Resources consist of the support and framework required to successfully conduct both flight and ground testing. Flight Test Execution and Ground Test Execution accomplishments consist of the execution of the individual tests.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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 0604887C *I Ballistic Missile Defense Midcourse Defense Segment Test*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	79.877	64.618	-	64.618
Total Adjustments	-	79.877	64.618	-	64.618
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	79.877			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	-	-	64.618	-	64.618

Change Summary Explanation

Starting in FY 2015 this was transferred from PE 0603882C: Ballistic Missile Defense Midcourse Defense Segment in accordance with the Consolidated and Further Continuing Appropriations Act, 2015.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	Project (Number/Name) MT08 / *Midcourse Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT08: *Midcourse Test*	-	-	79.877	61.777	-	61.777	70.010	77.217	69.914	89.809	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2015, Midcourse Defense Segment Test was transferred from PE Ballistic Missile Defense Midcourse Defense Segment (0603882C) MT08 Ground Based Midcourse Test project in accordance with Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

A. Mission Description and Budget Item Justification

Midcourse Test provides the Ground-based Midcourse Defense (GMD) program with an enhanced test program that includes expanding our flight and ground test programs to demonstrate our Initial Homeland Defense and Enhanced Homeland Defense capabilities against long-range threats. The GMD elements of the BMDS Integrated Master Test Plan (IMTP) are intended to demonstrate the integrated missile defense capabilities under development and ensure the capabilities delivered to the Warfighter are operationally effective, suitable, and survivable.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Resources	-	16.913	18.493
Articles:	-	-	-
Description: Provides support associated with day-to-day operations of the flight and ground test programs to include engineering support for ground test planning, execution, and post-event reconstruction.			
FY 2014 Accomplishments: -Located in PE 0603882C: Ballistic Missile Defense Midcourse Defense Segment MT08			
FY 2015 Plans: -Provide test infrastructure and coordination of flight test range support from Vandenberg Air Force Base, California for all range activities, engineering, operators and GBI transportation, including preparation for the first GBI salvo flight test -Provide Ballistic Missile Defense System (BMDS) flight and ground test execution situational awareness through the use of the Missile Defense Agency Integration and Operations Center (MDIOC) housing flight, ground and operational controlled assets of the GMD system from Colorado Springs, CO -Support pre- and post-flight test mission communications to include fulfillment of requirements and data analysis -Provide System Test Lab support to the engineering, accreditation, operations and maintenance of Flight and Ground Test Programs			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	**Project (Number/Name)** MT08 / *Midcourse Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Support risk reduction testing through the use of the Prime Consolidated Integration Lab designed for engineering and integration activities leading up to scheduled flight tests and supported by appropriate analysts, environments and equipment ***FY 2016 Plans:*** -Increase from FY 2015 to FY 2016 due to alignment of MDA test priorities to latest Integrated Master Test Plan. -Provide test infrastructure and coordination of flight test range support from Vandenberg Air Force Base, California for all range activities, engineering, operators and GBI transportation, including preparation for the first GBI salvo flight test -Provide Ballistic Missile Defense System (BMDS) flight and ground test execution situational awareness through the use of the Missile Defense Agency Integration and Operations Center (MDIOC) housing flight, ground and operational controlled assets of the GMD system from Colorado Springs, CO -Support pre- and post-flight test mission communications to include fulfillment of requirements and data analysis -Provide System Test Lab support to the engineering, accreditation, operations and maintenance of Flight and Ground Test Programs -Support risk reduction testing through the use of the Prime Consolidated Integration Lab designed for engineering and integration activities leading up to scheduled flight tests and supported by appropriate analysts, environments and equipment -Continue salvo range infrastructure upgrades at Vandenberg Air Force Base, California in preparation for the Flight Test Ground-based Midcourse Defense-11 (FTG-11) -Provide engineering support for planning and execution of the test events, including test architecture, objectives and assessment criteria, target requirements, M&S for pre-test assessment and post-test review, and develop and establish hardware-in-the-loop (HWIL) M&S integration test cases.			
Title: Flight Test Execution	-	57.878	37.074
Articles:	-	-	-
Description: Flight tests demonstrate the capabilities and/or phenomenology that cannot be adequately tested or obtained during ground testing. Flight tests also provide opportunities to test actual hardware and to demonstrate Ballistic Missile Defense System (BMDS) Element interoperability under operationally realistic conditions. ***FY 2014 Accomplishments:*** -Located in PE 0603882C: Ballistic Missile Defense Midcourse Defense Segment MT08 ***FY 2015 Plans:*** -Continue planning for Ground-based Midcourse Defense Control Test Vehicle-02+ (CTV-02+), a 3-stage Capability Enhancement II (CE-II) non intercept engagement using a GBI launched from Vandenberg Air Force Base, California against an intermediate-			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	**Project (Number/Name)** MT08 / *Midcourse Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
range ballistic missile (IRBM)air-launched target with associated object, utilizing resources previously planned for Flight Test Ground-based Midcourse Defense-09 (FTG-09) per revised MDA Integrated Master Test Plan --Collect Critical Engagement Conditions (CEC) / Empirical Measurement Events (EME) data that validates Models and Simulations (M&S) -Initiate planning for Flight Test Ground-based Midcourse Defense-15 (FTG-15), a 3-stage C2/CBAU intercept using a GBI launched from Vandenberg Air Force Base, California against a target with associated objects, launched from Reagan Test Site (RTS)) ***FY 2016 Plans:*** -Decrease from FY 2015 to FY 2016 due to CTV-02+ being conducted early in 1Q FY16 and FTG-15 being late 4Q FY16, thus funding falls in previous and following FYs. -Conduct Flight Test Ground-based Midcourse Defense Controlled Test Vehicle-02 Plus (GM CTV-02+), a 3-stage Capability Enhancement II (CE-II) non-intercept engagement using a GBI launched from Vandenberg Air Force Base, California against an air launched IRBM with associated objects -Conduct Flight Test Ground-based Midcourse Defense-15 (FTG-15), a 3-stage Capability Enhancement II (CE-II) C2/CBAU intercept engagement using a GBI launched from Vandenberg Air Force Base, California against an ICBM target with associated objects, launched from Reagan Test Site (RTS) --Collect Critical Engagement Conditions (CEC) / Empirical Measurement Events (EME) data that validates Models and Simulations (M&S) -Initiate planning for Flight Test Ground-based Midcourse Defense-11 (FTG-11), a 3-stage CE-I and 3-stage CE-II Salvo intercept using GBIs launched from Vandenberg Air Force Base, California against a target with countermeasures, launched from Reagan Test Site (RTS)			
Title: Ground Test Execution	-	5.086	6.210
Articles:	-	-	-
Description: Ground tests demonstrate and validate Warfighter tactics, techniques, and procedures. Ground tests are executed both in the Hardware-in-the-loop (HWIL) lab and in the field. HWIL lab tests integrate and assess Ballistic Missile Defense System (BMDS) system- level performance based on new element capabilities. Ground tests in the field use existing fielded element assets and tactical communication networks, to integrate, assess and demonstrate the new element capabilities. ***FY 2014 Accomplishments:*** -Located in PE 0603882C: Ballistic Missile Defense Midcourse Defense Segment MT08 ***FY 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	**Project (Number/Name)** MT08 / *Midcourse Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Complete support execution of BMDS Ground Test-04 test campaign to assess BMDS capabilities with integration of additional BMDS sensors -Continue to support planning and support execution of BMDS Ground Test-06 test campaign to assess BMDS capabilities with integration of additional BMDS assets (Ft. Drum, NY In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT), and the Space-Based Infrared System (SBIRS) Increment 2 Change), and demonstrate GMD Fire Control (GFC) 6B3 capabilities using a lab based Hardware-in-the-Loop (HWIL) Configuration during Ground Test Integrated -06 (GTI-06) -Support execution planning of BMDS Ground Test Distributed-06 (GTD-06) test campaign to assess BMDS capabilities and the mission functionality of the Ground-based Midcourse Defense (GMD) Fire Control (GFC) version 6B3 BMDS capabilities using fielded assets and long haul communications networks			
FY 2016 Plans: -Increase from FY 2015 to FY 2016 due to alignment of MDA test priorities to latest Integrated Master Test Plan. -Continue execution of BMDS Ground Test Distributed-06 (GTD-06) test campaign to assess BMDS capabilities and the mission functionality of the Ground-based Midcourse Defense (GMD) Fire Control (GFC) version 6B3 BMDS capabilities using fielded assets and long haul communications networks -Support planning and execution of BMDS Ground Test-07a test campaign (GTX-07a / GTI-07a) to assess BMDS capabilities and the mission functionality of the Ground-based Midcourse Defense (GMD) Fire Control (GFC) version 6B3 BMDS capabilities using SBIRS Increment 2 Interface through C2BMC, Future Sensor Utilization and GS Technology Refresh			
Accomplishments/Planned Programs Subtotals	-	79.877	61.777

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	501.170	455.068	513.256	-	513.256	585.727	484.242	442.202	460.945	Continuing	Continuing
• 0604874C: *Improved Homeland Defense (HLD) Interceptors*	-	99.500	278.944	-	278.944	279.565	71.663	14.004	14.251	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	**Project (Number/Name)** MT08 / *Midcourse Test*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

The Ground-based Midcourse Defense (GMD) program will continue to follow testing, development, and evolutionary acquisition through incremental development. The Agency acquisition strategy ensures that the GMD components are upgraded to improve both system performance and interceptor reliability in order to retain the proven GMD contribution to the Integrated Ballistic Missile Defense System (BMDS). This acquisition approach minimizes the risk of parts availability, provides opportunities for incremental capability improvements, and allows decision makers to make informed trades between cost, schedule, and performance while exploring improved operational and technological capabilities.

GMD awarded a competitive Development and Sustainment Contract (DSC) on December 30, 2011. This contract continues development, fielding, test, systems engineering, integration, and configuration management; equipment manufacturing and upgrade; training, operations and sustainment of the GMD system and associated support facilities. The DSC emphasizes the application of performance-based tenets to provide timely high quality support of the core GMD system while reducing life cycle and long-term ownership costs. GMD's acquisition strategy for transition of the legacy content into the DSC provides uninterrupted field operations; development of both Ground Systems and Interceptor (GBI) products, including manufacturing additional interceptors to support both operations and testing; and the requirement to demonstrate war fighting capability through a rigorous ground and flight test program.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	**Project (Number/Name)** MT08 / *Midcourse Test*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Resources - Small Business Innovation Research (SBIR)	MIPR	MDA : AL/VA	0.000	-		-		0.959		-		0.959	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		0.959		-		0.959	-	-	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Resources - Engineering & Analysis - Industry Support	C/CPAF	Boeing : AL	0.000	-		2.423		1.851		-		1.851	-	4.274	-
Resources - Engineering & Analysis - OGA Support	MIPR	AMRDEC : AL	0.000	-		2.389		1.709		-		1.709	-	4.098	-
Resources - Government Infrastructure Support, Labs, and Communications	MIPR	VAFB : CA/AL/CO	0.000	-		6.443		6.849		-		6.849	Continuing	Continuing	Continuing
Resources - Prime Infrastructure Support, Labs, and Communications	C/CPAF	Boeing : AL/AK/AZ/ CA/CO/OR/TX//VA	0.000	-		5.658		7.125		-		7.125	Continuing	Continuing	Continuing
Flight Test Execution - Planning and Silo Refurbishment	C/CPAF	Boeing : AL/AK/AZ/ CA/CO/OR/TX/VA	0.000	-		26.964		15.668		-		15.668	Continuing	Continuing	Continuing
Flight Test Execution - Range, Resources, and Engineering	MIPR	VAFB/PMRF : CA/HI	0.000	-		30.914		21.406		-		21.406	Continuing	Continuing	Continuing
Ground Test Execution - Ground Test-04 Campaign	C/CPAF	Boeing : AL/AK/AZ/ CA/CO/TX/VA	0.000	-		1.264		-		-		-	-	1.264	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	Project (Number/Name) MT08 / *Midcourse Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Test Execution - Ground Test-06 Campaign	C/CPAF	Boeing : AL/AK/AZ/ CA/CO/TX/VA	0.000	-		3.741		2.181		-		2.181	Continuing	Continuing	Continuing
Ground Test Execution - Ground Test-07 Campaign	C/CPAF	Boeing : AL/AK/AZ/ CA/CO/TX/VA	0.000	-		0.081		4.029		-		4.029	Continuing	Continuing	Continuing
		Subtotal	0.000	-		79.877		60.818		-		60.818	-	-	-

Remarks

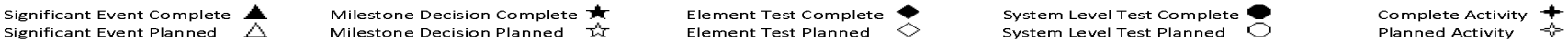
N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		79.877		61.777		-		61.777	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	**Project (Number/Name)** MT08 / *Midcourse Test*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GM CTV-02+ (GM Flight Test)									△																			
FTG-15 (GM Intercept Flight Test)												△																
FTG-11 (GM Salvo Intercept Flight Test)																△												
GM CTV-03 (GM Flight Test)																			△									
FTG-17 (GM Intercept Flight Test)																							△					
FTO-04 (OTA Intercept Flight Test)																											△	

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	**Project (Number/Name)** MT08 / *Midcourse Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GM CTV-02+ (GM Flight Test)	1	2016	1	2016
FTG-15 (GM Intercept Flight Test)	4	2016	4	2016
FTG-11 (GM Salvo Intercept Flight Test)	4	2017	4	2017
GM CTV-03 (GM Flight Test)	3	2018	3	2018
FTG-17 (GM Intercept Flight Test)	3	2019	3	2019
FTO-04 (OTA Intercept Flight Test)	3	2020	3	2020

Note

Notes: CTV - Controlled Test Vehicle; GTI - Ground Test Integrated; GTD - Ground Test Distributed; GTX - Ground Test Exercise; GDEx - Global Defender Exercise; FTG - Flight Test Ground-Based Interceptor; FTO - Flight Test Operational; FTX - Flight Test Exercise

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	Project (Number/Name) MD40 / *Program Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program Wide Support*	-	-	-	2.841	-	2.841	3.475	4.168	3.934	5.145	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning FY 2016, Program Wide Support was proportionately allocated to Ballistic Missile Defense Midcourse Defense Segment Test

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 includes: 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	-	-	2.841
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: - FY 2014 Accomplishments were captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2015 Plans: - FY 2015 Accomplishments are captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2016 Plans: - Beginning in FY 2016, Program Wide Support was redistributed across RDT&E Program Elements with a proportional allocation to Ballistic Missile Defense Midcourse Defense Segment Test - See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	-	2.841

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	**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: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	**Project (Number/Name)** MD40 / *Program Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, VA	0.000	-		-		2.841		-		2.841	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		2.841		-		2.841	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		2.841		-		2.841	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	**Project (Number/Name)** MD40 / *Program Wide Support*

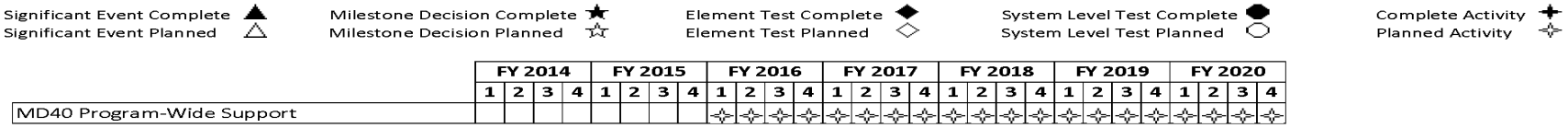


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604887C / *Ballistic Missile Defense Midcourse Defense Segment Test*	**Project (Number/Name)** MD40 / *Program Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0305103C / *Cyber Security Initiative*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.912	0.961	0.963	-	0.963	0.976	0.992	1.003	1.038	Continuing	Continuing
MDCS: *Cyber Security Initiative*	-	0.912	0.961	0.963	-	0.963	0.976	0.992	1.003	1.038	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

N/A

A. Mission Description and Budget Item Justification

The MDA Counterintelligence (CI) Division conducts CI in Cyberspace activities pursuant to DoD Directive O-5240.02 (Counterintelligence) and DoD Instruction S-5240.23 (CI Activities in Cyberspace) to identify, disrupt, neutralize, penetrate, and exploit foreign intelligence services and international terrorist organizations, hereafter referred to as foreign entities, to act in observable or exploitable ways. To this end, the MDA CI Division conducts activities to detect and neutralize foreign entity-directed malicious and insider threat activities targeting MDA administrative and Ballistic Missile Defense fire control networks, and mobility devices.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	0.946	0.961	0.984	-	0.984
Current President's Budget	0.912	0.961	0.963	-	0.963
Total Adjustments	-0.034	-	-0.021	-	-0.021
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.020	-			
• SBIR/STTR Transfer	-0.014	-			
• Other Adjustment	-	-	-0.021	-	-0.021

Change Summary Explanation

FY 2016 decrease reflects realignment of Department of Defense priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0305103C / *Cyber Security Initiative*	Project (Number/Name) MDCS / *Cyber Security Initiative*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MDCS: *Cyber Security Initiative*	-	0.912	0.961	0.963	-	0.963	0.976	0.992	1.003	1.038	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

The DoD Counterintelligence in Cyberspace (CIC) mission initiative is externally funded and falls under the functional and fiscal management of the Director, Defense Intelligence Agency. The MDA Counterintelligence (CI) Division conducts defensive CIC activities pursuant to DoD Directive O-5240.02 (Counterintelligence), DoD Instruction S-5240.23 (CI Activities in Cyberspace) and DoD Instruction 5240.26 (Countering Espionage, International Terrorism, and the CI Insider Threat), and an MDA Annex within an annual DIA-approved Implementation Plan. In accordance with the aforementioned CI policy references, the MDA CI Division responsibilities include:

-- Collaborate with the MDA Computer Emergency Response Team (CERT) to detect and neutralize potential foreign entity directed malicious and insider threat activities targeting MDA administrative and fire control networks, and mobility devices.
-- Conduct CI Preliminary Inquiries into potential foreign entity directed malicious or insider threat activities and refers suspected incidents or events to the FBI or military department CI organizations for further investigation pursuant to DoD Instruction 5240.21 (CI Inquiries).
-- Conduct CI forensics analysis of MDA computer network activity logs to identify potential indicators of foreign entity directed malicious, insider threat or computer network attack/exploitation activities targeting MDA information.
-- Coordinate with national and DoD level intelligence, CI and law enforcement agencies to identify foreign entity cyber actor intrusion sets and the tactics, techniques and procedures used to target MDA and its Cleared Defense Contractor computer networks.
-- Provide initial and periodic training pursuant to DoD Directive 5240.06 (CI Awareness and Reporting), and DoD Instruction 5240.26 to ensure the MDA workforce is kept apprised of foreign entity threats to DoD personnel, facilities, information, activities, and information technology systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: DoD CI in Cyberspace Initiative	0.912	0.961	0.963
Articles:	-	-	-
Description: This activity detects, identifies and neutralizes activities directed by foreign entities that target MDA administrative and fire control networks and mobility devices to disrupt or deny services, or collect controlled unclassified information.			
FY 2014 Accomplishments: - Increased collaboration with MDA Computer Incident Response Team (CIRT) to keep the CIRT fully-informed of current foreign entity intrusion sets and associated tactics, techniques and procedures used to conduct computer network attacks/exploitation activities against MDA networks and mobility devices.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0305103C / *Cyber Security Initiative*	**Project (Number/Name)** MDCS / *Cyber Security Initiative*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conducted CI Analysis of MDA computer network activity logs to produce actionable investigative leads indicative of potential foreign entity directed malicious and insider threat activities. -- Conducted CI forensic examinations of MDA computer hardware and mobility devices involved in security or CI incidents to determine potential foreign entity nexus for follow-on investigation by FBI or military department CI organizations. - Integrated CI in cyberspace support to MDA ground and flight test events to detect and neutralize potential foreign entity directed activities targeting MDA personnel, facilities, information and activities. ***FY 2015 Plans:*** - Increase collaboration with MDA Computer Incident Response Team (CIRT) to keep the CIRT fully-informed of current foreign entity intrusion sets and associated tactics, techniques and procedures used to conduct computer network attacks/exploitation activities against MDA networks and mobility devices. - Conduct CI Analysis of MDA computer network activity logs to produce actionable investigative leads indicative of potential foreign entity directed malicious and insider threat activities. -- Conduct CI forensic examinations of MDA computer hardware and mobility devices involved in security or CI incidents to determine potential foreign entity nexus for follow-on investigation by FBI or military department CI organizations. - Integrate CI in cyberspace support to MDA ground and flight test events to detect and neutralize potential foreign entity directed activities targeting MDA personnel, facilities, information and activities. ***FY 2016 Plans:*** FY 2016 increase reflects variations in labor cost factors. - Continue collaboration with MDA Computer Emergency Response Team (CERT) by fully alerting CIO analysts to current foreign entity intrusion sets and associated tactics, techniques and procedures used to conduct computer network attacks/exploitation activities. - Conduct Cyber Analysis of MDA system and network events to produce actionable investigative leads indicative of potential foreign entity directed malicious and insider threat activities. - Conduct CI forensic examinations of MDA computer systems, networks and personal electronic devices involved in administrative, security or CI inquiries. - Integrate the Trusted Cyber Sensor into MDA administrative and general service networks to allow more robust detection of foreign entity directed activities targeting MDA personnel, facilities, information and programs. - Coordinate with MDA cleared defense contractors that have been compromised by foreign intelligence entities to capture and triage exfiltrated MDA related data allowing BMDS engineering teams to perform proper damage assessments. - Research and integrate a cellular/wireless device detection system within MDA SCIF/SAP areas. - Support deployment of the MDA Insider Threat program.			
Accomplishments/Planned Programs Subtotals	0.912	0.961	0.963

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0305103C / *Cyber Security Initiative*	**Project (Number/Name)** MDCS / *Cyber Security Initiative*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	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.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0305103C / *Cyber Security Initiative*	Project (Number/Name) MDCS / *Cyber Security Initiative*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DoD CI in Cyberspace Initiative - Counterintelligence	Allot	MDA : Various MDA Locations	0.000	0.912		0.461	Jan 2015	0.459	Nov 2015	-		0.459	Continuing	Continuing	Continuing
DoD CI in Cyberspace Initiative - Technical Surveillance & Countermeasures	MIPR	USA-TAO : Ft. Detrick, MD	0.000	-		0.500	Jan 2015	0.504	Nov 2015	-		0.504	Continuing	Continuing	Continuing
		Subtotal	0.000	0.912		0.961		0.963		-		0.963	-	-	-

Remarks

N/A

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.912		0.961		0.963		-		0.963	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0305103C / *Cyber Security Initiative*	**Project (Number/Name)** MDCS / *Cyber Security Initiative*

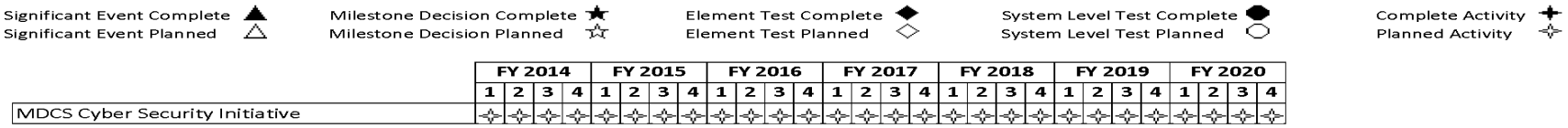


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0305103C / *Cyber Security Initiative*	**Project (Number/Name)** MDCS / *Cyber Security Initiative*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MDCS Cyber Security Initiative	1	2014	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency												Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605502C / *Small Business Innovation Research - MDA*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	74.888	-	-	-	-	-	-	-	-	-	74.888
MD45: *Small Business Innovation Research*	-	74.888	-	-	-	-	-	-	-	-	-	74.888
MDAP/MAIS Code: 362												

Note

N/A

A. Mission Description and Budget Item Justification

This project explores innovative concepts pursuant to Public Law 106-554 (Small Business Reauthorization Act of 2000) and Public Law 107-50 (Small Business Technology Transfer Program Reauthorization Act of 2001), which mandates a two-phase competition for small businesses with innovative technology that can be commercialized. The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs will develop new dual-use technology for future Missile Defense Agency (MDA) Ballistic Missile Defense Systems (BMDS) needs. Dual-use means that the technology will be judged on the potential for future private sector investment both as a vehicle for reducing development time and cost, unit costs of new BMDS technology, and as a route to national economic growth through new commercial products. MDA will conduct the competition, award, and manage the contracts.

The Missile Defense Agency`s SBIR/STTR investments are divided into 14 Research Areas for the following key components:
-Aegis Ballistic Missile Defense (BMD): Develops Naval BMD Capability
-Command, Control, Communication, Computer Intelligence Surveillance and Reconnaissance (C4ISR): Defines, develops and deploys an integrated Sensor and Command and Control (C2) capability for the Ballistic Missile Defense System
-Program and Integration: Supervises the non-Aegis portfolio including Targets, Terminal High Altitude Area Defense (THAAD), Ground-based Midcourse Defense, and the Israeli programs
-Test: Characterizes ballistic missile defense capability and supports fielding of an integrated and effective capability to the Warfighter
-Advanced Technology: Develops technology to counter future threats

SBIR and STTR topic areas for FY 2014 included:
- Secure and Survivable Electronics Software
- Standard Missile 3 Materials Design Improvements
- Track Refinement from Off-Nominal Break-Up
- Command and Control Course of Action Analysis Tool
- Innovative and Modular Open System Radar Algorithm Test Environment
- Reconfigurable Memory or Central Processing Unit Instruction Architecture
- Radio Frequency Field Sensor for Integrated Circuits

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605502C / *Small Business Innovation Research - MDA*

- Mapping Debris Trajectories through a Fireball
- Late-Time Sensor Characterization for Missile Intercept Debris
- Innovative Data Architecture Generation Across a Complex System of Systems
- Statistically Significant Simulation of the Ballistic Missile Defense
- Development of High Performance Computing Technology for a Distributed Modeling and Simulation Hardware Infrastructure
- Innovative Solutions to Insensitive Munitions Fast Cook-off Environments and Testing
- Weight Optimized Mitigation to Direct Effects of Lightning Strike on a Missile Body
- Missile Avionics Architecture Insensitive to Transient Power Interrupts
- Integrated Health Sensing for Highly Efficient Weapon Inspection and Sustainment
- Variable Gravity Two-Phase Heat Sink for Airborne Directed Energy Systems
- Robust Phase Modulators and Polarization Controllers for High Power Fiber Lasers
- Enhanced Sensor Systems
- High-End Tactical Grade Inertial Measurement Unit Technology for Missile Defense
- Maturity and Durability Enhancement of Advanced Aerospace Materials
- High Performance Long Wave Infrared Focal Plane Array Sensor for Missile Defense
- Miniaturized Safe and Arm Devices
- Failure Avoidance in Microelectronics Due to Coefficient of Thermal Expansion
- Base Metal Electrode Capacitor Test Methods
- Measurement of Remaining Effective Stabilizer in Solid Propellants

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	74.888	-	-	-	-
Total Adjustments	74.888	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	74.888	-			
• Other Adjustment	-	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605502C *I Small Business Innovation Research - MDA*

Change Summary Explanation

FY 2014 funds were transferred to Small Business Innovation Research/Small Business Technology Transfer from other Program Elements in accordance with the SBIR/STTR Reauthorization Act of 2011

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605502C / *Small Business Innovation Research - MDA*	Project (Number/Name) MD45 / *Small Business Innovation Research*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD45: *Small Business Innovation Research*	-	74.888	-	-	-	-	-	-	-	-	-	74.888
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

This project explores innovative concepts pursuant to Public Law 106-554 (Small Business Reauthorization Act of 2000) and Public Law 107-50 (Small Business Technology Transfer Program Reauthorization Act of 2001), which mandates a two-phase competition for small businesses with innovative technology that can be commercialized. The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs will develop new dual-use technology for possible future Missile Defense Agency (MDA) Ballistic Missile Defense Systems (BMDS) needs. Dual-use means that the technology will be judged on the potential for future private sector investment both as a vehicle for reducing development time and cost, unit costs of new MDA BMDS technology, and as a route to national economic growth through new commercial products. MDA will conduct the competition, award, and manage the contracts.

The Missile Defense Agency`s SBIR/STTR investments are divided into 14 Research Areas for the following key components:
-Aegis Ballistic Missile Defense (BMD): Develops Naval BMD Capability
-Command, Control, Communication, Computer Intelligence Surveillance and Reconnaissance (C4ISR): Defines, develops and deploys an integrated Sensor and Command and Control (C2) capability for the Ballistic Missile Defense System
-Program and Integration: Supervises the non-Aegis portfolio including Targets, Terminal High Altitude Area Defense (THAAD), Ground-based Midcourse Defense, and the Israeli programs
-Test: Characterizes ballistic missile defense capability and supports fielding of an integrated and effective capability to the Warfighter
-Advanced Technology: Develop technology to counter future threats

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Small Business Innovative Research	74.888	-	-
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: Awarded 111 Phase I contracts ($113K average) in the following research areas: --Advanced Technology			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605502C / *Small Business Innovation Research - MDA*	**Project (Number/Name)** MD45 / *Small Business Innovation Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
--Aegis BMD --Anti-Tamper --Battle Management and Communications --Directed Energy --Modeling Simulation and Phenomenology --Targets & Countermeasures --QS-Quality, Safety & Mission Assurance --Radar -Awarded 78 Phase II contracts ($769k average) in the following research areas: --Advanced Technology --Aegis BMD --Anti-Tamper --Battle Management and Communications --Directed Energy --Modeling Simulation and Phenomenology --Targets & Countermeasures --Test Instrumentation ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	74.888	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605502C / *Small Business Innovation Research - MDA*	**Project (Number/Name)** MD45 / *Small Business Innovation Research*

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0901598C *I Management HQ - MDA*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	60.498	34.712	35.598	35.871	-	35.871	35.187	34.509	33.466	33.992	Continuing	Continuing
MD38: *Management Headquarters*	60.498	34.712	35.598	35.871	-	35.871	35.187	34.509	33.466	33.992	Continuing	Continuing
MDAP/MAIS Code: 362												

Note

N/A

A. Mission Description and Budget Item Justification

As prescribed by Department of Defense Directive 5100.73, Major Headquarters (HQ) Activities, signed by the Deputy Secretary of Defense on May 13, 1999, Management Headquarters supports the operation of Missile Defense Agency's (MDA) Headquarters activities. Management Headquarters funds salaries and benefits for government civilian personnel, travel, contract support services, ground transportation, facility support functions, emergency management, transportation subsidy, shuttle services, and operations of non-fielded activities.

As a research, development, and acquisition agency within the Department of Defense, Management Headquarters provides oversight, direction and control- of initiatives and processes that minimize future cost overruns, schedule delays, and performance problems in MDA acquisition programs. MDA Headquarters Support is accomplished by focusing acquisition and procurement program management on emphasizing systems engineering; utilizing more effective up front planning and management of technology risk, making trade-offs between cost, schedule, and performance early in the program cycle.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	34.712	36.998	36.343	-	36.343
Current President's Budget	34.712	35.598	35.871	-	35.871
Total Adjustments	-	-1.400	-0.472	-	-0.472
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.400			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	-	-	-0.472	-	-0.472

Change Summary Explanation

FY 2015 change reflects Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0901598C *I Management HQ - MDA*

FY 2016 adjustments reflect realignment to Department of Defense priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0901598C / *Management HQ - MDA*	Project (Number/Name) MD38 / *Management Headquarters*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD38: *Management Headquarters*	60.498	34.712	35.598	35.871	-	35.871	35.187	34.509	33.466	33.992	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

The Missile Defense Agency's (MDA) Headquarters provide oversight, direction and control over MDA's acquisition programs and fielded systems. The MDA Headquarters Staff functions (government salaries, government travel, and Contract Support Services) support the mission and operations of the world-wide MDA mission.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: HQ Civilian Salaries	21.991	23.190	22.914
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: Provide mission support, oversight, and management of: - Acquisition, implementation of international initiatives to increase missile defense coverage to deployed forces and allies, efficiency-oriented administrative services, business operations, financial resources, human capitol, real property, environmental compliance, general counsel, internal review, public affairs, and media release			
FY 2015 Plans: Provide mission support, oversight, and management of: - Acquisition, implementation of international initiatives to increase missile defense coverage to deployed forces and allies, efficiency-oriented administrative services, business operations, financial resources, human capitol, real property, environmental compliance, general counsel, internal review, public affairs, and media release			
FY 2016 Plans: Provide mission support, oversight, and management of:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0901598C / *Management HQ - MDA*	**Project (Number/Name)** MD38 / *Management Headquarters*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Acquisition, implementation of international initiatives to increase missile defense coverage to deployed forces and allies, efficiency-oriented administrative services, business operations, financial resources, human capitol, real property, environmental compliance, general counsel, internal review, public affairs, and media release			
Title: HQ Travel	1.004	0.983	0.999
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** Provide mission essential government travel ***FY 2015 Plans:*** Provide mission essential government travel ***FY 2016 Plans:*** Provide mission essential government travel			
Title: HQ Utilities, Facilities, Agency Operations, Subsidy, Transportation and Logistics	2.658	2.280	2.410
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** - Fund utilities under host-tenant agreement at MDA, Fort Belvoir - Provide base operations at MDA, Fort Belvoir - Provide transportation subsidy to National Capitol Region employees - Provide ground transportation, shuttle, and motorpool services ***FY 2015 Plans:*** - Fund utilities under host-tenant agreement at MDA, Fort Belvoir - Provide base operations at MDA, Fort Belvoir - Provide transportation subsidy to National Capitol Region employees - Provide ground transportation, shuttle, and motorpool services ***FY 2016 Plans:*** - Fund utilities under host-tenant agreement at MDA, Fort Belvoir - Provide base operations at MDA, Fort Belvoir - Provide transportation subsidy to National Capitol Region employees			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0901598C / *Management HQ - MDA*	**Project (Number/Name)** MD38 / *Management Headquarters*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Provide ground transportation, shuttle, and motorpool services			
Title: Security and Emergency Management	2.381	3.253	3.318
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** - Provide access control and circulation enforcement for all visitors, security clearance verification, physical security checks, and information security inspections - Maintain global security situational awareness from the Global Security Operations Center (GSOC) and provide security planning and support for conferences and special events - Provide first response and emergency assessment to emergency situations and respond to alarms to include Sensitive Compartmental Information (SCI) and Special Access Program (SAP) facilities ***FY 2015 Plans:*** - Provide access control and circulation enforcement for all visitors, security clearance verification, physical security checks, and information security inspections - Maintain global security situational awareness from the Global Security Operations Center (GSOC) and provide security planning and support for conferences and special events - Provide first response and emergency assessment to emergency situations and respond to alarms to include Sensitive Compartmental Information (SCI) and Special Access Program (SAP) facilities ***FY 2016 Plans:*** - Provide access control and circulation enforcement for all visitors, security clearance verification, physical security checks, and information security inspections - Maintain global security situational awareness from the Global Security Operations Center (GSOC) and provide security planning and support for conferences and special events - Provide first response and emergency assessment to emergency situations and respond to alarms to include Sensitive Compartmental Information (SCI) and Special Access Program (SAP) facilities			
Title: HQ Contract Services	6.678	5.892	6.230
Articles:	-	-	-
Description: N/A ***FY 2014 Accomplishments:*** - Provide contract support services to support mission activities for acquisition, business operations, internal review, general counsel, administrative support, public affairs, and international affairs			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0901598C / *Management HQ - MDA*	**Project (Number/Name)** MD38 / *Management Headquarters*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- FY 2014 reflects the appropriation ***FY 2015 Plans:*** - Provide contract support services to support mission activities for acquisition, business operations, internal review, general counsel, administrative support, public affairs, and international affairs. -FY 2015 decrease reflects realignment of funding to Department of Defense priorities. ***FY 2016 Plans:*** - Provide contract support services to support mission activities for acquisition, business operations, internal review, general counsel, administrative support, public affairs, and international affairs.			
Accomplishments/Planned Programs Subtotals	34.712	35.598	35.871

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A