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**Department of Defense
Fiscal Year (FY) 2011 President's Budget**

February 2010



Missile Defense Agency

Justification Book Volume 2b

Research, Development, Test & Evaluation, Defense-Wide - 0400

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Introduction & Explanation of Contents

The Department of Defense FY2011 President's Budget RDT&E, Defense-wide Volume 2, Missile Defense Agency (MDA) justification materials consists of three books titled, Volume 2a, 2b, and 2c. Apart from the Table of Contents and list of Acronyms provided in each book, justification documents are provided in the book listed below.

Volume 2a

- R-1 Comptroller Exhibit
- RDTE&E Exhibits in BA-03 (PEs: 0603175C, 0603901C)
- RDTE&E Exhibits in BA-04 (PEs: 0603881C, 0603882C, 0603883C, 0603884C, 0603886C, 0603888C, 0603890C)

Volume 2b

- R-1 Comptroller Exhibit
- RDT&E Exhibits in BA-04 continued (PEs: 06033892C, 0603893C, 0603894C, 0603895C, 0603896C, 0603897C, 0603898C, 0603904C, 0603907C, 0603908C, 063909C, 0603911C, 0603912C, 0603913C, 0604880C, 0604881C, 0604883C, 0604484C)
- RDT&E Exhibits in BA-06 (PEs: 0605502C, 0901585C, 0901598C)

Volume 2c

- MDA Appropriation Summary
- MDA FY 2011 Budget Estimate Overview
- MDA – Procurement Exhibits (includes P-1 Comptroller Exhibit)
- Congressional Reporting Requirements
- Program Assessment Rating Tool (PART) Submission

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Program Elements Not Providing R Exhibits Due to Classification

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)

Line Item	Budget Activity	Program Element Number	Program Element title
83	04	0603891C	Special Programs – MDA
92	04	0603906C	Regarding Trench

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Missile Defense Agency
 FY 2011 President's Budget
 Exhibit R-1
 (Dollars in Thousands)

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

Date: 20 Jan 2010

Line No	Program Element Number	Item	Act	FY 2009	FY 2010	FY 2011	Se c
28	0603175C	Ballistic Missile Defense Technology	03	117,602	189,229	132,220	U
64	0603901C	Directed Energy Research	03			98,688	U
		Advanced Technology Development (ATD)		117,602	189,229	230,908	
75	0603881C	Ballistic Missile Defense Terminal Defense Segment	04	951,414	715,732	436,482	U
76	0603882C	Ballistic Missile Defense Midcourse Defense Segment	04	1,472,683	1,027,371	1,346,181	U
77	0603883C	Ballistic Missile Defense Boost Defense Segment	04	384,365	182,317		U
79	0603884C	Ballistic Missile Defense Sensors	04	682,754	621,017	454,859	U
80	0603886C	Ballistic Missile Defense System Interceptor	04	308,869			U
81	0603888C	Ballistic Missile Defense Test & Targets	04	906,952	823,333	1,113,425	U
82	0603890C	BMD Enabling Programs	04	402,776	358,751	402,769	U
83	0603891C	Special Programs - MDA	04	182,998	250,185	270,189	U
84	0603892C	AEGIS BMD	04	1,054,323	1,435,717	1,467,278	U
85	0603893C	Space Tracking & Surveillance System	04	209,831	161,609	112,678	U
86	0603894C	Multiple Kill Vehicle	04	226,027			U
87	0603895C	Ballistic Missile Defense System Space Programs	04	23,250	12,492	10,942	U
88	0603896C	Ballistic Missile Defense Command and Control, Battle Management and Communicati	04	275,174	334,734	342,625	U
89	0603897C	Ballistic Missile Defense Hercules	04	51,629	47,932		U
90	0603898C	Ballistic Missile Defense Joint Warfighter Support	04	66,283	61,098	68,726	U
91	0603904C	Missile Defense Integration & Operations Center (MDIOC)	04	102,823	86,483	86,198	U
92	0603906C	Regarding Trench	04	3,159	6,130	7,529	U
93	0603907C	Sea Based X-Band Radar (SBX)	04	143,878	167,153	153,056	U

Exhibit R-1: Total (Direct and Supplementals), as of January 20, 2010 at 11:18:22

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Missile Defense Agency
 FY 2011 President's Budget
 Exhibit R-1
 (Dollars in Thousands)

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

Date: 20 Jan 2010

Line No	Program Element Number	Item	Act	FY 2009	FY 2010	FY 2011	Sec
94	0603908C	BMD European Interceptor Site	04	348,722			U
95	0603909C	BMD European Midcourse Radar	04	73,728			U
96	0603911C	BMD European Capability	04		50,226		U
97	0603912C	BMD European Communications Support	04	26,016			U
98	0603913C	Israeli Cooperative Programs	04		201,323	121,735	U
107	0604880C	Land-Based SM-3 (LBSM3)	04			281,378	U
108	0604881C	AEGIS SM-3 Block IIA Co-Development	04		255,987	318,800	U
109	0604883C	Precision Tracking Space System RDT&E	04			66,969	U
110	0604884C	Airborne Infrared (ABIR)	04			111,671	U
	Advanced Component Development & Prototypes			7,897,654	6,799,590	7,173,490	
151	0605502C	Small Business Innovative Research - MDA	06	124,788			U
175	0901585C	Pentagon Reservation	06	20,146	19,709	20,482	U
176	0901598C	Management HQ - MDA	06	87,151	52,403	29,754	U
	RDT&E Management Support			232,085	72,112	50,236	
Total Missile Defense Agency				8,247,341	7,060,931	7,454,634	

Exhibit R-1: Total (Direct and Supplementals), as of January 20, 2010 at 11:18:22

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64	03	0603901C	DIRECTED ENERGY RESEARCH.....	Volume 2a - 43

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)

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76	04	0603882C	Ballistic Missile Defense Mid-Course Segment.....	Volume 2a - 207
77	04	0603883C	Ballistic Missile Defense Boost Defense Segment.....	Volume 2a - 311
79	04	0603884C	Ballistic Missile Defense Sensors.....	Volume 2a - 341
80	04	0603886C	Ballistic Missile Defense System Interceptor.....	Volume 2a - 483
81	04	0603888C	Ballistic Missile Defense Test and Targets.....	Volume 2a - 505
82	04	0603890C	Ballistic Missile Defense Enabling Programs.....	Volume 2a - 805
84	04	0603892C	BMD AEGIS.....	Volume 2b - 1

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Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)

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85	04	0603893C	SPACE TRACKING & SURVEILLANCE SYSTEM.....	Volume 2b - 173
86	04	0603894C	MULTIPLE KILL VEHICLE.....	Volume 2b - 225
87	04	0603895C	BMD SYSTEM SPACE PROGRAM.....	Volume 2b - 249
88	04	0603896C	BMD C2BMC.....	Volume 2b - 305
89	04	0603897C	BMD HERCULES.....	Volume 2b - 391
90	04	0603898C	BMD JOINT WARFIGHTER SUPPORT.....	Volume 2b - 413
91	04	0603904C	MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC).....	Volume 2b - 503
93	04	0603907C	SEA BASED X-BAND RADAR (SBX).....	Volume 2b - 623
94	04	0603908C	BMD EUROPEAN INTERCEPTOR SITE.....	Volume 2b - 657
95	04	0603909C	BMD EUROPEAN MIDCOURSE RADAR.....	Volume 2b - 675
96	04	0603911C	BMD EUROPEAN CAPABILITY.....	Volume 2b - 697
97	04	0603912C	BMD European Comm Support.....	Volume 2b - 709
98	04	0603913C	ISRAELI COOPERATIVE.....	Volume 2b - 719
107	04	0604880C	LAND-BASED SM-3.....	Volume 2b - 781
108	04	0604881C	Aegis SM-3 BLOCK IIA CO-DEVELOPMENT.....	Volume 2b - 795
109	04	0604883C	PRECISION TRACKING SPACE SYSTEM.....	Volume 2b - 815
110	04	0604884C	AIRBORNE INFRARED (ABIR).....	Volume 2b - 835

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Budget Activity 06: RDT&E Management Support

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
151	06	0605502C	Small Business Innovative Research BMDO.....	Volume 2b - 851
175	06	0901585C	Pentagon Reservation.....	Volume 2b - 859
176	06	0901598C	Management Headquarters-MDA.....	Volume 2b - 869

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Ballistic Missile Defense Boost Defense Segment	0603883C	77	04.....Volume 2a - 311	
Ballistic Missile Defense Enabling Programs	0603890C	82	04.....Volume 2a - 805	
Ballistic Missile Defense Mid-Course Segment	0603882C	76	04.....Volume 2a - 207	
Ballistic Missile Defense Sensors	0603884C	79	04.....Volume 2a - 341	
Ballistic Missile Defense System Interceptor	0603886C	80	04.....Volume 2a - 483	
Ballistic Missile Defense Technology	0603175C	28	03.....Volume 2a - 1	
Ballistic Missile Defense Terminal Defense Segment	0603881C	75	04.....Volume 2a - 55	
Ballistic Missile Defense Test and Targets	0603888C	81	04.....Volume 2a - 505	
BMD AEGIS	0603892C	84	04.....Volume 2b - 1	
BMD C2BMC	0603896C	88	04.....Volume 2b - 305	
BMD EUROPEAN CAPABILITY	0603911C	96	04.....Volume 2b - 697	
BMD European Comm Support	0603912C	97	04.....Volume 2b - 709	
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LAND-BASED SM-3	0604880C	107	04..... Volume 2b - 781	
Management Headquarters-MDA	0901598C	176	06..... Volume 2b - 869	
MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)	0603904C	91	04..... Volume 2b - 503	
MULTIPLE KILL VEHICLE	0603894C	86	04..... Volume 2b - 225	
Pentagon Reservation	0901585C	175	06..... Volume 2b - 859	
PRECISION TRACKING SPACE SYSTEM	0604883C	109	04..... Volume 2b - 815	
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Small Business Innovative Research BMDO	0605502C	151	06..... Volume 2b - 851	
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**Missile Defense Agency
Fiscal Year (FY) 2011 Budget Estimates**

ACRONYMS AND ABBREVIATIONS

A	
A&AS	Advisory and Assistance Services
AADC	Area Air Defense Commander
AIRU	Advanced Inertial Reference Unit
AAMDC	Army Air Missile Defense Command
ABIR	Airborne Infrared Radar
ABL	Airborne Laser
ABS	American Bureau of Shipping
ACCS	Air Command and Control System
ACS	Attitude Control System, Auxillary Communication Shelter
ACD	Adversary Capability Document
ACD&P	Component Development and Prototypes
ACL	Achievable Capabilities List
ADAC	Applied Data Analysis Center
ADP	Arrow Deployability Program; Automated Data Processing; Adversary Delta Package
AEP	Analysis Execution Plans
AFB	Air Force Base
AFC2ISRC	Air Force Command and Control Intelligence Surveillance Reconnaissance Center
AFS	Avionics Flight Software
AFSCN	Air Force Satellite Control Network
AIRS	Airborne Infrared Surveillance
AIS	Automated Information System
AKV	Agile Kill Vehicle
ALTBMD	Active Layered Theater Ballistic Missile Defense
ALHTK	Air Launch Hit to Kill
AMOR	Army Missile Optical Range, Redstone Arsenal, AL
AMPP	Arrow Missile Production Program
AN/TPY	Army Navy/Transportable Radar Surveillance
AoA	Analysis of Alternatives
AOC	Air Operations Center
AOP	Airborne Optics Platform; Advanced Optical Processor
AOR	Area of Responsibility
APL	Applied Physics Laboratory
ARAV	Aegis Readiness Assessment Vehicles
ARO	All Reflective Optics
ARS	Active Ranging System
ASIP	Arrow System Improvement Program; Application Specific Integrated Circuit
ASP	Advanced Signal Processor
AST	Airborne Surveillance Test Bed; Arrow System Test
ATH	Above the Horizon
ATIC	Advanced Technology Innovation Cell
ATILL	Advanced Tracking Illuminator Laser
AT&L	Acquisition, Technology and Logistics
ATO	Authority To Operate
ATT	Algorithm-to-Test Reviews
AVIT	Air Vehicle Integration and Test
AWS	Arrow Weapon System; AEGIS Weapon System

ACRONYMS AND ABBREVIATIONS

B	
BAA	Broad Agency Announcement
BCA	Business Case Analysis; BMDS Capability Assessment
BCER	BMDS Combined Element Reviews
BC/FC	Beam Control/Fire Control
BCSC-T	BMDS Communication System Complex Transportable
BITC	Battle Management Integration Center
BLOS	Beyond Line-of-Sight
BM	Battle Management; Ballistic Missile
BM/C3	Battle Management, Command, Control, and Communications
BM/C4I	Battle Management, Command, Control, Communications, Computers, and Intelligence
BMD	Ballistic Missile Defense
BMDS	Ballistic Missile Defense System
BMDSM	BMD System Manager
BNOSC	BMDS Network Operations and Security Center
BOA	BMDS Overhead Non-imaging Infrared (ONIR) Architecture
BOIP	Basis of Issue Plan
BPRRA	Baseline Production Readiness Risk Assessments
BQT	Block Qualification Testing
BRAC	Base Realignment and Closure
BSC	Battery Support Center
BSO	BMDS Safety Officers
BSOC	BMDS System Operability Check
BSP	BMD Signal Processor
BTH	Below the Horizon
BTEC	BMDS Training and Education Center
BVT	Booster Verification Test
BWO	BMDS Watch Officers
C	
C2BMC	Command and Control, Battle Management, and Communications
CAIG	Cost Analysis Improvement Group
CAPS	Commanders Analysis and Planning System
CaT	Characterization and Transition Reviews
CCC	C2BMC Control Center
CCAR	Comprehensive Cost and Requirement System
CCM	Counter Counter-Measures
CCMWG	Common Cost Methodology Working Group
CCWG	Corporate Clutter Working Group
CD	Concept Descriptions; Cobra Dane
CDA	Core Depot Assessment; Coherent Distribution Aperture
CDR	Critical Design Review
CDU	Cobra Dane Upgrade
CE	Capability Enhanced
CEM	Carrier Electronics Module
CI	Counterintelligence
CIFC	Cyber Intelligence Fusion Cell
CLE	Command and Launch Equipment
CLS	Contractor Logistics Support
CMART	Consolidated Missile Asset Reused for Targets
CMOC	Cheyenne Mountain Operations Center

ACRONYMS AND ABBREVIATIONS

CNE	Communications Node Equipment
CNIP	C2BMC Network Interface Processor
COCOM	Combatant Commander
COCOM C2	Combatant Command-Command and Control
COIL	Chemical Oxygen-Iodine Laser
COLD	Center for Optical Logic Devices
CONOPS	Concept of Operations
CONUS	Continental United States
COOP	Calibrated Orbiting Objects Program (COOP)
COTS	Commercial Off-The-Shelf
CPAF	Cost Plus Award Fee
CPI	Continuing Process Improvement
CPIF	Cost-Plus-Incentive-Fee
CR	Capability Release
CRA	Continuing Resolution Authority
CSS	Contractor Support Services
CTEIP	Central Test and Evaluation Investment Program
CTF	Controlled Test Flight; Combined Test Force
CTTO	Concurrent Test, Training and Operations
CTV	Control Test Vehicle
CY	Calendar Year
D	
DACS	Divert and Attitude Control System
DA	Distributed Aperture
DAA	Defense Appropriations Act
DACS	Divert and Attitude Control System
DAD	Discrimination Augmentation Devices
DAG	Director's Action Group
DARPA	Defense Advanced Research Projects Agency
DCMA	Defense Contract Management Agency
DDG	Guided Missile Destroyer
DFAS	Defense Finance and Accounting Service
DFE	Discrimination Fusion Engine
DGSE	Deployable Ground Support Equipment
DGT	Distributed Ground Test
DIACAP	DoD Information Assurance Certification and Accreditation Process
DiD	Defense-in-Depth
DIICOE	Defense Information Infrastructure Common Operating Environment
DISA	Defense Information Systems Agency
DISN	Defense Information Systems Network
DMETS	Distributed, Multi-Echelon Training System
DMTP	Development Master Test Plan
DoD	Department of Defense
DOORS	Dynamic Object Oriented Requirement Systems
DOT&E	Director, Operational Test and Evaluation
DOTMLPF	Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities
DREN	Defense Research Engineering Network
DROIC	Demonstrated Digital Readout Integrated Circuits
DRSN	Defense Red Switch Network
DSE	Distributed Sensing Experiment
DSWS	David's Sling Weapon System

ACRONYMS AND ABBREVIATIONS

DT/OT	Development Test/Operational Test
DTRMC	Defense Test Resource Management Center
DVT	Development Verification Test
E	
E-LRALT	Enhanced Long Range Air Launch Target
E&M	Evaluation and Maturation
EA	Executing Agent
EADSIM	Extended Air Defense Simulation
EAP	Emergence Activation Plan
EBCCD	Electron Bombarded Charge Couple Device
ECI	European Communications Interface
ECCA	Element/Component Characterization for Analysis
ECS	Element Capability Specification
EDM	Engineering Development Model
EE	Engineering Evaluation
EEI	Essential Elements of Information
EHF	Extremely High Frequency
EICO	Element Integration and Checkout
EIS	European Interceptor Site
EKV	Exoatmospheric Kill Vehicle
ELDT	Early Launch Detection and Tracking
ELO	Epitaxial Layer Overgrowth
EMDR	Executive Mission Data Review
EMR	European Midcourse Radar
EMRL	Engineering and Manufacturing Readiness Level
EO	Electro-optical
EO/IR	Electro-Optical/Infrared
EoR	Engage on Remote
EQLB	Executive Quick Look Briefing
ESG	Engagement Sequence Group
ESI	External System Interface; Enterprise Software Initiative
ESL	External Sensors Lab
ETE	Element Test and Evaluation
ET	Embedded Test
EUCOM	European Command
EW SPT	Early Warning Special Product Team
EWR	Early Warning Radar
EWS	Enterprise Work Stations
F	
FAC	First Alert and Cueing
FATC	Feature Aided Track Correlation
FBS	Forward Based Sensor
FBX-T	Forward Based Radar - Transportable
FDE	Force Developers Evaluation
FFP	Firm Fixed Price
FFRDC	Federally Funded Research and Development Center
FIS	Facility Installation Standards
FISMA	Federal Information Security Management Act
FISS	Foreign Intelligence and Security Services

ACRONYMS AND ABBREVIATIONS

FPA	Focal Plane Array
FMA	Foreign Material Acquisition; Foreign Military Asset
FMS	Foreign Military Sales
FPI	Fixed Price Incentive
FS&E	Facilities, Siting & Environment
FT	Flight Test
FTF	Flexibility Target Family
FTG	Flight Test GMD
FTM	Flight Test Mission
FTR	Flight Test Round
FTSBT	Far-Term Sea Based Terminal
FY	Fiscal Year
FUF	Fire Unit Fielding
FYDP	Future Years Defense Program
G	
GAO	Government Accountability Office
GBI	Ground Based Interceptor
GBR-P	Ground Based Radar Prototype
GCC	Geographic Combatant Commanders
GCCS-J	Global Command and Control System - Joint
GCN	Global Command Network; GMD Communications Network
GEM	Global Engagement Manager; Guidance Enhancement Missiles (PATRIOT)
GFC / C	GMD Fire Control and Communications
GFE	Government Furnished Equipment
GGT	Government Ground Test
GIFC	Global Integrated Fire Control
GM	Ground-based Midcourse
GMD	Ground-based Midcourse Defense
GMAP	Government MDA Assurance Provisions
GNCC	Global Network Operations Center
GN&C	Guidance Navigation and Control
GS	Ground Systems
GTD	Ground Test Distributed
GTI	Ground Test Integrated
GTV	Guidance Test Vehicle
H	
HAA	High Altitude Airship
HACNE	High Availability Comm Node Equipment
HAENS	High Altitude Exoatmospheric Nuclear Survivability
HALO	High Altitude Observatory
HARD	Hardening
HBCN	High Mobility Multipurpose Wheeled Vehicle (HMMWV) Based Communication Node
HBCU/MI	Historically Black Colleges and Universities/Minority Institutions
HC	Hazardous Classification
HEL	High Energy Laser
HEMP	High Altitude Electromagnetic Pulse
HIL	Human-in-the-Loop; Hardware-in-the-Loop
HITL	Hardware-in-the-Loop
HMI	Human-Machine Interface

ACRONYMS AND ABBREVIATIONS

HPSI	High Power System Integration
HF	High Frequency
HTI	Hyper temporal Infrared Sensor
HTK	Hit to Kill
HWIL	Hardware-in-the-Loop
HMMWV	High Mobility Multipurpose Wheeled Vehicle
I	
IA	Information Assurance
IADP	Integrated Analysis Data Package
IAI	Israel Aircraft Industries
IAM	Information Assurance Manager
IAMD	Integrated Air and Missile Defense
IAR	Integrated Assessment Review
IAT	Independent Assessment Teams
IBMP	Integrated Ballistic Missile Picture
IBR	Initial Baseline Review
ICAs	Industrial Capability Assessments
ICAR	Interim Capability Assessment Report
ICBM	Intercontinental Ballistic Missile
ICD	Interface Control Document
ICOFT	Institutional Conduct of Fire Trainer
ICSS	Interim Contractor Support System
IDAP	Integrated Data Analysis Plans
IDD	Interface Design Documentation
IDF	Israel's Defense Forces
ID/IQ	Indefinite Delivery/Indefinite Quantity
IDO	Initial Defensive Operations
IDMP	Integrated Data Management Plans
IDT	In-Flight Interceptor Communications System Data Terminal
IET	Integration Event Matrix
IETM	Integrated Electronic Technical Manual
IFT	Integrated Flight Test
IFICS	In-Flight Interceptor Communications System
IGT	Integrated Ground Test
IM	Insensitive Munitions
IM/FHC	Insensitive Munitions / Final Hazard Classification
IM/IT	Information Management/Information Technology
IMDO	Israeli Missile Defense Organization
IMoD	Israeli Ministry of Defense
IMP	Integrated Master Plan
iPOP	International Point of Presence
IMTP	Integrated Master Test Plan
IMU	Inertial Measurement Unit
IP	Integration Phase
IPT	Integrated Product Team
IR	Infrared
IRAD	Institution Research and Application Development
IRBM	Intermediate Range Ballistic Missile
IRFNA	Inhibited Red Fuming Nitric Acid
IRST	Infrared Search and Track
IRT	Independent Review Team

ACRONYMS AND ABBREVIATIONS

ISA&I	Israeli System Architecture and Integration
ISC	Intelligence Support Cell (MDA)
ISCD	Integrated System Configuration Database
ISG	Integration Synchronization Group
ISPAN	Integrated Strategic Planning and Analysis Network
ISSE	Information System Security Engineering
ISTC	Integrated System Test Capability
IRREL	Infrared Radiation Effects Laboratory
ISTS	Integrated Simulation and Tactical Software
IT	Integrated Test; Information Technology
ITB	Israeli Test Bed
ITOP	International Test Operation Procedures
ITP	Interceptor Technology Program
ITW/AA	Initial Threat Warning/Attack Assessment
J	
JADE	Joint Analysis Data Engine
JAT	Joint Analysis Teams
JABMD	Japan BMD
JCIDS	Joint Capabilities Integration and Development System
JCTV	Joint Control Test Vehicle
JCB	Joint Capability Board
JDA	Japan Defense Agency
JDAC	Joint Data Analysis Center
JIAMD	Joint Integrated Air and Missile Defense
JEDA	Joint Engine for Defense Analysis
JEWL	Joint Early Warning Laboratory
JFCC-IMD	Joint Functional Component Command - Integrated Missile Defense
JHU	John Hopkins University
JILSMT	Joint ILS Management Team
JNIC	Joint National Integration Center, Schriever AFB, CO
JRD	Joint National Integration Center Research and Development
JRE	Joint Range Extension
JROC	Joint Requirements Oversight Council
JTAG	Joint Test Action Group
JTAMDO	Joint Theater Air and Missile Defense Organization
JTF-GNO	Joint Task Force-Global Network Operations
JTIDS	Joint Tactical Information Data System
JTOC	JNIC Target Operations Center
JWICS	Joint Worldwide Intelligence Communications System
JWSP	Joint Warfighter Support Program
K	
KE	Kinetic Energy
KEI	Kinetic Energy Interceptor
KKV	Kinetic Kill Vehicle
KLC	Kodiak Launch Complex
KMR	Kwajalein Missile Range
KMRSS	Kwajalein Mobile Range Safety System
KPP	Knowledge Point
KTF	Kauai Test Facility

ACRONYMS AND ABBREVIATIONS

KM	Kilometers
KV	Kill Vehicle
L	
LADAR	Laser Detection and Ranging; Laser Radar
LAN	Local Area Network
LCT	Laser Communications Terminal
LDACS	Liquid Divert and Attitude Control System
LDC	Limited Defensive Capabiltiy
LEO	Low Earth Orbit
LORA	Level of Repair Analysis
LOT	Launch on TADIL
LFT&E	Live Fire Test and Evaluation
LMSSC	Lockheed Martin Space Systems Company
LPSI	Low Pressure Safety Injection
LRALT	Long Range Air Launched Target
LRBM	Long Range Ballistic Missile
LRS&T	Long Range Surveillance and Tracking
LSE	Launch Support Equipment
LTP	Laser Technology Program
LTPO	Lower Tier Program Office
LUT	Limited User Testing
LWIR	Long Wave Infrared
M	
M&S	Modeling and Simulation; Materials and Structure
MAP	MDA Assurance Plan
MARC	MDA Assurance Representative
MARTI	Missile Alternative Range Target Instrument
MASINT	Measures and Signals Intelligence
MCS	Management Control System
MCCF	Mission Control Center Facility
MD	Missile Defense
MDA	Missile Defense Agency
MDDC	Missile Defense Data Center
MDE	Missile Defense Element
MDEB	Missile Defense Executive Board
MDIOC	Missile Defense Integrated Operations Center
MDR	Mission Data Review
MDSE	Missile Defense System Exerciser
MDSEC	Missile Defence Space Experimentation Center
MEB	Missile Equipment Building; Mechanical Electrical Building
MEIT	Multi-Element Integration Testing
MER	Manpower Estimate Report
MET	Modernization Enterprise Terminal
M-FASP	Midcourse Fly Along Sensor Package
MHC/BLEA-GV	Multi-hypothesis correlation/BMDS Launch Event Association-Global Vision
MILCON	Military Construction
MILSATCOM	Military Satellite Communiattions
MIL-STD	Military Standards
MIMO	Multiple-Input Multiple-Output

ACRONYMS AND ABBREVIATIONS

MIP	Master Integration Plan
MIPS	Missile Defense Planning System
MIPR	Military Interdepartmental Purchase Request
MIS	MDSEC Interchange System
MIT	Miniature Interceptor Technology; Massachusetts Institute of Technology
MIT/LL	Massachusetts Institute of Technology, Lincoln Laboratory, Lexington, MA
MKV	Multiple Kill Vehicle
MLP	Mobile Launch Platform
MMIC	Multi-Mission Integration Cell; Microwave Monolithic Integrated Circuits
MOA	Memorandum of Agreement
MOC	Missile Defense Agency Operations Center
MOST	Multiple Target Tracking Optical Sensor Array Technology
MOU	Memorandum of Understanding
MPAT	Producibility and Manufacturing Technology
MR	Modificaiton Request
MRBM	Medium Range Ballistic Missile
MRL	Multiple Rocket Launcher; Mission Requirements Letter
MRP	Missile Round Pallet
MRSS	Mobile Range Safety System
MRT	Medium Range Target
MRTF	Missions Readiness Task Force
MSCI	Missile Space Intelligence Center
MSK	Mechanical Steering Kit
MSTAR	Missile Defense Science, Technology & Research
MTEPP	Master Test and Evaluation Program Plan
MTSC	Micro Satellite Target System
MUA	Military Utility Assessment
N	
NASIC	National Air and Space Intelligence Center
NATO	North Atlantic Treaty Organization
NAVSEA	Naval Sea Systems Command
NAWC	Naval Air Warfare Center
NCA	National Command Authority
NCADe	Net Centric Airborne Defense Element
NCES	Net-Centric Enterprise Services
NCR	National Capital Region
NECC	National Enabled Command Capability
NECS	Network Enterprise Centric Services
NFIRE	Near Field Infrared Experiment
NFR	Near Field Range
NGST	Northrop Grumman Space Technology
NORAD	North American Aerospace Defense Command
NORTHCOM	Northern Command
NIPRNET	Non-Secure Internet Protocol Router Network
NMCC	National Military Command Center
NMT	Navy Multi Band Terminal
NRL	Naval Research Laboratory, Washington, DC
NTD	Near-Term Discrimination
N-UCAS	Navy-Unmanned Combat Aerial System

ACRONYMS AND ABBREVIATIONS

NSWC-Corona	Naval Surface Warfare Center Corona
NT-ECCM	Near Term-Electronic Counter Counter-Measure
O	
O&M	Operations and Maintenance
OBV	Objective Boost Vehicle
ODA	Optical Data Analysis
ODI	Offensive/defensive Intergration
OEM	Original Equipment Manufacturers
OGA	Other Government Agency
OIS	Orbital Insertion Stage
OI&S	Operational Integration and Support
OPIR	Overhead Persistent Infrared
OPLAN	Operations Plan
OPSCAP	Operations Capabilities
OSC	Operations Support Center
OSS	Off-Shore Support
OTA	Operational Test Agency
OTHR	Over The Horizon Radar
OVA	Operational Viability Assessment
P	
PA	Project Arrangement
PAA	Phased Adaptive Approach
PAM	Planning Allocation Matrix
PACOM	U.S. Pacific Command
PAC-3	Patriot Advanced Capability-3
PB	President's Budget
PBL	Performance Based Logistics
PCB	Program Change Board
PCL	Prioritized Capability List
PCCS	Protected Communication Control System
PCIL	Prime Consolidated Integration Laboratory
PCR	Preliminary Capabilty Review
PDM	Program Decision Memorandum
PDR	Preliminary Design Review
PE	Program Element
PFR	Post Flight Reconstruction
PMAP	Process Mission Assurance Plan
PMRF	Pacific Missile Range Facility, Barking Sands, Kauai, HI
PMT	Pre-Mission Test
POAP	Photoconduction On Active Pixels
PPU	Prime Power Unit
PROCAP	Protection Capability
PRST	Pacific Range Support Team
PSN	Parallel Staging Area
PTE	Plant Estimates
PTSS	Precision Space Tracking System
PTV	Propulsion Test Vehicle

ACRONYMS AND ABBREVIATIONS

Q	
QLB	Quick Look Briefing
QLRB	Quick Launch Response Boat
QQPR	Qualitative Quantitative Personnel Requirements
QSMA	Quality Safety and Mission Assurance
QWIP	Quantum Well Infrared Photo Detector
R	
RAD	Radiation
RAD HARD	Radiation Hardening
RAM	Reliability, Availability and Maintainability
RCS	Radar Cross Section
RDA	Radar Data Analysis
RDC	Radar Data Collection
RDE	Radar Data Exploitation
RDSIS	Radar Digital Signal Injection System
RDT&E	Research, Development, Test, and Evaluation
REC	Records of Environmental Consideration
REO	Responsible Engineering Organization
RF	Radio Frequency
RFA	Requests for Analysis
RFI	Requests for Information
RFP	Request for Proposal
RIDT	Re-locatable IFICS Data Terminal
RM&A	Reliability, Maintainability and Availability
ROE	Rules of Engagement
ROTHR	Relocatable Over-the-Horizon Radar
RRF	Risk Reduction Flight
RSAP	Range Safety Augmentation Program
RSMT	Range Safety Modeling Toolkit
RST	Radar System Technology
RTO	Responsible Test Organization
RTOS	Real Time Operating System
RTS	Ronald Reagan Test Site, Kwajalein, Marshall Islands
RSA	Redstone Arsenal
RV	Reentry Vehicle
S	
SADBU	Small And Disadvantaged Business Unit
SAPWAN	Special Access Wide Area Network
SAR	Selected Acquisition Report
SATCOM	Satellite Communications
SBAR	Small Business Award
SBIR	Small Business Innovative Research
SBIRS	Space Based Infrared System
SBIRS-LOW	Space Based Infrared System-Low
SBX	Sea Based Test X-Band Radar
SCD	SM-3 Cooperative Development
SCR	System Capability Review
SDACS	Solid Divert Attitude Control System
SDR	System Design Review; Software Design Review

ACRONYMS AND ABBREVIATIONS

SEAR	System Engineering Assessment Report
SEBO	Systems Engineering Behavioral Objectives
SETA	Scientific Engineering and Technical Assistance
SIAR	System Impact Assessment Report
SIPRNET	Secret Internet Protocol Router Network
SIRL	Strategic Illuminator Laser
SIL HWIL	System Integration Lab Hardware-in-the-Loop
SILL	Strategic Illuminator Laser
SIM	Simulation
SIV	Silo Interface Vault
SLAL	Small Laser Amplifier for Ladar
SLC	Super-Lattice Structure
SM	Standard Missile
SM-3	Standard Missile 3
SMDC	Space and Missile Defense Command, U.S. Army
SME	Subject Matter Expert
SMR	System Modification Request
SNL	Sandia National Lab
SOA	Service Oriented Architecture
SOLD	Simulation-Over-Live Driver
SMRTC	Single Missile Round Transportation Container
SPEAR	Scalable Panels for Efficient Affordable Radar
SRALT	Short Range Air Launch Target
SRBM	Short Range Ballistic Missile Defense
SRR	System Requirements Review; Software Readiness Review
SS	Sole Source, Summary Screens
SSAA	System Security Authorization Agreement
SSD	System Specific Documentation
SSKA	Spectral Sensing for Kill Assessment
SSTB	STSS Surrogate Test Bed
STAR	Strategic Threat Assessment Report; System Test Analysis Report
STARS	Strategic Target System
STL	System Test Lab
STRATCOM	US Strategic Command
STP	Sensor Task Plan
STS	Stockpile to Target Sequence
STSS	Satellite Tracking and Surveillance System
STTR	Small Business Technology Transfer
SWIL	Software-in-the-Loop
T	
TACL	Tailored Aperture Ceramic Laser
TADIL-J	Tactical Digital Information Link Joint
TA&R	Test Analysis & Reporting
TBM	Theater Ballistic Missile
TBMCS	Theater Battle Management Core Systems
TBONE	Theater Battle Operations Network Centric Environment
TCCB	Test Configuration Control Board
TCN	Tactical Component Network
TCR	Target Capability Roadmap
TCS	Test Control System
TCWG	Test Configuration Working Group

ACRONYMS AND ABBREVIATIONS

TDACS	Throttleable Divert and Attitude Controls System
TDP	Truth Data Package; Threat Data Packages
TDRD	Truth Data Requirements Document
TDS	Terminal Defense Segment
TEC	Test Execution Control
TEDAC	Test & Evaluation Data Analysis Capability
TEMP	Test and Evaluation Master Plan
TES	Theater Event System
TF	Task Force
TFCC	THAAD Fire Control and Communications
THAAD	Terminal High Altitude Area Defense
TIC	Test Integration Council
TILL	Threat Level Classification Algorithm
TIVS	Thermally Initiated Venting System
TMDD	Target Mission Description Document
TMW	Theater Missile Warning
TOG	Technical Objectives and Goals
TOO	Test of Opportunity; Target of Opportunity
TPFDD	Timed Phased Force Deployment Data
TRIMM	Transmit/Receive Integrated Microwave Modules
TRM	Transmit/Receive Modules
TRMP	Test Resource Master Plan
TRD	Technical Requirement Document
TSG	Tactical Support Groups
TSP	Track Sensor Payload
TTP	Tactics, Techniques, and Procedures
TTS	Transportable Telemetry Systems
T&E	Test and Evaluation
U	
UARC	University Affiliated Research Centers
UDS	Universal Documentation Status
UEWR	Upgraded Early Warning Radar
UHF	Ultra High Frequency
UID	Unique Identification
UK	United Kingdom
UKV	Unitary Kill Vehicle
UMDF	Unifying Missile Defense Functions
USCENTCOM	United States Central Command
USD	Under Secretary of Defense
USD/AT&L	Under Secretary of Defense for Acquisition, Technology, and Logistics
USEUCOM	United States European Command
USFJ	United States Forces Japan
USFK	United States Forces Korea
USNCR	United States National Capital Region
USMTF	United States Message Text Format
USNORTHCOM	United States Northern Command
USPACOM	United States Pacific Command
USSOUTH	United States South
USSTRATCOM	United States Strategic Command

ACRONYMS AND ABBREVIATIONS

V	
V&V	Verification and Validation
VAFB	Vandenberg Air Force Base, CA
VCSEL	Vertical Cavity Surface-Emitting Laser
VECP	Value Engineering Change Proposal
VLS	Vertical Launching System
VTCoIP	Video Teleconferencing Internet Protocol
VV&A	Verification, Validation and Accreditation
W	
WASP	Wide-body Airborne Sensor Platform
WESC	Wargame and Exercise Support Center
WBGS	Wide Bandgap Semiconductor
WG	Wargame
WIP	Warfighter Involvement Process
WMD	Weapons of Mass Destruction
WSC	Warfighter Support Center
WSERB	Weapons System Explosive Safety Review Board
WSMR	White Sands Missile Range, White Sands, NM
WTP	Weapons Task Plan
X	
XBR	X-Band Radar
X-Lab	Experimental Laboratory
XML	Extensible Markup Language
XTR	X-band Transportable Radar

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
BX09: <i>AEGIS BMD Block 2.0</i>	239.644	53.457	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	293.101
BX18: <i>Sea-Based Terminal BMD Block 2.0</i>	33.070	5.663	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	38.733
EX09: <i>AEGIS BMD Block 5.0</i>	525.587	1,045.727	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	1,571.314
WX09: <i>AB Capability Development</i>	164.532	233.479	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	398.011
WX18: <i>Far Term Sea Based Terminal Capability Development</i>	14.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	14.000
XX09: <i>AEGIS BMD Sustainment</i>	39.495	45.766	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	85.261
MD09: <i>Aegis BMD</i>	0.000	0.000	1,412.560	0.000	1,412.560	971.965	1,063.367	1,030.020	885.993	Continuing	Continuing
ZX40: <i>Program-Wide Support</i>	37.995	51.625	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	89.620
MD40: <i>Program-Wide Support</i>	0.000	0.000	54.718	0.000	54.718	49.913	49.301	46.719	37.323	Continuing	Continuing

Note

In accordance with the Missile Defense Agency's revised budget structure, the content previously planned in Projects BX09, BX18, EX09, WX09, XX09, and ZX40 for FY 2009/FY 2010 are now captured in Projects MD09 and MD40.

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 on Aegis cruisers and destroyers 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. The Aegis BMD element of the BMDS builds upon the existing U.S. 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 Missile (SRBM), Medium-Range Ballistic Missile (MRBM), Intermediate-Range Ballistic Missile (IRBM), and selected long-range class threats in the midcourse phase of flight. Upgrades to both the Aegis BMD Weapon System and the SM-3 configurations will enable Aegis BMD to provide effective, supportable defensive capability against more difficult threats in all phases of flight, including Long Range Ballistic Missiles (LRBMs).

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The FY 2011 program is balanced reflecting the four focus areas of the current Missile Defense Program: to develop, rigorously test, and field an integrated BMDS architecture to counter existing regional threats, continue a viable Homeland Defense against rouge threats beyond 2030; demonstrate our proven technologies to show Missile Defense works; and develop technologies to hedge against future missile threat growth.

The best way 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 (C2BMC). 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 BMD capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide both the best sensor information on the enemy missile's location and track as well as a more diverse and effective set of weapon options for the Combatant Commander to defeat the attack -- all connected by a unifying C2BMC system. As a result, an effort funded in a program element (PE) may be critical to the success of efforts in the other PE -- we refer to these connections as "interdependencies". Throughout the budget justification materials we have attempted to highlight interdependencies to fully explain the relationship between different parts of the proposed program.

In support of Homeland Defense against limited long-range threats, Aegis BMD provided a Long Range Surveillance and Track (LRS&T) capability to the BMDS against Ballistic Missile threats of all ranges, supporting Ground-based Midcourse Defense (GMD) engagements. This initial capability was fielded in 2004 in compliance with Presidential direction.

In support of the objective to defend allies and deployed forces from short- to medium-range threats in one region or theater, Aegis BMD provides several capabilities:

Aegis BMD provided initial engagement capability against SRBM- to MRBM-class threats with the BMD 3.0 and BMD 3.6 systems. These capabilities were fielded in two spirals: The first spiral provided an initial engagement capability against SRBMs and MRBMs on Aegis BMD cruisers with the BMD 3.0 Weapon System and SM-3 Blk I missile that could be used for emergency activation; the second spiral provided an operationally certified LRS&T and engagement capability on Aegis BMD cruisers and destroyers configured with the BMD 3.6 Weapon System, capable of firing SM-3 Blk I and IA missiles using organic and external sensors.

In response to Real World Events, Aegis BMD has developed and is fielding an integrated Near-Term Sea Based Terminal (NTSBT) capability against a finite set of SRBMs. Also as part of BMDS Block 2.0., BMD 3.6.1 incorporates a fuze-modified SM-2 Block IV missile provided by a separate Navy sponsored effort and builds

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on BMD 3.6 to provide a capability (BMD 3.6.1) against additional threats. The updated BMD 3.6.1 improves Aegis BMD Launch on AN/TPY-2 and bridges the gap between the operational deployment of BMD 3.6 and BMD 4.0.1.

Aegis BMD is providing several capabilities (included in BMDS Integrated Build C and Build D) to enhance defense of allies and deployed forces from short- to intermediate-range threats in two regions or theaters:

BMD 4.0.1 improves engagement performance against an expanded threat set and surveillance and track performance against some IRBMs and long-range threats as well as a Launch on Remote (LoR) capability and engagement coordinator. This will be achieved by modifications to the Weapon System (BMD 4.0.1) for new RF discrimination and tracking capability, and an upgraded SM-3 guided missile. The Aegis BMD 4.0.1 Weapon System includes the Aegis BMD Signal Processor (BSP) IR Kill Assessment, and integrates an updated variant of the SM-3 (SM-3 Blk IB) to improve overall system performance and discrimination capability. The SM-3 Blk IB configuration includes a performance-enhancing two-color IR seeker, and a Throttleable Divert and Attitude Control System (TDACS), which provides performance and manufacturing improvements at a lower per-unit cost. BMD 4.0.1 will be an operationally certified system firing either the SM-3 Blk IA or IB missile.

The BMD 5.0 upgrade will integrate the BMD mission with the Navy-developed Open Architecture (OA) system to preserve the sea-based BMD capability as Navy ship modernization plans are executed. The new configuration of the Aegis BMD Weapon System will transition from older, MIL-standard computers to new Commercial Off The Shelf (COTS) computing plants. This will allow ships` operators to conduct combat missions with a single set of tactical computer programs running on the same computing plant and enhanced displays, enabling Aegis BMD to maintain compatibility with Surface Navy ships while also expanding the number of ships available to serve as potential candidates for the BMD mission.

Future Capabilities:

Aegis BMD and the Japan Ministry of Defense (JMOD) have undertaken an SM-3 Cooperative Development (SCD) program, which consists of a spiral upgrade of the SM-3 Blk IB missile to a 21-inch diameter SM-3 missile (SM-3 Blk IIA). Missile development will be covered under the SCD project prior to the SM-3 Blk IIA incorporation into the BMD 5.1 upgrade to the Aegis BMD system. By Congressional direction, this content transfers to PE 0604881C, SM-3 Block IIA Co-Development, in FY10.

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The BMD 5.1 weapons system will integrate the SM-3 Blk IIA missile into an Open Architecture (OA) environment. The addition of the SM-3 Blk IIA missile will expand available battlespace to include IRBM and selected longer-range threats, and when combined with additional weapon system modifications, will enable an Engage-on-Remote (EoR) capability. That capability will further extend Aegis BMD by capitalizing on globally-deployed BMDS sensor assets.

Additionally, Aegis BMD will provide for a more robust, long-term integrated Sea Based Terminal (SBT) capability. With BMD 5.2, Aegis BMD will incorporate a new missile type (to be determined) and build on the BMD 3.6.1 near-term SBT capability.

The Phased Adaptive Approach (PAA) was developed in response to the rapid proliferation of short and medium range ballistic missiles in Iran and the threat they pose to U.S. allies and partners, as well as to U.S. deployed personnel and their accompanying families in the Middle East and Europe. By leveraging recent advances in sensor and interceptor technologies, the United States will aggressively counter this growing regional threat with a more powerful and agile system. The United States is pursuing a four-phased approach which will provide a more effective missile defense capability for defense of NATO territories and enhance U.S. homeland defense; it will be complementary of and interoperable with those being developed by NATO, be applicable in other theaters around the world, and will be more adaptable and flexible to counter threat advances and provide increased defended areas over time. The initial phase includes the deployment of current and proven missile defense, including the sea-based Aegis Weapons System, the SM-3 missile (Block IA and IB), and sensors such as the AN/TPY-2. Subsequent phases will be implemented based on technical maturity, appropriate testing, and threat driven requirements. The Aegis Ashore program transfers in FY 2011 to PE 0604880C, Land Based SM-3.

Aegis BMD provides a mobile, forward-deployable LRS&T capability to the BMDS against ballistic missile threats of all ranges. BMD 3.6 and the SM-3 Blk IA missile provides an engagement capability against short to medium range threats. The NTSBT capability (BMD 3.6.1) provides engagement capability against limited short range threats in the terminal phase of flight. BMD 4.0.1 with the SM-3 Blk IB missile will expand both LRS&T and engagement capability to include more complex threats including limited IRBM threats. Future capability developments such as the 21-inch diameter missile currently under development in the SCD program with Japan will be integrated with the Aegis BMD Weapon System in OA in BMD 5.1. This will further expand engagement capability against selected long-range threats, to include some ICBM-class threats, and will broaden program application for both U.S. and international ships. Another future capability development will introduce a more robust SBT capability.

Aegis BMD has/will deliver the following:

- Sixteen (16) Aegis Destroyers equipped with the Aegis BMD Weapon System to conduct the LRS&T and engagement missions
- Five (5) Aegis Cruisers equipped with the Aegis BMD Weapon System to conduct the LRS&T and engagement missions

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<p>Six (6) additional ships will be upgraded for BMD operations, configuration TBD. Nine (9) additional Aegis Cruisers Three (3) additional BMD 4.0.1 ships SM-3 Missile Deliveries - To Be Used for Testing and/or Deployment:</p> <p>Eleven (11) SM-3 Blk I missiles. One (1) SM-3 Blk IA Flight Test Round (FTR). Four (4) SM-3 Blk IB Flight Test Rounds (FTR). Fifty-nine (59) SM-3 Blk IA missiles with RDT&E. An additional ;forty one ;(41) SM-3 Blk IA missiles will be procured under a Procurement Defense-Wide appropriation. This procurement was begun under an RDT&E appropriation; the change is authorized by statutory language as part of the FY 2009 Defense Appropriation. Thirty (30) SM-3 Blk IB missiles with RDT&E. An additional 290 SM-3 Blk IB missiles will be procured under a Procurement-Defense Wide appropriation. Aegis Ashore will be delivered in support of the Phased Adaptive Approach (PAA).</p> <p>BMD Systems Engineering:</p> <p>BMD Systems Engineering provides System Description Documents and System Specifications for elements to design, build, integrate and test BMDS components. These products optimize performance at the system level and further ensure that the assessment of the designed BMD System is based on sufficient ground and flight testing. Aegis BMD compliance with BMD System level requirements (integrated Builds C and D) is monitored in a series of requirements and design reviews both at the system and element levels.</p> <p>Unifying Missile Defense Functions:</p> <p>MDA has a set of Unifying Missile Defense Functions (UMDFs), which increase the effectiveness of the BMD System (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. These UMDF efforts are Sensor Registration (reporting of sensor errors / biases), Correlation (ensuring the information from multiple sensors seeing a threat relates to the same object), System Track (creating a single engageable track of a threat from multiple reports provided by different land, sea, and space based multiple</p>		

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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). UMDFs are 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 all ranges of ballistic threats.

Common Threat Engineering:

Common threat engineering produces common and consistent adversary trajectory and signature data to enable BMD System and sub-system concept and requirements, design, verification, and assessment. Common Threat data is contained in the Adversary Capability Document (ACD) and Adversary Data Packages (ADP) and drives BMDS ground tests, flight tests, digital simulations, and pre-mission analysis activities. It is also used to develop the BMD System Description Document and BMD System Specification.

Modeling & Simulation:

Modeling and simulation (M&S) activities support all phases of Aegis BMD's development, including development of Aegis Weapon System (AWS) and SM-3 variants, flight test missions, ground tests, wargames, exercises, and performance assessment. Models and simulations are tailored to the specific need of a component in its current phase of development, ranging from low-to-medium fidelity analyses supporting concept definition studies, to high-fidelity models used to support engineering development, or testing and are integrated into the BMD Digital Simulations Architecture. Digital simulations support Performance Assessment (PA) and Technical Assessment (TA) events, which provide critical system level performance data relative to all elements, the system engineer, M&S developers, OTA and Warfighter. Further, the M&S Digital tools are accredited for each application and for specific objectives; tools are put through a rigorous verification and validation process, reviewing coding and specifications, and comparing analyses against actual flight test results. Planning support is required to assist in the V&V plan development, test execution, analysis for V&V reports and PO M&S Certification. The Digital End-to-End simulation of the BMDS requires a PA Integrated V&V Plan and Report (both element and system level), a PA/TA-system level Accreditation Plan and Report, and support to PA/TA Non-MDA Elements.

BMDS Hardware In The Loop (HWIL):

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The BMD Single Stimulation Framework (SSF) utilizes HWIL assets to support primarily BMDS ground testing, pre and post flight test mission construction and reconstruction, portions of the training capability, Wargames, exercises and BMDS contingency studies, as well as various other use cases to enable BMDS performance in a simulated environment. Each BMDS Element supports the M&S Program by providing HWIL representations ready for integration into the BMDS system-level framework to support full-envelope BMDS ground test, flight test, and training events based upon Agency and Warfighter needs.

System Pre and Post Flight Reconstruction:

Aegis BMD will support System Pre Flight predictions for system level flight tests using the test framework set up with the BMDS configuration for a particular flight test. This provides the confidence in Flight Test execution by predicting element performance and exercising element interfaces. This work is also used to proof out the construct of the flight test to ensure if the required data and data management plan will support System Post Flight Reconstruction (SPFR) objectives. System Post Flight Reconstruction will use a HWIL and/or a Digital M&S Environment to replicate the day of flight for the BMDS configuration, modified to represent the actual environmental conditions and target dynamics observed in flight. The results of this testing are used to increase confidence in the models and simulations by anchoring the results with emphasis on the critical engagement conditions (CECs) and empirical measurement events (EMEs) back to the real world event. SPFR is used for validation (anchoring) of models and simulations.

CEC/EME`s are the conditions where data is obtained from flight and ground tests that is required to anchor system models and simulations. Aegis BMD has 9 CECs and 11 EMEs totaling 20 BMD 4.0.1/SM-3 Block IB System. From FY 2010 to FY 2020, there will approximately 369 collection opportunities as outlined in the IMTP. Additionally, four CEC/EME`s were collected in FY 2009 events (Caravan-2, Stellar Avenger (FTM-17), and FTX-06 Event 1).

FY 2009: 4 CEC/EME possible collection opportunities during flight test and ground tests for an aggregate 1.5% of the total in the IMTP.

FY 2010: 31 CEC/EME possible collection opportunities during flight and ground tests for an aggregate 8% of the total in the IMTP.

FY 2011: 33 CEC/EME possible collection opportunities during flight and ground tests for an aggregate 17% of the total in the IMTP.

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FY 2012: 65 CEC/EME possible collection opportunities during flight and ground tests for an aggregate 35% of the total in the IMTP.

FY 2013: 81 CEC/EME possible collection opportunities during flight and ground tests for an aggregate 57% of the total in the IMTP.

FY 2014: 94 CEC/EME possible collection opportunities during flight and ground tests for an aggregate 82% of the total in the IMTP.

FY 2015: 53 CEC/EME possible collection opportunities during flight and ground tests for an aggregate 97% of the total in the IMTP.

FY 2016-2020: 12 CEC/EME possible collection opportunities during flight and ground tests for an aggregate 100% of the total in the IMTP.

Proving Missile Defense:

Working with the Services` Operational Test Agencies (OTA), with the support of the Director of Operational Test and Evaluation (DOT&E), MDA has 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 BMDS performance evaluation strategy is to develop models and simulations of the BMDS and compare their predictions to empirical data collected through comprehensive flight and ground testing to validate their accuracy, rather than physically testing all possible combinations of BMDS configurations, engagement conditions, and target phenomena. The BMDS test review determined how to validate our models and simulations so that our war fighting commanders have confidence in the predicted performance of the BMDS, especially when those commanders consider employing the BMDS in ways other than originally planned or against threats unknown at this time.

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The test plan review resulted in a Integrated Master Test Plan (IMTP) that 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 rigorously demonstrates the capabilities of the BMDS.

Homeland Defense:

BMD 3.0E/3.0 - Deliver a LRS&T capability against ballistic missile threats of all ranges in support of GMD engagements.

Regional / Theater Defense:

BMD 3.6 - Deliver an LRS&T capability against ballistic missile threats of all ranges. Deliver an engagement capability against SRBM to MRBM-class threats. SM-3 Blk IA missile.

BMD 3.6.1: Introduce a NTSBT capability against SRBMs (with OPNAV-modified SM-2 Blk IV missile).

BMD 4.0.1 - Improve the Weapon System capability to identify and classify Ballistic Missile threat objects from debris and introduce the Aegis BMD BSP. Improve BMDS BMC4I performance, to include engagement coordination with Terminal High Altitude Area Defense (THAAD) and PATRIOT, kill assessment; and missile downlink upgrades for improved kill assessment. Increase battlespace through enhanced Launch on Remote, Aegis to Aegis engagement coordination, and automated planning data exchange with the C2BMC Planner and Maritime Integrated Air and Missile Defense Planning System (MIPS).

Support for BMDS Build C functionality: In Aegis BMD track forwarding and limited peer to peer weapon system engagement coordination, near-term discrimination and Warfighter situational awareness enhancements.

Support for BMDS Build D functionality: In Aegis BMD, this functionality includes the upgraded and improved Aegis BMD System (4.0.1 and SM-3 Blk IB) that provides significant improvements to both the RF and IR discrimination enhancing system effectiveness. Additional improvements to Aegis increase its ability to launch SM-3 interceptors on BMD System sensor data and improve Aegis coordination with other BMD weapon systems in the region. Enhanced capability is provided to test, train, and operate the BMD System resulting in higher levels of defensive readiness. Further Aegis improvements provide increased effectiveness against a wide range of Ballistic Missile threats.

SM-3 Blk IB - Improve missile capability to identify and target the threat object through the ARO, ASP, and two-color missile seeker. Improve missile kinetic warhead (KW) kinematic performance via the TDACS.

BMD 5.0 - Broaden program application for U.S. and potential international Aegis ship population by implementing OA to improve BMDS interoperability, integrate improved BMC4I capabilities, including Navy Multi Band Terminal (NMT) and Advanced EHF (AEHF) Capability.

Supports Integrated BMDS Build D improvements such as Aegis Ashore and consequence management in support of the Phased Adaptive Approach (PAA).

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Future Capability Developments:

- SCD - Continue U.S./Japan SCD of the SM-3 Blk IIA missile (21-inch diameter SM-3 missile).
- BMD 5.1 - Integrate the SM-3 Blk IIA missile into the Aegis BMD Weapon System to enable Early Intercept (Organic) operations and Engage on Remote (EoR), and improve track correlation and feature data exchange, as well as BMDS sensor data fusion to increase battlespace.
- BMD 5.2 - Introduce a more robust SBT capability. This capability transfers to PE 0603891C, Special Programs.
- Aegis Ashore - Develop the capability to fire an SM-3 missile from a land-base launcher.

MiDAESS:

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the BMDS mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the Agency, centralize the acquisition of support services manpower in a more efficient manner and reduce Agency overhead cost. A&AS support includes engineering and technical services; studies, analyses, and evaluations; and management and professional services.

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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	1,113.655	1,690.758	0.000	0.000	0.000
Current President's Budget	1,054.323	1,435.717	1,467.278	0.000	1,467.278
Total Adjustments	-59.332	-255.041	1,467.278	0.000	1,467.278
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		-255.041			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	9.775	0.000			
• SBIR/STTR Transfer	-16.607	0.000			
• Other Adjustment Detail	-52.500	0.000	1,467.278	0.000	1,467.278

Change Summary Explanation

In FY 2009, Aegis BMD delta is related to funds transferred to a Procurement, Defense Wide PE per Congressional direction.

In FY 2010, SM-3 Block IIA co-development moves to a separate PE per Congressional direction.

No FY 2011 data provided in PB10.

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
BX09: <i>AEGIS BMD Block 2.0</i>	239.644	53.457	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	293.101
Quantity of RDT&E Articles	11	17	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

Aegis BMD supports the BMDS Block 2.0 with the BMD 3.6 Combat System, comprised of the BMD 3.6 computer systems coupled with the SM-3 Blk IA missile, and with BMD 3.6.1, an upgrade to BMD 3.6 that includes a terminal phase capability. BMD 3.6.1 will be fully discussed in project BX18.

Aegis BMD 3.6 and 3.6.1 support the BMDS mission of intercepting ballistic missiles in all regions, in all phases, and of all ranges, as follows:

In all regions: Provide sea-based surveillance, tracking, and engagement capabilities in international waters.

In all phases of ballistic missile flight:

LRS&T capability against missile threats in all flight stages (BMD 3.6);

Engagement capability against missile threats in the midcourse flight stage (BMD 3.6);

Engagement capability against missile threats in the terminal phase of flight (BMD 3.6.1).

Against all ranges:

Against long-range ballistic missiles by providing surveillance and tracking support as part of the Limited Defensive Capability (LDC) (Block 1.0).

Against short and medium range ballistic missiles by providing engagement support as part of BMD 3.6 and BMD 3.6.1.

Aegis BMD supported initial BMDS operations by providing LRS&T data to other elements of the BMDS. Aegis BMD will further improve both national and international security with its ability to launch Standard Missile 3 (SM-3) missiles based upon autonomous data and upon remote data (LoR). The BMD 3.6 program:

Defeats unitary and simple separating threats SRBMs and MRBMs with Aegis BMD configured cruisers and destroyers using SM-3 Blk I or IA guided missiles.

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Provides LRBM surveillance and track data through the BMDS to the GMD element to cue and initiate fire control Weapons Task Plans.
 Provides Aegis BMD surveillance and track data to the BMDS to support Combatant Commander situational awareness.
 Expands the engagement battle space via Launch on Remote (LoR) with Aegis AN/SPY-1 sensor data.
 Supplies Aegis BMD operational data to the BMDS C2BMC Element to support Combatant Commander situational awareness.
 Provides an operational, engagement-capable system.

The BMD 3.6 computer program has been fielded on a total of eighteen (18) U.S. Navy Aegis Cruisers and Destroyers, along with SM-3 Blk IA missiles.

With BMD 3.6.1, Aegis BMD is providing a follow-on capability to BMD 3.6 in response to recent Real World Events. NTBST (BMD 3.6.1) provides for an integrated SBT capability against a finite set of SRBM. BMD 3.6.1 incorporates a fuze modified SM-2 Block IV missile provided by a separate Navy sponsored effort and builds on BMD 3.6 to provide a terminal phase capability. BMD 3.6.1 continues efforts to refine Aegis Launch on AN/TPY-2 capabilities and bridges the gap between the operational deployment of BMD 3.6 and BMD 4.0.1.

Aegis BMD is fielding a NTSBT capability beginning in FY 2009. In addition to the NTSBT capability, Aegis BMD is performing various upgrades to BMD 3.6 in BMD 3.6.1; updates include early integration efforts for Aegis BMD launch on AN/TPY-2 capability. Aegis BMD 3.6.1 also provides enhanced capabilities within the areas of engagement coordination, system track, and communications to support the BMDS UMDf.

In collaboration with the MDA Systems Engineer, Aegis BMD supports an autonomous engagement against SRBMs and MRBMs without requiring external cueing. BMD 3.6 and BMD 3.6.1 support SM-3 Engage on AN/SPY-1, SM-3 Launch on Remote (AN/SPY-1), GBI Engage on AN/SPY-1, and GBI Launch on AN/SPY-1 capabilities.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
BMD 3.6 Weapon System Development See Description Below	0.731	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> Continued evaluation and support for BMD data path enhancements aboard ship and at land-based communications sites. Continued evaluation of ESL spade cue impacts on Aegis BMD performance. Provided ongoing support for contingency operations. Provided subject matter expert support for the fielded BMD 3.6 baseline.</p> <p><i>FY 2010 Plans:</i> Complete evaluation of potential Aegis BMD performance improvements using ESL space cueing. Provide ongoing support for contingency operations. Provide subject matter expert support for the fielded BMD 3.6 baseline.</p> <p><i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in project MD09 in FY 2011.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>BMD Weapon System Fielding See Description Below</p> <p><i>FY 2009 Accomplishments:</i> RDT&E Articles: One (1) BMD 4.0.1 EDM installation on a CG.</p> <p>Completed checkout and evaluation of BMD 3.6 ship installs. Continued to monitor BMD 3.6 performance. Installed BMD 4.0.1 Engineering Development Model (EDM) to support flight testing.</p>		55.770	2.188	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in project MD09 in FY 2011.					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	239.644	53.457	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The Aegis BMD element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall 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 SM-3 missile and the Aegis BMD Weapon System, respectively.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

Competition will be used for procurement of any products or services in FY 2011, when appropriate.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
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E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 3.6 Weapon System Development BMD 3.6 Weapon System Development-1 BX09	SS/CPIF	Lockheed Martin NJ	6.584	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 3.6 Weapon System Development BMD 3.6 Weapon System Development-2 BX09	TBD/TBD	NSWC/DD VA	7.227	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 3.6 Weapon System Development BMD 3.6 Weapon System Development-3 BX09	TBD/TBD	VA Sites VA	0.825	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC3 BMC3-1 BX09	TBD/TBD	JHU/APL MD	5.296	0.142		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC3 BMC3-2 BX09	TBD/TBD	MIT MA	2.690	0.045		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC3 BMC3-3 BX09	TBD/TBD	MITRE -	1.444	0.036		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC3 BMC3-4 BX09	TBD/TBD	NSWC/PHD CA	1.768	0.045		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC3 BMC3-5 BX09	TBD/TBD	SPAWAR CA	13.894	0.380		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC3 BMC3-6 BX09	Various/ Various	Various Various	2.412	0.041		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD Weapon System Fielding BMD Weapon System Fielding-1 BX09	SS/CPIF	Lockheed Martin NJ	67.238	1.261		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD Weapon System Fielding BMD Weapon System Fielding-2 BX09	TBD/TBD	NAVSEA VA	2.559	0.158		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD Weapon System Fielding BMD Weapon System Fielding-3 BX09	TBD/TBD	NSWC/DD VA	4.576	0.155		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD Weapon System Fielding BMD Weapon System Fielding-4 BX09	TBD/TBD	NSWC PHD CA	6.836	0.252		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD Weapon System Fielding BMD Weapon System Fielding-5 BX09	TBD/TBD	SPAWAR CA	1.823	0.067		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD Weapon System Fielding BMD Weapon System Fielding-6 BX09	TBD/TBD	SUPSHIP/BATH ME	1.533	0.077		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD Weapon System Fielding BMD Weapon System Fielding-7 BX09	TBD/TBD	SUPSHIP MS	1.991	0.114		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD Weapon System Fielding BMD Weapon System Fielding-8 BX09	Various/ Various	- -	3.133	0.104		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IA Fielding - Missiles 45-71 SM-3 Blk	SS/CPIF	Raytheon AZ	134.703	39.078		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IA Fielding - Missiles 45-71 -1 BX09													
SM-3 Blk IA Fielding - Missiles 45-71 SM-3 Blk IA Fielding - Missiles 45-71 -2 BX09	TBD/TBD	JHU/APL MD	14.976	2.909		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IA Fielding - Missiles 45-71 SM-3 Blk IA Fielding - Missiles 45-71 -3 BX09	TBD/TBD	MIT/LL MA	11.850	0.568		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IA Fielding - Missiles 45-71 SM-3 Blk IA Fielding - Missiles 45-71 -4 BX09	TBD/TBD	NSWC/DD VA	10.977	2.916		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IA Fielding - Missiles 45-71 SM-3 Blk IA Fielding - Missiles 45-71 -5 BX09	TBD/TBD	NSWC/PHD CA	4.697	1.419		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IA Fielding - Missiles 45-71 SM-3 Blk IA Fielding - Missiles 45-71 -6 BX09	TBD/TBD	NAWC/CL CA	1.900	0.568		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IA Fielding - Missiles 45-71 SM-3 Blk IA Fielding - Missiles 45-71 -7 BX09	TBD/TBD	NSWC/IH MD	1.900	0.568		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Various	5.400	2.270		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SM-3 Blk IA Fielding - Missiles 45-71 SM-3 Blk IA Fielding - Missiles 45-71 -8 BX09	Various/ Various	Various											
SM-3 Blk IA Fielding - Missiles 45-71 SM-3 Blk IA Fielding - Missiles 45-71 -9 BX09	TBD/TBD	NSWC/Corona CA	0.950	0.284		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			319.182	53.457		0.000		0.000		0.000			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency										DATE: February 2010			
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aegis BMD Testing Aegis BMD Testing-1 BX09	TBD/TBD	PMRF HI	8.825	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing-2 BX09	TBD/TBD	SMDC AL	3.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing-3 BX09	TBD/TBD	NSWC/DD VA	10.465	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing-4 BX09	TBD/TBD	JHU/APL MD	17.967	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing-5 BX09	SS/CPIF	Lockheed Martin NJ	21.183	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing-6 BX09	TBD/TBD	NSWC/PHD CA	8.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing-7 BX09	TBD/TBD	MIT/LL MA	5.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing-8 BX09	TBD/TBD	AIRPAC HI	3.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing-9 BX09	TBD/TBD	SPAWAR CA	5.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aegis BMD Testing Aegis BMD Testing-10 BX09	Various/ Various	Various Various	24.599	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			107.039	0.000		0.000		0.000		0.000			

Remarks

NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aegis BMD Testing Aegis BMD Testing-1 BX09	C/CPFF	General Dynamics NJ	18.700	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing-2 BX09	C/CPFF	Paradigm VA	1.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing-3 BX09	C/CPFF	Gryphon MD	1.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing-4 BX09	SS/CPIF	Lockheed Martin NJ	0.750	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aegis BMD Testing Aegis BMD Testing-5 BX09	SS/CPAF	Raytheon AZ	0.750	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing-6 BX09	TBD/TBD	NAVSEA DC	4.800	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing-7 BX09	TBD/TBD	MDA VA	16.300	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			43.300	0.000		0.000		0.000		0.000			

Remarks

NA

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	469.521	53.457	0.000	0.000	0.000			

Remarks

NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
BMD 3.6 Fielding (DDGs and CGs)	■	■	■	■																								
SM-3 Blk IA Deliveries	■	■	■	■	■	■																						

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
BMD 3.6 Fielding (DDGs and CGs)	1	2009	4	2009
SM-3 Blk IA Deliveries	1	2009	2	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>BX18: Sea-Based Terminal BMD Block 2.0</i>	33.070	5.663	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	38.733
Quantity of RDT&E Articles	22	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

The NTSBT project supports the BMDS mission of intercepting ballistic missiles in all regions, in all phases, and of all ranges, as follows:

In all regions: provide enhanced engagement capability.

In all phases of ballistic missile flight: engagement capability against missile threats in the terminal flight stage.

All ranges: NTSBT provides capability against SRBM and limited IRBM targets.

Aegis BMD supported LDC by providing LRS&T data to other elements of the BMDS. Aegis BMD further improved both national and international security with its ability to launch SM-3 Blk IA missiles based upon remote data in the final configuration, BMD 3.6.

Aegis BMD is providing a follow-on capability to BMD 3.6, in response to recent Real World Events. NTSBT (BMD 3.6.1) provides for an integrated SBT capability against a finite set of SRBM. BMD 3.6.1 incorporates a fuze modified SM-2 Block IV missile provided by a separate OPNAV sponsored effort and builds on BMD 3.6 to provide a terminal phase capability. The BMD 3.6.1 continues efforts to refine Aegis Launch on Remote (AN/TPY-2) and bridges the gap between the operational deployment of BMD 3.6 and BMD 4.0.1.

Aegis BMD is fielding the NTSBT capability beginning in FY 2009 on 21 U.S. Navy Cruisers and Destroyers. In addition to the near-term SBT capability, Aegis BMD is performing various upgrades to BMD 3.6 in BMD 3.6.1; updates include early integration efforts for Aegis BMD launch on AN/TPY-2 capability. Aegis BMD 3.6.1 also provides enhanced capabilities within the areas of engagement coordination, system track, and communications to support the BMDS UMDf.

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Weapon System Development See Description Below <i>FY 2009 Accomplishments:</i> In this project, Weapon System funding will focus on the development of the BMD 3.6.1 computer program, providing a NTSBT capability. RDT&E Articles: BMD 3.6.1 Computer Program (1), installation of BMD 3.6.1 computer program on one (1) U.S. Navy Cruiser Achieved BMD 3.6.1 Certification for installation and operational use on Aegis BMD cruisers and destroyers. Completed Mission Assurance and Safety reviews of operational system. <i>FY 2010 Plans:</i> FY 2010 Plans - N/A <i>FY 2011 Base Plans:</i> FY 2011 Plans - N/A <i>FY 2011 OCO Plans:</i> NA		14.939	0.000	0.000	0.000	0.000
BMD 3.6.1 Deployment See Description Below		9.156	3.183	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> This efforts accounts for the installation of the BMD 3.6.1 computer program on Aegis Cruisers and Destroyers.</p> <p>RDT&E Articles: Installation of BMD 3.6.1 on four (4) Cruisers and sixteen (16) Destroyers.</p> <p>Completed installation of BMD 3.6.1 computer program on four (4) Cruisers and sixteen (16) Destroyers. Began crew training for BMD 3.6.1 upgrade.</p> <p><i>FY 2010 Plans:</i> Complete checkout of BMD 3.6.1 -capable Cruisers and Destroyers. Complete crew training.</p> <p><i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in project MD09 in FY 2011.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>BMC4I See Description Below</p> <p><i>FY 2009 Accomplishments:</i> NA</p>		0.000	1.677	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> This task provides funding to support C4I efforts related to the BMD 3.6.1 baseline.</p> <p>Evaluate ESL space cue impacts in Aegis BMD performance. Provide on-going support for contingency operations. Provide subject matter expertise support for the fielded BMD 3.6.1 baseline. Support systems engineering efforts to incorporate interoperability enhancements including:</p> <p>Navy Multi Band Terminal Advanced EHF</p> <p><i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in project MD09 in FY 2011.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>SE&I & BMDS Integration See Description Below</p> <p><i>FY 2009 Accomplishments:</i> This effort provides funding to work in collaboration with the BMDS System Engineer to develop requirements flow down for Aegis BMD 3.6.1.</p> <p>Continued support of system integration efforts with other BMDS elements to maximize interoperability within the overall BMDS.</p>		8.975	0.803	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> This effort provides funding to work in collaboration with the BMDS System Engineer to develop requirements flow down for Aegis BMD 3.6.1.</p> <p>Continue support of system integration efforts with other BMDS elements to maximize interoperability within the overall BMDS.</p> <p><i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in project MD09 in FY 2011.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	33.070	5.663	0.000	0.000	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT BX18: <i>Sea-Based Terminal BMD Block 2.0</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603884C: <i>Ballistic Missile Defense Sensors</i>											
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT BX18: <i>Sea-Based Terminal BMD Block 2.0</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The Aegis BMD element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall BMDS capability. After considering all technical and management aspects of the program and to meet the requirements presented by an evolving ballistic missile threat, the Aegis BMD program has awarded a sole source contract to Lockheed Martin to continue development of the Aegis BMD Weapon System. The U.S. Navy is performing modifications to the 100 SM-2 Blk IV missiles.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603892C: <i>BMD AEGIS</i>	BX18: <i>Sea-Based Terminal BMD Block 2.0</i>

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management professional services.

Competition will be used for procurement of any products or services in FY 2011, when appropriate.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT BX18: <i>Sea-Based Terminal BMD Block 2.0</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Weapon System Development Weapon System Development-1 BX18	SS/CPIF	Lockheed Martin NJ	37.725	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Weapon System Development Weapon System Development-2 BX18	TBD/TBD	NSWC/DD VA	4.650	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Weapon System Development Weapon System Development-3 BX18	SS/CPFF	JHU/APL MD	2.174	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Weapon System Development Weapon System Development-4 BX18	TBD/TBD	Various Various	1.194	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Weapon System Development Weapon System Development-5 BX18	Various/ Various	MDA VA	1.170	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Weapon System Development Weapon System Development-6 BX18	TBD/TBD	Aegis Techrep NJ	0.700	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 3.6.1 Deployment BMD 3.6.1 Deployment-1 BX18	SS/CPIF	Lockheed Martin NJ	2.015	1.833	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>				PROJECT BX18: <i>Sea-Based Terminal BMD Block 2.0</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 3.6.1 Deployment BMD 3.6.1 Deployment-2 BX18	TBD/TBD	NAVSEA VA	0.271	0.225	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 3.6.1 Deployment BMD 3.6.1 Deployment-3 BX18	TBD/TBD	NSWC/Dahlgren VA	0.274	0.225	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 3.6.1 Deployment BMD 3.6.1 Deployment-4 BX18	TBD/TBD	NSWC/PHD CA	0.443	0.366	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 3.6.1 Deployment BMD 3.6.1 Deployment-5 BX18	Various/ Various	Various Various	0.647	0.534	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC4I BMC4I-1 BX18	TBD/TBD	JHU/APL MD	0.000	0.338	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC4I BMC4I-2 BX18	TBD/TBD	MIT MA	0.000	0.109	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC4I BMC4I-3 BX18	TBD/TBD	MITRE -	0.000	0.087	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC4I BMC4I-4 BX18	TBD/TBD	NSWC/PHD CA	0.000	0.112	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC4I BMC4I-5 BX18	TBD/TBD	SPAWAR CA	0.000	0.933	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC4I BMC4I-6 BX18	Various/ Various	Various Various	0.000	0.098	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
SE&I & BMDS Integration SE&I &	TBD/TBD	JHU/APL MD	0.000	0.054	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT BX18: <i>Sea-Based Terminal BMD Block 2.0</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMDS Integration-1 BX18													
SE&I & BMDS Integration SE&I & BMDS Integration-2 BX18	TBD/TBD	NSWC/Corona CA	0.000	0.064	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
SE&I & BMDS Integration SE&I & BMDS Integration-3 BX18	TBD/TBD	NSWC/Dahlgren VA	0.000	0.474	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
SE&I & BMDS Integration SE&I & BMDS Integration-4 BX18	TBD/TBD	NSWC/PHD CA	0.000	0.112	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
SE&I & BMDS Integration SE&I & BMDS Integration-5 BX18	Various/ Various	Various Various	0.000	0.099	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			51.263	5.663		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT BX18: <i>Sea-Based Terminal BMD Block 2.0</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Remarks NA													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			51.263	5.663		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT BX18: <i>Sea-Based Terminal BMD Block 2.0</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
BMD 3.6.1 Certification	■																											
BMD 3.6.1 Ship Installations		■	■	■	■	■																						

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
BMD 3.6.1 Certification	1	2009	1	2009
BMD 3.6.1 Ship Installations	2	2009	2	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
EX09: <i>AEGIS BMD Block 5.0</i>	525.587	1,045.727	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	1,571.314
Quantity of RDT&E Articles	1	2	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

Aegis BMD program development in Block 5.0 supports the BMDS mission of intercepting ballistic missiles in all regions, in all phases, and of all ranges as follows:

In all regions: Provide enhanced, sea-based LRS&T and engagement capabilities.

In all phases of ballistic missile flight: LRS&T capability against missile threats in all stages; engagement capability against missile threats in all phases of flight.

Against all ranges:

LRS&T capability against ballistic missile threats of all ranges

Enhanced engagement capability (BMD 4.0.1 and the SM-3 Blk IB missile): battlespace expanded to include IRBM-class threats

Aegis BMD supported LDC by providing LRS&T data to other elements of the BMDS. Aegis BMD will further improve both national and international security with its Launch on Remote (LoR) ability. Through development and fielding of the Aegis BMD Signal Processor and upgrades to the SM-3 Blk IA missile (SM-3 Blk IB), Aegis BMD will improve discrimination capability and performance against more diverse and longer range threats.

The BMD 4.0.1 Combat System will expand Aegis BMD effectiveness against the threat base. It will provide a full upgrade to the Aegis BMD Weapon System (BMD 4.0.1) and an upgraded SM-3 missile, SM-3 Blk IB. BMD 4.0.1 will be capable of Launch-on-Remote operations leveraging the BMDS Sensor network.

Missile upgrades for the SM-3 Blk IB include improvements to the kinetic warhead's seeker and DACS. Seeker improvements will include the introduction of seeker ARO to improve optics performance, and a Kinetic Warhead ASP to mitigate diminished manufacturing source issues in SM-3 Blk IA missiles. Additionally, the increased processing capability of the ASP will support new discrimination algorithms. The optics and processing improvements will enhance the Aegis BMD contribution to the BMDS missions by providing greater sensitivity and seeker discrimination capability. Other missile improvements include the integration of a two-

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
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<p>color seeker and development of the TDACS. These enhancements will be tested and verified for the SM-3 Block IB configuration and are included in BMDS Integrated Build D.</p> <p>BMD 4.0.1 will deliver in two spirals:</p> <p>Spiral one (BMD 4.0.1 Testbed) will deliver an initial engagement system capability with the SM-3 Blk IA missile. It will build on BSP enhancements to the LRS&T mission by adding mission capability for flight missions. Spiral two (BMD 4.0.1) will continue through the System Engineering Development and Testing in process and culminate as an operationally-certified system capable of firing the SM-3 Blk IA or IB missile.</p> <p>Other capability enhancements include:</p> <p>Improvements in BMDS C2BMC to ensure future BMDS sensor enhancements and the resulting discrimination capabilities are able to be communicated, correlated, and acted upon. Improved engagement coordination capability with THAAD and PATRIOT to conserve upper tier missiles. Analysis for planned upgrades to the SM-3 missile to expand battlespace and improve discrimination, divert, and probability of mission success. Functionalities in support of BMDS Integrated Build C track forwarding and limited peer-to-peer weapon system engagement coordination, near term discrimination, and Warfighter situational awareness enhancements. Functionalities in support of BMDS Integrated Build D Aegis BMD 4.0.1 improve to both BF and IR discrimination and increase ability to launch SM-3 interceptors on BMD System sensor data and improve Aegis coordination with other BMD weapon systems in the region.</p> <p>BMD 5.0 will integrate BMD 4.0.1 and the BMD mission with the Navy-developed OA system. This effort will transition Aegis BMD from older, MIL-standard computers to newer COTS computing plants. This change is necessary for Aegis BMD to remain compatible with Navy assets as Navy ship modernization plans are executed. This change will improve human-systems interface through display enhancements and eliminate the need for a separate computing system specific to the BMD mission. This will also enable more ships to serve as candidates for the BMD mission as the threat projection changes. OA will be included in future fielded BMD system improvements. BMD 5.0 will support the BMDS Integrated Build D.</p>		

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Aegis BMD 4.0.1/5.0 will provide enhanced capabilities within the areas of engagement coordination, system track, hit/kill assessment, sensor registration, and communications to support the BMDS UMDf.

In collaboration with the MDA Systems Engineer, Aegis BMD supports an autonomous engagement against SRBMs and MRBMs without requiring external cueing. It supports an engagement against SRBMs and MRBMs using data from other BMDS elements and external sensors. Aegis BMD will also provide target track data to support Ground Based Interceptor Launch and Engagement against LRBMs and IRBMs via input for the GMD Sensor Task Plan (STP) and Weapons Task Plan (WTP).

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
BMD 4.0.1 Weapon System Development See Description Below <i>FY 2009 Accomplishments:</i> RDT&E Articles: BMD 4.0.1 Testbed Computer Program (1) Conducted BMD 4.0.1 Testbed Engineering Assessment (EA). Completed development of BSP Engineering Development Model (EDM). Conducted BMD 4.0.1 At-Sea Demo of the computer program. Continued development and testing of BMD 4.0.1, leading to an Engineering Assessment in FY 2010. Conducted In-Process Review (IPR) of design changes for incorporating Weapons System modifications. Designed and developed computer program functionality changes. Incorporated the functional capability into BMD 4.0.1 baseline development. Participated in At-Sea Demo of BMD 4.0.1 computer program functionality. Participated in Target of Opportunity (TOO) testing. Supported systems engineering efforts to incorporate interoperability enhancements including: Navy Multi Band Terminal and Advance EHF.	227.133	324.172	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Procure four (4) BMD 3.6.1 shipsets. Procure two (2) BMD 4.0.1 shipsets. Support a BMD 4.0.1 EDM upgrade on USS LAKE ERIE to support DEMO / CERT configuration. Procure 1 shipset of BMD 5.0 unique equipment to support first Aegis Modernization (AMOD) destroyer. <i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in project MD09 in FY 2011. <i>FY 2011 OCO Plans:</i> NA						
SM-3 Blk IA Missile Fielding - Missiles 72-94 See Description Below <i>FY 2009 Accomplishments:</i> Per Congressional direction, funding for missiles 72-94 transferred to Procurement PE. <i>FY 2010 Plans:</i> <i>FY 2011 Base Plans:</i> <i>FY 2011 OCO Plans:</i> NA		3.800	0.000	0.000	0.000	0.000
SM-3 Blk IB Missile Fielding - Missiles 117-134 See Description Below		10.236	61.516	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> Began acquisition of SM-3 common components to support FY 2010 missile purchases.</p> <p><i>FY 2010 Plans:</i> Continue procurement of eighteen (18) SM-3 Blk IB missiles.</p> <p><i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in project MD09 in FY 2011.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	525.587	1,045.727	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>											
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The Aegis BMD element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall 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 has awarded sole source contracts to Raytheon and Lockheed Martin to continue development of the SM-3 missile and the Aegis BMD Weapon System, respectively.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national

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<p>engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.</p> <p>Competition will be used for procurement of any products or services in FY 2011, when appropriate.</p> <p>E. Performance Metrics NA</p>		

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon System Development-1 EX09	SS/CPIF	Lockheed Martin NJ	342.460	238.947	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon System Development-2 EX09	TBD/TBD	NSWC/DD VA	28.136	17.099	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon System Development-3 EX09	TBD/TBD	NSWC/PHD CA	6.273	2.656	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon System Development-4 EX09	TBD/TBD	JHU/APL MD	10.084	4.817	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon System Development-5 EX09	TBD/TBD	SPAWAR CA	3.800	1.594	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon	TBD/TBD	VA Sites VA	7.812	3.719	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Development-6 EX09													
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon System Development-7 EX09	Various/ Various	Various Various	7.023	2.793	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon System Development-8 EX09	TBD/TBD	Aegis Techrep NJ	2.964	1.183	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-1 EX09	SS/CPAF	Raytheon AZ	303.140	209.837		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-2 EX09	TBD/TBD	NSWC/DD VA	12.685	8.425		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-3 EX09	TBD/TBD	JHU/APL MD	12.886	8.699		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-4 EX09	TBD/TBD	NSWC/CR MD	3.912	2.741		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-5 EX09	TBD/TBD	NSWC/CL CA	3.862	2.741		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SM-3 Blk IB Development SM-3 Blk IB Development-6 EX09	TBD/TBD	NSWC/IH MD	5.716	3.972		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-7 EX09	TBD/TBD	NSWC/Corona CA	5.716	3.972		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-8 EX09	TBD/TBD	MIT/LL MA	7.046	4.694		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-9 EX09	TBD/TBD	NSWC/PHD CA	3.862	2.741		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-10 EX09	Various/ Various	Various Various	5.488	4.617		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-1 EX09	SS/CPIF	Lockheed Martin NJ	103.483	54.995	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-2 EX09	TBD/TBD	NSWC/DD VA	6.250	3.163	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
	TBD/TBD	JHU/APL	6.480	3.412	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-3 EX09		MD											
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-4 EX09	TBD/TBD	MIT/LL MA	2.850	0.822	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-5 EX09	TBD/TBD	VA Sites VA	2.139	0.739	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-6 EX09	Various/ Various	Various Various	1.067	0.596	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-7 EX09	TBD/TBD	Aegis Techrep NJ	1.894	0.930	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC4I BMC4I-1 EX09	TBD/TBD	JHU/APL MD	0.000	1.190	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC4I BMC4I-2 EX09	TBD/TBD	MIT	0.000	0.337	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		MA											
BMC4I BMC4I-3 EX09	SS/TBD	MITRE -	0.000	0.268	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC4I BMC4I-4 EX09	TBD/TBD	NSWC/PHD CA	0.000	0.333	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC4I BMC4I-5 EX09	TBD/TBD	SPAWAR CA	0.000	2.690	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMC4I BMC4I-6 EX09	Various/ Various	Various Various	0.000	0.301	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
SE&I and BMDS Integration SE&I and BMDS Integration-1 EX09	TBD/TBD	JHU/APL MD	0.000	0.236	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SE&I and BMDS Integration SE&I and BMDS Integration-2 EX09	TBD/TBD	NSWC/Corona CA	0.000	0.285	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SE&I and BMDS Integration SE&I and BMDS Integration-3 EX09	TBD/TBD	NSWC/DD VA	0.000	2.035	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SE&I and BMDS Integration SE&I and BMDS Integration-4 EX09	TBD/TBD	NSWC/PHD CA	0.000	0.491	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Various	0.000	0.430	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT EX09: <i>AEGIS BMD Block 5.0</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SE&I and BMDS Integration SE&I and BMDS Integration-5 EX09	Various/ Various	Various											
BMD 4.0.1 Fielding BMD 4.0.1 Fielding-1 EX09	SS/CPIF	Lockheed Martin NJ	11.174	78.275	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Fielding BMD 4.0.1 Fielding-2 EX09	TBD/TBD	NAVSEA VA	1.921	13.470	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Fielding BMD 4.0.1 Fielding-3 EX09	TBD/TBD	NSWC/DD VA	1.939	13.056	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Fielding BMD 4.0.1 Fielding-4 EX09	TBD/TBD	NSWC/PHD CA	3.136	22.035	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Fielding BMD 4.0.1 Fielding-5 EX09	TBD/TBD	SPAWAR CA	0.850	5.973	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Fielding BMD 4.0.1 Fielding-6 EX09	TBD/TBD	SUPSHIP/BATH ME	0.965	6.777	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Fielding BMD 4.0.1 Fielding-7 EX09	TBD/TBD	SUPSHIP/PASC MS	1.427	10.023	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Fielding BMD 4.0.1 Fielding-8 EX09	Various/ Various	Various Various	1.388	9.753	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IA Missile Fielding - Missiles 72-94 SM-3 Blk IA Missile Fielding - Missiles 72-94 -1 EX09	SS/CPAF	Raytheon AZ	25.977	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
	TBD/TBD	NSWC/IH	0.335	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT EX09: <i>AEGIS BMD Block 5.0</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SM-3 Blk IA Missile Fielding - Missiles 72-94 SM-3 Blk IA Missile Fielding - Missiles 72-94 -2 EX09		MD											
SM-3 Blk IA Missile Fielding - Missiles 72-94 SM-3 Blk IA Missile Fielding - Missiles 72-94 -3 EX09	TBD/TBD	NSWC/DD VA	0.559	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IA Missile Fielding - Missiles 72-94 SM-3 Blk IA Missile Fielding - Missiles 72-94 -4 EX09	TBD/TBD	NSEC/PHD CA	0.508	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IA Missile Fielding - Missiles 72-94 SM-3 Blk IA Missile Fielding - Missiles 72-94 -5 EX09	TBD/TBD	JHU/APL MD	0.287	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IA Missile Fielding - Missiles 72-94 SM-3 Blk IA Missile Fielding - Missiles 72-94 -6 EX09	TBD/TBD	NSWC/Corona CA	0.047	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IA Missile Fielding - Missiles 72-94 SM-3 Blk IA Missile	TBD/TBD	MDA VA	0.800	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT EX09: <i>AEGIS BMD Block 5.0</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Fielding - Missiles 72-94 -7 EX09													
SM-3 Blk IA Missile Fielding - Missiles 72-94 SM-3 Blk IA Missile Fielding - Missiles 72-94 -8 EX09	Various/ Various	Various Various	0.287	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Missile Fielding - Missiles 117-134 SM-3 Blk IB Missile Fielding - Missiles 117-134 -1 EX09	SS/CPAF	Raytheon AZ	40.000	54.645	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Missile Fielding - Missiles 117-134 SM-3 Blk IB Missile Fielding - Missiles 117-134 -2 EX09	TBD/TBD	NSWC/IH MD	0.499	0.686	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Missile Fielding - Missiles 117-134 SM-3 Blk IB Missile Fielding - Missiles 117-134 -3 EX09	TBD/TBD	NSWC/DD VA	0.866	1.190	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Missile Fielding - Missiles 117-134 SM-3 Blk	TBD/TBD	NSWC/PHD CA	0.672	0.923	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT EX09: <i>AEGIS BMD Block 5.0</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IB Missile Fielding - Missiles 117-134 -4 EX09													
SM-3 Blk IB Missile Fielding - Missiles 117-134 SM-3 Blk IB Missile Fielding - Missiles 117-134 -5 EX09	TBD/TBD	JHU/APL MD	0.599	0.823	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Missile Fielding - Missiles 117-134 SM-3 Blk IB Missile Fielding - Missiles 117-134 -6 EX09	TBD/TBD	NSWC/Corona CA	0.100	0.137	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Missile Fielding - Missiles 117-134 SM-3 Blk IB Missile Fielding - Missiles 117-134 -7 EX09	TBD/TBD	MDA VA	1.667	2.291	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Missile Fielding - Missiles 117-134 SM-3 Blk IB Missile Fielding - Missiles 117-134 -8 EX09	Various/ Various	Various Various	0.597	0.821	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			993.628	819.378		0.000		0.000		0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency										DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>					R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>					PROJECT EX09: <i>AEGIS BMD Block 5.0</i>				

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon System Development-1 EX09	C/CPFF	General Dynamics NJ	41.619	25.141	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon System Development-2 EX09	C/CPFF	Paradigm VA	10.095	6.027	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon System Development-3 EX09	C/CPFF	Gryphon MD	2.235	1.294	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon	SS/CPIF	Lockheed Martin NJ	1.118	0.647	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT EX09: <i>AEGIS BMD Block 5.0</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Development-4 EX09													
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon System Development-5 EX09	SS/CPAF	Raytheon AZ	1.118	0.647	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon System Development-6 EX09	TBD/TBD	NAVSEA DC	10.056	5.820	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 4.0.1 Weapon System Development BMD 4.0.1 Weapon System Development-7 EX09	TBD/TBD	MDA VA	22.803	11.788	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-1 EX09	C/CPFF	General Dynamics NJ	32.324	28.636	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-2 EX09	C/CPFF	Paradigm VA	8.162	6.864	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-3 EX09	C/CPFF	Gryphon MD	1.762	1.473	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
	SS/CPIF	Lockheed Martin	0.881	0.736	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency										DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>					R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>					PROJECT EX09: <i>AEGIS BMD Block 5.0</i>				

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SM-3 Blk IB Development SM-3 Blk IB Development-4 EX09		NJ											
SM-3 Blk IB Development SM-3 Blk IB Development-5 EX09	SS/CPAF	Raytheon AZ	0.881	0.736	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-6 EX09	TBD/TBD	NAVSEA DC	7.932	6.630	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 Blk IB Development-7 EX09	TBD/TBD	MDA VA	18.330	13.425	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-1 EX09	SS/CPIF	Lockheed Martin NJ	13.117	5.962	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-2 EX09	C/CPFF	Paradigm VA	2.898	1.429	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-3 EX09	C/CPFF	Gryphon MD	0.686	0.307	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>				PROJECT EX09: <i>AEGIS BMD Block 5.0</i>					

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-4 EX09	SS/CPIF	Lockheed Martin NJ	0.342	0.153	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-5 EX09	SS/CPAF	Raytheon AZ	0.342	0.153	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-6 EX09	TBD/TBD	NAVSEA DC	3.084	1.380	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-7 EX09	TBD/TBD	MDA VA	6.818	2.796	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Weapon System Development BMD 5.0 Weapon System Development-8 EX09	Various/ Various	Various Various	9.963	6.937	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-1 EX09	C/CPFF	General Dynamics NJ	0.000	6.598	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>				PROJECT EX09: <i>AEGIS BMD Block 5.0</i>					

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Testing Flight Testing-2 EX09	C/CPAF	Paradigm VA	0.000	1.582	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-3 EX09	C/CPFF	Gryphon MD	0.000	0.340	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-4 EX09	SS/CPIF	Lockheed Martin NJ	0.000	0.170	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-5 EX09	SS/CPAF	Raytheon AZ	0.000	0.170	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-6 EX09	TBD/TBD	NAVSEA DC	0.000	1.528	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-7 EX09	TBD/TBD	MDA VA	0.000	2.581	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			196.566	141.950		0.000		0.000		0.000			

Remarks

NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Testing Flight Testing-1 EX09	TBD/TBD	PMRF HI	0.000	6.442	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT EX09: <i>AEGIS BMD Block 5.0</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Testing Flight Testing-2 EX09	TBD/TBD	SMDC AL	0.000	2.418	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-3 EX09	TBD/TBD	NWSC/DD VA	0.000	16.497	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-4 EX09	TBD/TBD	JHU/APL MD	0.000	13.696	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-5 EX09	SS/CPIF	Lockheed Martin NJ	0.000	16.115	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-6 EX09	TBD/TBD	NWSC/PHD CA	0.000	5.639	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-7 EX09	TBD/TBD	MIT/LL MA	0.000	4.033	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-8 EX09	TBD/TBD	AIRPAC HI	0.000	2.418	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-9 EX09	TBD/TBD	SPAWAR CA	0.000	4.033	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Flight Testing Flight Testing-10 EX09	Various/ Various	- -	0.000	13.108	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			0.000	84.399		0.000		0.000		0.000			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT EX09: <i>AEGIS BMD Block 5.0</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Cost Totals		1,190.194	1,045.727			0.000		0.000			

Remarks

NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT EX09: <i>AEGIS BMD Block 5.0</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
BMD 4.0.1 Development	■	■	■	■	■	■	■	■																				
BMD 4.0.1 Critical Design Review (CDR)	■																											
BMD 4.0.1 Engineering Assessment			■																									
BMD 4.0.1 Demo								■																				
BMD 5.0 Development	■	■	■	■	■	■	■	■																				
BMD 5.0 Preliminary Design Review	■																											
BMD 5.0 Critical Design Review						■																						
BMD 4.0.1 Ship Installations		■	■	■	■	■	■	■																				
TDACS CDR			■																									
SM-3 Blk IB Missile CDR			■																									
SM-3 Blk IIA System Design Review (SDR)						■																						
SM-3 Blk IIA (SCD) Requirements Finalization Review (RFR)						■																						
SM-3 Blk IB Software Final Qualification Test (FQT)								■																				
SM-3 Blk IB System Integration Test (SIT)								■																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT EX09: <i>AEGIS BMD Block 5.0</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
BMD 4.0.1 Development	1	2009	4	2010
BMD 4.0.1 Critical Design Review (CDR)	1	2009	1	2009
BMD 4.0.1 Engineering Assessment	3	2009	3	2009
BMD 4.0.1 Demo	3	2010	3	2010
BMD 5.0 Development	1	2009	4	2010
BMD 5.0 Preliminary Design Review	1	2009	1	2009
BMD 5.0 Critical Design Review	1	2010	1	2010
BMD 4.0.1 Ship Installations	2	2009	4	2010
TDACS CDR	3	2009	3	2009
SM-3 Blk IB Missile CDR	3	2009	3	2009
SM-3 Blk IIA System Design Review (SDR)	1	2010	1	2010
SM-3 Blk IIA (SCD) Requirements Finalization Review (RFR)	1	2010	1	2010
SM-3 Blk IB Software Final Qualification Test (FQT)	3	2010	3	2010
SM-3 Blk IB System Integration Test (SIT)	4	2010	4	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX09: <i>AB Capability Development</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
WX09: <i>AB Capability Development</i>	164.532	233.479	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	398.011
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

The U.S./Japan Joint Cooperative Research (JCR) program conducted cooperative research in Ballistic Missile Defense. The research focused on the development of advanced missile technologies in four components of the SM-3 guided missile: sensor, advanced kinetic warhead, second stage propulsion and lightweight nosecone. In FY 2006, the JCR project concluded with the flight testing of the lightweight nosecone in Joint Control Test Vehicle-1 (JCTV-1).

In addition, the U.S. and Japan have a mutual interest in the evolutionary development of improvements to the SM-3. In FY 2006, the two countries signed a MOU for the co-development of an upgraded, 21-inch diameter SM-3 missile (SM-3 Blk IIA). The objective of the SCD project is the development and initial at-sea flight test of the SM-3 Blk IIA missile. The SM-3 Blk IIA missile development will build upon established joint research investments by both the U.S. and Japan. The system analysis, system trade studies, and BMD system performance goals established in the U.S./Japan BMD Joint Analysis (JAWS) completed in March 2005 are the foundation for developing the SM-3 Blk IIA missile. Key technology improvements over the current SM-3 Blk IA missile planned for the SM-3 Blk IIA missile include a significant increase in velocity and range provided by a 21-inch diameter rocket motor propulsion stack, and increased seeker sensitivity and divert capability incorporated in an advanced kinetic warhead. Key component technologies to be developed under this Annex include, but are not limited to: Lightweight nosecone, advanced kinetic warhead, 21-inch second stage rocket motor, and 21-inch third stage rocket motor.

The U.S. and Japan will equitably share both work and cost.

The Scope of Work of the SCD project can be defined in three phases:

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
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<p>Phase I implements the SCD scope of work as it was defined in the original annex, taking the program through completion of the SDR. Aegis BMD will execute risk reduction efforts for the propulsion, nosecone, seeker and DACS development efforts and test plans, and conduct requirements definition for the SM-3 Blk IIA missile configuration. Phase I will also initiate information exchange related to production and maintenance of the SM-3 Blk IIA missile and introduce the phased engineering approach. Upon completion of requirements definition, a schedule for development and testing, and work share and cost share for development and testing will be refined.</p> <p>Phase II will capture program changes as set out in the first planned amendment, and refine the scope of work from SDR to completion of the CDR. Aegis BMD will refine requirements and define the performance allocation and component configuration for the development and testing of the SM-3 Blk IIA missile, and both parties will design, fabricate, test, and evaluate the SM-3 Block IIA missile. Both parties will continue the information exchanges related to production and maintenance in Phase II.</p> <p>Phase III will capture program changes as set out in the second planned amendment, and refine 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.</p> <p>The SM-3 Blk IIA missile will increase the area that can be defended by Aegis BMD and increase the probability of kill against a larger threat set. It will leverage enhanced capability provided by BMDS sensor upgrades.</p> <p>The SCD project will:</p> <ul style="list-style-type: none">Develop components for the SM-3 Blk IIA missile and integrate them into an All Up Round (AUR).21`` 2nd and 3rd stage components21`` noseconeAdvanced kinetic warheadAdvanced SeekerImproved Large Diameter Divert and Attitude Control SystemBegin engineering of the Aegis Weapon System to exploit the capability of the SM-3 Blk IIA missile and use of threat track data from BMDS sensors.		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
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<p>Integrate the SM-3 Blk IIA missile and VLS with Aegis ship systems</p> <p>Includes development of a light weight VLS canister Conduct test and evaluation using ground and flight tests</p> <p>SM-3 Blk IIA missile Aegis BMD ship systems Aegis BMD weapon system</p> <p>BMD 5.1 will integrate the SM-3 Blk IIA missile with the Aegis BMD Weapon System in Open Architecture, incorporating other Weapon System improvements:</p> <p>Defeat a wide variety of ballistic missiles in the presence of countermeasures SRBMs, MRBMs, IRBMs, LRBMs, including limited ICBMs. Feature Aided Track Correlation (FATC) Forcenet/GIG Compliance Improvements to BMDS Multi-Element Sensor Data Fusion. Engage on Remote (EoR)</p> <p>Aegis Ashore:</p> <p>The Phased Adaptive Approach (PAA) was developed in response to the rapid proliferation of short and medium range ballistic missiles in Iran and the threat they pose to U.S. allies and partners, as well as to U.S. deployed personnel and their accompanying families in the Middle East and Europe. By leveraging recent advances in sensor and interceptor technologies, the United States will aggressively counter this growing regional threat with a more powerful and agile system. The United States is pursuing a four-phased approach which will provide a more effective missile defense capability for defense of NATO territories and enhance U.S. homeland defense; it will be complementary to and interoperable with those being developed by NATO, be applicable in other theaters around the world, and will be more adaptable and flexible to counter threat advances and provide increased defended areas over time. The initial phase includes the deployment of current and proven missile defense technologies, including the sea-based Aegis Weapons System, the SM-3 missile (Block IA and IB), and sensors such as the AN/TPY-2. Subsequent phases will be implemented based on technical maturity, appropriate testing, and threat driven requirements.</p> <p>Aegis Ashore will reinforce and support the existing Host Nation's upper-tier system and defend deployed forces, allies, and friends against theater threats. Furthermore, Aegis Ashore will allow for more sophisticated engagement strategies and reduce vulnerability to countermeasures, forcing an enemy to alter or abandon tactics to penetrate the defensive system.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

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MDA plans to complete a concept study effort to flesh out the system's technical and operational feasibility leading to a near-term demonstration. To support this effort, MDA tasked Aegis BMD to oversee the execution of this study and analysis. MDA anticipates an Aegis Ashore acquisition strategy to be approved during FY 2010

In collaboration with the MDA systems engineer, Aegis BMD 5.1 will support an autonomous engagement against SRBMs, MRBMs, IRBMs, LRBMs and some ICBMs without requiring external cueing. It will also support an engagement against SRBMs, MRBMs, IRBMs and LRBMs using data from other BMDS elements and external sensors. Aegis BMD will also provide target track data to support Ground Based Interceptor Launch and Engagement against IRBMs and ICBMs via input for GMD.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SCD Missile Development See Description Below <i>FY 2009 Accomplishments:</i> Continued risk reduction efforts for SM-3 Blk IIA components: Advanced kinetic warhead Improved Large Diameter DACS Continued development of SM-3 Blk IIA including the following components: 21-inch diameter missile 2nd and 3rd stage components: 21-inch diameter nosecone Advanced kinetic warhead Advanced Seeker Improved Large Diameter DACS Lightweight Composite Canister Completed missile system requirements. Continued system performance analysis,	104.301	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010																			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>		PROJECT WX09: <i>AB Capability Development</i>																			
B. Accomplishments/Planned Program (\$ in Millions)																							
<table border="1"> <thead> <tr> <th></th> <th>FY 2009</th> <th>FY 2010</th> <th>FY 2011 Base</th> <th>FY 2011 OCO</th> <th>FY 2011 Total</th> </tr> </thead> <tbody> <tr> <td>Continued requirements definition and analysis for the lightweight canister and vertical launch system integration. Developed system specifications to support flight testing of the SM-3 Blk IIA missile. <i>FY 2010 Plans:</i> Per Congressional direction, program content for the SM-3 Blk IIA missile transitions in FY10 to PE 0604881C, SM-3 Block IIA Co-Development. <i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in PE 0604881C, Project MD09 in FY 2011. <i>FY 2011 OCO Plans:</i> NA</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SCD Weapon System Development See Description Below <i>FY 2009 Accomplishments:</i> Weapon System efforts within this project are centered on AWS modifications necessary to test the SM-3 Blk IIA missile (BMD 4.0.1 Engineering Release (ENG REL)). Participated in the SDR for the SCD effort. Support performance requirements analysis. Continued requirements definition for BMD 4.0.1 ENG REL. <i>FY 2010 Plans:</i> Planned program efforts for this effort are captured in PE 0604881C in FY 2010. <i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in ;PE 0604881C ;in FY 2011.</td> <td align="right">16.824</td> <td align="right">0.000</td> <td align="right">0.000</td> <td align="right">0.000</td> <td align="right">0.000</td> </tr> </tbody> </table>							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Continued requirements definition and analysis for the lightweight canister and vertical launch system integration. Developed system specifications to support flight testing of the SM-3 Blk IIA missile. <i>FY 2010 Plans:</i> Per Congressional direction, program content for the SM-3 Blk IIA missile transitions in FY10 to PE 0604881C, SM-3 Block IIA Co-Development. <i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in PE 0604881C, Project MD09 in FY 2011. <i>FY 2011 OCO Plans:</i> NA						SCD Weapon System Development See Description Below <i>FY 2009 Accomplishments:</i> Weapon System efforts within this project are centered on AWS modifications necessary to test the SM-3 Blk IIA missile (BMD 4.0.1 Engineering Release (ENG REL)). Participated in the SDR for the SCD effort. Support performance requirements analysis. Continued requirements definition for BMD 4.0.1 ENG REL. <i>FY 2010 Plans:</i> Planned program efforts for this effort are captured in PE 0604881C in FY 2010. <i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in ;PE 0604881C ;in FY 2011.	16.824	0.000	0.000	0.000	0.000
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total																		
Continued requirements definition and analysis for the lightweight canister and vertical launch system integration. Developed system specifications to support flight testing of the SM-3 Blk IIA missile. <i>FY 2010 Plans:</i> Per Congressional direction, program content for the SM-3 Blk IIA missile transitions in FY10 to PE 0604881C, SM-3 Block IIA Co-Development. <i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in PE 0604881C, Project MD09 in FY 2011. <i>FY 2011 OCO Plans:</i> NA																							
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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA						
BMD 5.1 BMC4I See Description Below <i>FY 2009 Accomplishments:</i> NA <i>FY 2010 Plans:</i> This task provides funding for Command, Control, Battle Management and Communications tasks related to the development of the BMD 5.1 weapon system. Support generation of ONIR requirements to incorporate advanced algorithm and new sensor capabilities. Continue systems engineering efforts to develop advanced track discrimination, correlation, and data fusion improvements. Support system integration efforts with other BMDS elements to maximize interoperability with the overall BMDS. <i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in project MD09 in FY 2011. <i>FY 2011 OCO Plans:</i> NA		0.000	5.279	0.000	0.000	0.000
BMD 3.6.2		0.000	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> NA</p> <p><i>FY 2010 Plans:</i> As a result of PBR-11 deliberations, the functionality to be captured in the BMD 3.6.2 Maintenance Load has been rolled into other future baseline development efforts.</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>								
<p>Aegis Ashore</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> NA</p> <p><i>FY 2010 Plans:</i> This task provides funding for the development of a land-based capability using an SM-3 variant missile.</p> <p>Update threat set and conduct security assessment for a land-based option. Conduct feasibility assessments in support of site selection. Conduct System Concept Review and System Readiness Review.</p>				0.000	48.942	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Conduct system safety design trade studies.					
<i>FY 2011 Base Plans:</i> FY 2011 planned program is captured in PE 0604880C, Aegis Ashore.					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	164.532	233.479	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>											
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The SM-3 Cooperative Development program for the SM-3 Blk IIA missile will utilize a performance-based approach that ties program decision milestones to the performance of development prototypes, as well as Control Test Vehicle and Guidance 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.

If a decision is made to do so, the Land-Based SM-3 project will follow MDA's capability-based acquisition strategy that emphasizes testing, spiral development and evolutionary acquisition. The details of this plan will be approved in FY 2010.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX09: <i>AB Capability Development</i>
<p>engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.</p> <p>Competition will be used for procurement of any products or services in FY 2011, when appropriate.</p> <p><u>E. Performance Metrics</u> NA</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>				PROJECT WX09: <i>AB Capability Development</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SCD Weapon System Development SCD Weapon System Development-1 WX09	SS/CPIF	Lockheed Martin NJ	44.107	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
SCD Weapon System Development SCD Weapon System Development-2 WX09	TBD/TBD	JHU/APL MD	3.147	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
SCD Weapon System Development SCD Weapon System Development-3 WX09	TBD/TBD	NSCW/DD VA	2.076	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
SCD Weapon System Development SCD Weapon System Development-4 WX09	TBD/TBD	MIT/LL MA	3.743	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
SCD Weapon System Development SCD Weapon System Development-5 WX09	Various/ Various	MDA -	2.552	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
SCD Weapon System Development SCD Weapon System Development-6 WX09	Various/ Various	Various Various	0.714	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
SCD Weapon System Development SCD Weapon System Development-7 WX09	TBD/TBD	Techrep NJ	0.935	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX09: <i>AB Capability Development</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 5.1 Weapon System Development BMD 5.1 Weapon System Development-1 WX09	SS/CPIF	Lockheed Martin NJ	42.988	3.960	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.1 Weapon System Development BMD 5.1 Weapon System Development-2 WX09	TBD/TBD	JHU/APL MD	3.056	0.289	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.1 Weapon System Development BMD 5.1 Weapon System Development-3 WX09	TBD/TBD	NSWC/DD VA	2.697	0.255	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.1 Weapon System Development BMD 5.1 Weapon System Development-4 WX09	TBD/TBD	SPAWAR CA	0.719	0.068	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.1 Weapon System Development BMD 5.1 Weapon System Development-5 WX09	TBD/TBD	VA Sites VA	1.348	0.128	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.1 Weapon System Development BMD 5.1 Weapon	Various/ Various	MDA -	3.353	0.317	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Development-6 WX09													
BMD 5.1 Weapon System Development BMD 5.1 Weapon System Development-7 WX09	Various/ Various	Various Various	0.269	0.025	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.1 Weapon System Development BMD 5.1 Weapon System Development-8 WX09	TBD/TBD	Aegis Techrep NJ	0.504	0.048	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 Development-1 WX09	SS/CPIF	Lockheed Martin NJ	0.000	109.298	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 Development-2 WX09	TBD/TBD	NSWC/DD VA	0.000	6.395	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 Development-3 WX09	TBD/TBD	JHU/APL MD	0.000	6.898	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 Development-4 WX09	TBD/TBD	MIT/LL MA	0.000	1.661	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 Development-5 WX09	TBD/TBD	VA Sites VA	0.000	1.495	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency										DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>					R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>					PROJECT WX09: <i>AB Capability Development</i>				

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 5.0 Development BMD 5.0 Development-6 WX09	TBD/TBD	Various Various	0.000	1.206	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 Development-7 WX09	TBD/TBD	Aegis Techrep NJ	0.000	1.881	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
System Engineering & Integration System Engineering & Integration-1 WX09	TBD/TBD	JHU/APL MD	2.290	6.582	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
System Engineering & Integration System Engineering & Integration-2 WX09	Various/ Various	MDA -	9.542	24.927	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
System Engineering & Integration System Engineering & Integration-3 WX09	TBD/TBD	NSWC/DD VA	3.640	10.462	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
System Engineering & Integration System Engineering & Integration-4 WX09	TBD/TBD	NSWC/PHD CA	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
System Engineering & Integration System Engineering & Integration-5 WX09	Various/ Various	Various Various	1.170	3.363	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
	TBD/TBD	JHU/APL	0.000	1.106	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 5.1 BMC4I BMD 5.1 BMC4I-1 WX09		MD											
BMD 5.1 BMC4I BMD 5.1 BMC4I-2 WX09	TBD/TBD	MIT/LL MA	0.000	0.353	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.1 BMC4I BMD 5.1 BMC4I-3 WX09	TBD/TBD	MITR -	0.000	0.281	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.1 BMC4I BMD 5.1 BMC4I-4 WX09	TBD/TBD	NSWC/PHD CA	0.000	0.349	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.1 BMC4I BMD 5.1 BMC4I-5 WX09	TBD/TBD	SPAWAR CA	0.000	2.875	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 5.1 BMC4I BMD 5.1 BMC4I-6 WX09	Various/ Various	Various Various	0.000	0.315	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 3.6.2 BMD 3.6.2-1 WX09	SS/CPIF	Lockheed Martin NJ	0.000	0.000	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 3.6.2 BMD 3.6.2-2 WX09	TBD/TBD	NSWC/DD VA	0.000	0.000	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 3.6.2 BMD 3.6.2-3 WX09	TBD/TBD	JHU/APL MD	0.000	0.000	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 3.6.2 BMD 3.6.2-4 WX09	TBD/TBD	Various Various	0.000	0.000	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 3.6.2 BMD 3.6.2-5 WX09	Various/ Various	MDA VA	0.000	0.000	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMD 3.6.2 BMD 3.6.2-6 WX09	TBD/TBD	Aegis Techrep NJ	0.000	0.000	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
	SS/CPIF	Lockheed Martin	0.000	28.942	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX09: <i>AB Capability Development</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aegis Ashore Aegis Ashore WX09		NJ											
Aegis Ashore Aegis Ashore - 200912144350069 WX09	TBD/TBD	JHU/APL MD	0.000	3.500	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis Ashore Aegis Ashore - 200912144350073 WX09	TBD/TBD	NSWC/PHD CA	0.000	2.500	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis Ashore Aegis Ashore - 200912144350078 WX09	TBD/TBD	NSWC/DD VA	0.000	7.000	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis Ashore Aegis Ashore - 200912144350083 WX09	TBD/TBD	MIT MA	0.000	1.500	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis Ashore Aegis Ashore - 200912144350089 WX09	SS/CPAF	Raytheon AZ	0.000	3.000	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Aegis Ashore Aegis Ashore - 200912144350095 WX09	TBD/TBD	Various Various	0.000	2.500	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			128.850	233.479		0.000		0.000		0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX09: <i>AB Capability Development</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	128.850	233.479		0.000		0.000		0.000				

Remarks

NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX09: <i>AB Capability Development</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015							
	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				
BMD 4.0.1 ENG REL Development	■	■	■	■	■	■	■	■																								
SM-3 Blk IIA System Design Review (SDR)	■																															
SM-3 Blk IIA Preliminary Design Review								■																								
BMD 5.1 / 5.X Development	■	■	■	■	■	■	■	■																								

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX09: <i>AB Capability Development</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
BMD 4.0.1 ENG REL Development	1	2009	4	2010
SM-3 Blk IIA System Design Review (SDR)	1	2009	1	2009
SM-3 Blk IIA Preliminary Design Review	3	2010	3	2010
BMD 5.1 / 5.X Development	1	2009	4	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>WX18: Far Term Sea Based Terminal Capability Development</i>	14.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	14.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

The Far-Term Sea Based Terminal (FTSBT) project (BMD 5.2), is an Aegis BMD future capability development. FTSBT will expand the NTSBT capability developed and delivered as baseline BMD 3.6.1 in Block 2.0, providing a more capable and robust SBT capability and expanding the battlespace to enable the system against a greater range of targets. BMD 5.2 will be built with the Aegis BMD Weapon System in Open Architecture.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Far-Term Sea Based Terminal See Description Below <i>FY 2009 Accomplishments:</i> Specific details are provided via separate channel. ; Funding transitions to PE 0603891C, Special Programs. <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA	14.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX18: <i>Far Term Sea Based Terminal Capability Development</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	14.000	0.000	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX18: <i>Far Term Sea Based Terminal Capability Development</i>

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>											
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX18: <i>Far Term Sea Based Terminal Capability Development</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

Specific details of this project are provided via separate channel.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX18: <i>Far Term Sea Based Terminal Capability Development</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
Specific details of this project are provided via separate channel.

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX18: <i>Far Term Sea Based Terminal Capability Development</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	0.000	0.000		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX18: <i>Far Term Sea Based Terminal Capability Development</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015							
	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				
FTSBT Efforts	■	■	■	■																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT WX18: <i>Far Term Sea Based Terminal Capability Development</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
FTSBT Efforts	1	2009	4	2009

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT XX09: <i>AEGIS BMD Sustainment</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
XX09: <i>AEGIS BMD Sustainment</i>	39.495	45.766	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	85.261
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

Aegis BMD has negotiated agreements with the U.S. Navy for the operations and maintenance of BMD systems on-board U.S. Navy ships. Support efforts are leveraged off of already-existing contracts and infrastructure, maintained by the Navy.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Weapon System-7 See Description Below <i>FY 2009 Accomplishments:</i> Provided In-service Engineering support to Aegis BMD: Weapon System and Vertical Launching System. Provided operational and maintenance training for Aegis BMD ship crews. Provided logistics support (including technical manuals, spares, and Reliability, Maintainability, and Availability analysis and products) for Aegis BMD: Weapon System and Vertical Launching System. Provided leadership and engineering/technical support to conduct Aegis Combat Systems Assessments. Responded to Fleet issues related to Aegis BMD installations, BMD operations and BMD events.	17.405	22.793	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT XX09: <i>AEGIS BMD Sustainment</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> Provide In-service Engineering support to Aegis BMD: Weapon System and Vertical Launching System. Provide operational and maintenance training for Aegis BMD ship crews. Provide logistics support (including technical manuals, spares, and Reliability, Maintainability, and Availability analysis and products) for Aegis BMD: Weapon System and Vertical Launching System. Provide leadership and engineering/technical support to conduct Aegis Combat Systems Assessments. Respond to Fleet issues related to Aegis BMD installations, BMD operations and BMD events.</p> <p><i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in project MD09 in FY 2011.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>SM-3 Missile Maintenance See Description Below</p> <p><i>FY 2009 Accomplishments:</i> This effort provides funding for operator and maintenance training, engineering support, and logistics support and maintenance of Aegis BMD fielded assets.</p> <p>Provided In-service Engineering support to Aegis BMD: SM-3 missile. Provided operational and maintenance training for Aegis BMD ship crews. Provided logistics support (including technical manuals, and spares) for Aegis BMD: SM-3 missile. Responded to Fleet issues related to Aegis BMD operations and BMD events.</p>		22.090	22.973	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT XX09: <i>AEGIS BMD Sustainment</i>
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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> Provide In-service Engineering support to Aegis BMD: SM-3 missile. Provide operational and maintenance training for Aegis BMD ship crews. Provide logistics support (including technical manuals, and spares) for Aegis BMD: SM-3 missile. Respond to Fleet issues related to Aegis BMD operations and BMD events.</p> <p><i>FY 2011 Base Plans:</i> Planned program efforts for this effort are captured in project MD09 in FY 2011.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	39.495	45.766	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT XX09: <i>AEGIS BMD Sustainment</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

Support contracts for U.S. Navy ships, including those designated as BMD-ships, are designated and maintained by the U.S. Navy. This includes support for assets being deployed on U.S. Navy ships, such as the SM-3 missile.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the

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<p>agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.</p> <p>Competition will be used for procurement of any products or services in FY 2011, when appropriate.</p> <p><u>E. Performance Metrics</u> NA</p>		

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Weapon System-7 Weapon System-1 XX09	TBD/TBD	JHU/APL MD	0.804	0.425	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Weapon System-7 Weapon System-2 XX09	TBD/TBD	CSCS(ATRC) VA	3.739	2.094	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Weapon System-7 Weapon System-3 XX09	TBD/TBD	NSWC Corona CA	1.929	1.045	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Weapon System-7 Weapon System-4 XX09	TBD/TBD	NSWC/DD VA	1.498	0.844	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Weapon System-7 Weapon System-5 XX09	TBD/TBD	NSWC/PHD CA	7.465	4.364	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Weapon System-7 Weapon System-6 XX09	Various/ Various	Various Various	1.485	0.776	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Weapon System-7 Weapon System-7 XX09	SS/CPIF	Lockheed Martin NJ	21.020	13.245	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SM-3 Missile Maintenance Missile-1 XX09	SS/CPAF	Raytheon AZ	26.682	13.526	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Missile Maintenance Missile-2 XX09	TBD/TBD	NSWC/PHD CA	4.861	2.363	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Missile Maintenance Missile-3 XX09	TBD/TBD	NSWC/DD VA	4.921	2.363	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Missile Maintenance Missile-4 XX09	TBD/TBD	NSWC/Corona CA	3.869	1.941	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Missile Maintenance Missile-5 XX09	TBD/TBD	NSWC/IH MD	1.984	1.033	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Missile Maintenance Missile-6 XX09	Various/ Various	Various Various	3.573	1.747	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			83.830	45.766		0.000		0.000		0.000			

Remarks

NA

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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	83.830	45.766		0.000		0.000		0.000			

Remarks
NA

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD09: <i>Aegis BMD</i>	0.000	0.000	1,412.560	0.000	1,412.560	971.965	1,063.367	1,030.020	885.993	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

Aegis BMD continues development of a sea-based BMD capability in project MD09, in support of the Missile Defense Agency's 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 will primarily fall into two categories of BMD initiatives:

Enhance Missile Defense to Defend Deployed Forces, Allies and Friends Against Theater Threats:

- BMD 3.6.1 NTSBT defense.
- BMD 4.0.1 enhanced capability with the Aegis BSP.
- SM-3 Blk IB missile upgrades, to include ARO, an advanced signal processor, and a TDACS.
- BMD 5.0 implementation of BMD capability with the Navy's Aegis Modernization Program.
- SM-3 Blk IIA Cooperative Development with Japan, including the BMD 4.0.1 Engineering Release test configuration.
- BMD 5.1 tactical weapon system supporting deployment of the SM-3 Blk IIA missile.
- Initial manufacturing of SM-3 Blk IB missiles.
- BMD shipset installations aboard US Navy Cruisers and Destroyers.
- Initial Operations and Sustainment of the fielded Aegis BMD system.

Prove Missile Defense Works:

- Aegis BMD element-level testing.
- Participation in BMD System flight missions.
- Participation in BMD System ground tests.

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<p>Element Modeling & Simulation.</p> <p>NTSBT (BMD 3.6.1) provides for an integrated SBT capability against a finite set of SRBM. BMD 3.6.1 incorporates a fuze modified SM-2 Block IV missile provided by a separate OPNAV sponsored effort and builds on BMD 3.6 to provide a terminal phase capability. The BMD 3.6.1 continues efforts to refine Aegis Launch on AN/TPY-2 and bridges the gap between the operational deployment of BMD 3.6 and BMD 4.0.1.</p> <p>Aegis BMD is fielding the NTSBT capability FY 2009 on 20 U.S. Navy Cruisers and Destroyers. In addition to the near-term SBT capability, Aegis BMD performed various upgrades to BMD 3.6 in BMD 3.6.1; updates include early integration efforts for Aegis BMD launch on AN/TPY-2 capability. Aegis BMD 3.6.1 also provides enhanced capabilities within the areas of engagement coordination, system track, and communications to support the BMDS UMDf.</p> <p>The BMD 4.0.1 Combat System will expand Aegis BMD effectiveness against the threat base. It will provide a full upgrade to the Aegis BMD Weapon System (BMD 4.0.1) to include the Aegis BSP, and an upgraded SM-3 missile, SM-3 Blk IB. BMD 4.0.1 will be capable of Launch-on-Remote operations leveraging the BMDS Sensor network.</p> <p>BMD 4.0.1 will deliver in two spirals:</p> <p>Spiral one (BMD 4.0.1 Test Bed) will deliver an initial engagement system capability with the SM-3 Blk IA missile. It will build on BSP enhancements to the LRS&T mission by adding mission capability for flight missions.</p> <p>Spiral two (BMD 4.0.1) will continue through the System Engineering Development and Testing process and culminate as an operationally-certified system capable of BMD engagements using either the SM-3 Blk IA or IB missile.</p> <p>Other capability enhancements include functionality to support BMDS integrated Builds C and D:</p> <p>Improvements in BMDS Command and C2BMC to ensure future BMDS sensor enhancements and the resulting discrimination capabilities are able to be communicated, correlated, and acted upon.</p> <p>Improved engagement coordination capability with THAAD and PATRIOT to conserve upper tier missiles.</p> <p>Analysis for planned upgrades to the SM-3 missile to expand battlespace and improve discrimination, divert, and probability of mission success.</p> <p>Supports BMDS Integrated Build C functionality: In Aegis BMD, this functionality includes deliberate and crisis Ballistic Missile Defense planning, Warfighter situational awareness, and the initial capability to control Regional BMD engagement between local assets and near-term improvements to threat discrimination.</p> <p>Supports Integrated BMDS Build D functionality: In Aegis BMD, this functionality includes the upgraded and improved Aegis BMD System (4.0.1 and Standard Missile (SM-3 Blk IB)) that provides significant improvements to both RF and IR discrimination enhancing system effectiveness. Additional improvements to Aegis increase its</p>		

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<p>ability to launch SM-3 interceptors on BMD System sensor data and improve Aegis coordination with other BMD weapon systems in the region. Enhanced capability is provided to simultaneously test, train and operate the BMD System resulting in higher levels of defensive readiness. Further Aegis improvements provide increased effectiveness against a wider range of Ballistic Missile threats. Approved additions to integrated Build D support initial Aegis BMD Ashore with control of engagement debris and refinements to BMD engagement coordination.</p> <p>BMD 5.0 will integrate BMD 4.0.1 and the BMD mission with the Navy-developed OA system. This effort will transition Aegis BMD from older, MIL-STD computers to newer COTS computing plants. This change is necessary for Aegis BMD to remain compatible with Navy assets as Navy ship modernization plans are executed. This change will improve human-systems interface through display enhancements and eliminate the need for a separate computing system specific to the BMD mission. This will also enable more ships to serve as candidates for the BMD mission, delivered in the OA configuration. BMD 5.0 will support the BMDS Integrated Build D and provide the basis for Aegis Ashore.</p> <p>Aegis BMD will also continue the cooperative development of the SM-3 Blk IIA missile with the Government of Japan. In FY06 the two countries signed a MOU for the co-development of an upgraded, 21-inch diameter SM-3 missile (SM-3 Blk IIA). The objective of the SCD project is the development and initial at-sea flight test of the SM-3 Blk IIA missile. The SM-3 Blk IIA missile development will build upon established joint research investments by both the U.S. and Japan. The system analysis, system trade studies, and BMD system performance goals established in the U.S./Japan BMD Joint Analysis (JAWS) completed in March 2005 are the foundation for developing the SM-3 Blk IIA missile. Key technology improvements over the current SM-3 Blk IA missile planned for the SM-3 Blk IIA missile include a significant increase in velocity and range provided by a 21-inch diameter rocket motor propulsion stack, and increased seeker sensitivity and divert capability incorporated in an advanced kinetic warhead. The SM-3 Blk IIA missile will increase the area that can be defended by Aegis BMD and increase the probability of kill against a larger threat set. It will leverage enhanced capability provided by BMDS sensor upgrades. Per Congressional direction, this effort has been transferred to PE 0604881C, SM-3 Block IIA Co-Development, beginning in FY 2010.</p> <p>BMD 5.1 will integrate the SM-3 Blk IIA missile with the OA Aegis BMD Weapon System, incorporating other Weapon System improvements:</p> <ul style="list-style-type: none">Defeat a wide variety of ballistic missiles in the presence of countermeasures SRBMs, MRBMs, IRBMs, and limited LRBMs, including some ICBMs.Feature Aided Track Correlation (FATC).Forcenet/GIG Compliance.Improvements to BMDS Multi-Element Sensor Data Fusion.Engage on Remote (EoR). <p>Operations & Support: Aegis BMD has negotiated agreements with the U.S. Navy for the operations and maintenance of BMD systems on-board U.S. Navy ships. Support efforts are leveraged off of already-existing contracts and infrastructure and processes, maintained by the Navy.</p>		

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<p>In collaboration with the MDA Systems Engineer, Aegis BMD supports an autonomous engagement against SRBMs and MRBMs without requiring external cueing. It supports an engagement against SRBMs and MRBMs using data from other BMDS elements and external sensors. Aegis BMD will also provide target track data to support Ground Based Interceptor Launch and Engagement against LRBMs and IRBMs via input for the GMD STP and WTP.</p>						
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
BMD 3.6.1 Development See Description Below <i>FY 2009 Accomplishments:</i> Accomplishments for this effort were captured in project BX18 in FY 2009. <i>FY 2010 Plans:</i> Planned Program efforts for this effort were captured in project BX18 in FY 2010. <i>FY 2011 Base Plans:</i> Prepare for FTM-18 (2/12). Complete pre-flight analysis to verify mission scenarios and to predict flight performance. Continue evaluation and support for BMD data path enhancements aboard ship and at land-based communications sites. Continue evaluation of ESL space cue impacts on Aegis BMD performance. Provide ongoing support for contingency operations. Provide subject matter expert support for the fielded BMD 3.6.1 baseline. <i>FY 2011 OCO Plans:</i> NA		0.000	0.000	2.385	0.000	2.385
BMD 4.0.1 Development See Description Below		0.000	0.000	142.723	0.000	142.723

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> Planned Program efforts for this effort were captured in project EX09 in FY 2010.</p> <p><i>FY 2011 Base Plans:</i> Continue the development and testing of BMD 5.0. Design and develop computer program functionality changes. Incorporate the functional capability into BMD 5.0 baseline development. Prepare for and support the IPR #5. Prepare for and support the Anti-Air Warfare (AAW) Radar Demonstration. Prepare for and support the Test Readiness Review (TRR) #1. Prepare for and support the Multi-Mission Signal Processor Radar Exercise. Prepare for and support the BMD 5.0 Demonstration. Participate in TOO testing. Support systems engineering efforts to incorporate interoperability enhancements including: Navy Multi Band Terminal and Advance EHF.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>BMD 5.1 Development See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Accomplishments for this effort were captured in project WX09 in FY 2009.</p> <p><i>FY 2010 Plans:</i> Planned Program efforts for this effort were captured in project WX09 in FY 2010.</p>		0.000	0.000	119.585	0.000	119.585

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> Prepare for and Support a System Readiness Review (SRR). Make final preparations for the BMD 5.1 System Requirements Review (SRR) and conduct the BMD 5.1 SRR. Close out action items from the 5.1 SRR and complete analysis necessary to finalize the Element Capability Specification (ECS) level requirements. Flow ECS level requirements down to the Aegis BMD 5.1 System Level Specification Document (A-Spec) and conduct systems engineering necessary to develop the BMD 5.1 A-Spec. Conduct analysis, modeling and simulation, and concept development to support early systems engineering development to reduce technical risk for BMD 5.1 Engage on Remote (EoR) and Early Intercept (EI) organic capabilities. Prepare for the BMD 5.1 System Design Review (SDR) by developing the BMD 5.1 SDR data review package, and conducting the Navy Review Team (NRT) review and comment adjudication. Conduct BMD 5.1 system level performance analysis with the SM3-Block IIA missile in support of the SCD Program Joint/Japan IPR and initiate BMD 5.1 system level performance analysis in preparation for the SCD PDR.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>SM-3 Blk IB Development See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Accomplishments for this effort were captured in project EX09 in FY 2009.</p> <p><i>FY 2010 Plans:</i> Planned Program efforts for this effort were captured in project EX09 in FY 2010.</p>		0.000	0.000	255.168	0.000	255.168

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> Prepare for and Support WC Critical Design Review (CDR). Complete SM-3 Blk IB Missile DVTs. Complete SM-3 Blk IB TDACS Qualification tests. Complete SM-3 Blk IB Hazard Assessment Tests (HAT). Conduct SM-3 Manufacturing Readiness Review (Gate 10). Complete delivery of flight test rounds. Participate in FTM-19.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>BMDs Level Testing See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Accomplishments for this effort were captured in projects BX09 and EX09 in FY 2009.</p> <p><i>FY 2010 Plans:</i> Planned Program efforts for this effort were captured in Project EX09 in FY 2010.</p> <p><i>FY 2011 Base Plans:</i> Conduct FTM-15 flight test mission:</p> <p>Exercise of Phase 1 capability of the Phased Adaptive Approach. Conduct a BMD 3.6.1 engagement and intercept with an SM-3 Blk IA missile against an MRBM target BMDs connectivity with AN/TPY-2 (version 2.4) via C2BMC version 6.4 Conduct FTX-16 flight test mission:</p>		0.000	0.000	110.161	0.000	110.161

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> Procure one (1) BMD 4.0.1 shipset (including BMD Signal Processor (BSP)). Procure two (2) shipsets of BMD 5.0 equipment to support U.S. Navy Aegis Modernization (AMOD) schedule. Support USS LAKE ERIE Engineering Development Model (EDM) upgrades to achieve BMD 4.0.1 tactical configuration. Begin development efforts to add BMD capability to USN Baseline 4 Cruisers entering AMOD in 2014.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>SM-3 Blk IB Manufacturing See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Accomplishments for this effort were captured in project EX09 in FY 2009.</p> <p><i>FY 2010 Plans:</i> Planned Program efforts for this effort were captured in project EX09 in FY 2010.</p> <p><i>FY 2011 Base Plans:</i> Continue manufacturing of eighteen (18) SM-3 Blk IB missiles begun in FY 2010. Begin manufacturing of twelve (12) SM-3 Blk IB missiles.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>		0.000	0.000	164.897	0.000	164.897
SM-3 Production Support		0.000	0.000	44.902	0.000	44.902

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Accomplishments for this effort were captured in project BX09 in FY 2009.</p> <p><i>FY 2010 Plans:</i> Planned Program efforts for this effort were captured in project EX09 in FY 2010.</p> <p><i>FY 2011 Base Plans:</i> Continue to monitor performance of SM-3 Block IA. Monitor obsolete material replacement effort. Conduct ground tests for lot qualification of components. Continue manufacturing of SM-3 VLS canisters.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
<p>Fleet Integration</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Accomplishments for this effort were captured in project XX09 in FY 2009.</p> <p><i>FY 2010 Plans:</i> Planned Program efforts for this effort were captured in project XX09 in FY 2010.</p>	0.000	0.000	27.902	0.000	27.902

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD09: <i>Aegis BMD</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Provide leadership and engineering/technical support to conduct Aegis Combat Systems Assessments. Respond to Fleet issues related to Aegis BMD installations, BMD operations and BMD events. Respond to emergent events.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>BMDS Models & Simulations See Description Below</p> <p><i>FY 2009 Accomplishments:</i> The program content in this project was previously reported under Project YX31 in PB10.</p> <p><i>FY 2010 Plans:</i> The program content in this project was previously reported under Project YX31 in PB10.</p> <p><i>FY 2011 Base Plans:</i> Modeling and simulation (M&S) activities support all phases of Aegis BMD development, including development of modifications to the Aegis Weapons System, SM-3 missile development, flight test missions, ground tests, wargames, exercises, and performance assessment. Models and simulations are tailored to the specific need of a component in its current phase of development, ranging from low-to-medium fidelity analyses supporting concept definition studies, to high-fidelity models used to support engineering development or testing. M&S tools are accredited for each application and for specific objectives: tools are put through a rigorous verification and validation process, reviewing coding and specifications, and comparing analyses against actual flight test results.</p> <p>Conduct BMD System Post Flight Reconstructions</p>		0.000	0.000	104.009	0.000	104.009

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD09: <i>Aegis BMD</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> The program content in this project was previously reported under Project WX09 in PB10.</p> <p><i>FY 2011 Base Plans:</i> Systems Engineering provides System Description Document and System Specifications for elements to design, build, integrate and test BMDS components. These products optimize performance at the system level and further ensure that the assessment of the designed BMD System is based on sufficient ground and flight testing. Systems Engineering also develops threat scenarios (trajectory and signature) for system and element utilization for compliance and assessment evaluation of BMD System capability to defend homeland, deployed forces, and friends and allies.</p> <p>Collaboratively perform system engineering trade studies to support design decisions. Develop and update the Capability Planning Specifications for Phased Adaptive Approach, Phases 2-4. Provide updates to the BMD System Description Document for new capabilities, including the Phased Adaptive Approach, Phases 2-4. Conduct, integration, provide test execution support, and verify Phased Adaptive Approach Phase I capabilities. Produce scenario data for Element and Component design and assessment for BMDS Integrated Build D updates, including all phases of the Phased Adaptive Approach and Aegis BMD 4.0.1 and 5.0 functionality to support launch on Link-16 based System track, increased BMD System effectiveness, Aegis Ashore, and improved engagement coordination for regional missions. Maintain and update the agency-wide Common and consistent BMD System threat. Continue to update adversary missile capabilities and characterizations consistent with projected threat environment for BMDS Integrated Builds. Validate BMD System test targets are threat representative.</p>					

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: NA					
Accomplishments/Planned Programs Subtotals					
	0.000	0.000	1,412.560	0.000	1,412.560

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>											
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The Aegis BMD element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall 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 SM-3 missile and the Aegis BMD Weapon System, respectively.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

Competition will be used for procurement of any products or services in FY 2011, when appropriate.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 3.6.1 Development BMD 3.6.1 DEVELOPMENT MD09	TBD/TBD	NSWC/DD DAHLGREN, VA	0.000	0.000		0.631	Jan 2011	0.000		0.631	Continuing	Continuing	Continuing
BMD 3.6.1 Development BMD 3.6.1 DEVELOPMENT - 2009818481987 MD09	TBD/TBD	NSWC/PHD PT. HUENEME, CA	0.000	0.000		0.283	Jan 2011	0.000		0.283	Continuing	Continuing	Continuing
BMD 3.6.1 Development BMD 3.6.1 DEVELOPMENT - 2009818481988 MD09	TBD/TBD	JHU/APL/MD COLUMBIA, MD	0.000	0.000		0.330	Jan 2011	0.000		0.330	Continuing	Continuing	Continuing
BMD 3.6.1 Development BMD 3.6.1 DEVELOPMENT MD09	TBD/TBD	VARIOUS NJ, VA, CA	0.000	0.000		1.141	Jan 2011	0.000		1.141	Continuing	Continuing	Continuing
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT MD09	TBD/TBD	NSWC/DD DAHLGREN, VA	0.000	0.000		14.444	Jan 2011	0.000		14.444	Continuing	Continuing	Continuing
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184870177 MD09	TBD/TBD	NSWC/PHD PT. HUENEME, CA	0.000	0.000		0.883	Jan 2011	0.000		0.883	Continuing	Continuing	Continuing
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184870181 MD09	TBD/TBD	JHU/APL/MD COLUMBIA, MD	0.000	0.000		3.005	Jul 2011	0.000		3.005	Continuing	Continuing	Continuing
	TBD/TBD	VARIOUS NJ, VA, CA	0.000	0.000		10.818	Jan 2011	0.000		10.818	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT MD09													
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 2009818529913 MD09	SS/CPIF	LOCKHEED MARTIN MOORESTOWN, NJ	0.000	0.000		52.025	Jan 2011	0.000		52.025	Continuing	Continuing	Continuing
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098185299139 MD09	SS/CPAF	RAYTHEON/AZ TUCSON, AZ	0.000	0.000		1.900	Jan 2011	0.000		1.900	Continuing	Continuing	Continuing
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098185299144 MD09	TBD/TBD	AEGIS BMD DAHLGREN, VA	0.000	0.000		22.999	Jan 2011	0.000		22.999	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 DEVELOPMENT MD09	TBD/TBD	NSWC/DD DAHLGREN, VA	0.000	0.000		7.254	Jan 2011	0.000		7.254	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184914206 MD09	TBD/TBD	NSWC/PHD PT. HUENEME, CA	0.000	0.000		1.084	Jan 2011	0.000		1.084	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184914216 MD09	TBD/TBD	JHU/APL/MD COLUMBIA, MD	0.000	0.000		5.230	Jan 2011	0.000		5.230	Continuing	Continuing	Continuing
	C/CPAF	RAYTHEON/AZ	0.000	0.000		0.030	Jul 2011	0.000		0.030	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184914223 MD09		TUCSON, AZ											
BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184914228 MD09	SS/CPIF	LOCKHEED MARTIN MOORESTOWN, NJ	0.000	0.000		135.125	Jan 2011	0.000		135.125	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 DEVELOPMENT MD09	TBD/TBD	VARIOUS NJ, VA, CA	0.000	0.000		27.314	Jan 2011	0.000		27.314	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098185353275 MD09	SS/CPAF	RAYTHEON/AZ TUCSON, AZ	0.000	0.000		4.000	Jan 2011	0.000		4.000	Continuing	Continuing	Continuing
BMD 5.1 Development BMD 5.1 DEVELOPMENT MD09	TBD/TBD	NSWC/DD DAHLGREN, VA	0.000	0.000		7.895	Jan 2011	0.000		7.895	Continuing	Continuing	Continuing
BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098185276634 MD09	TBD/TBD	NSWC/PHD PT. HUENEME, CA	0.000	0.000		0.700	Jan 2011	0.000		0.700	Continuing	Continuing	Continuing
BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098185276644 MD09	TBD/TBD	JHU/APL/MD COLUMBIA, MD	0.000	0.000		7.380	Jan 2011	0.000		7.380	Continuing	Continuing	Continuing
	SS/CPIF		0.000	0.000		63.430	Jan 2011	0.000		63.430	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098185276648 MD09		LOCKHEED MARTIN MOORESTOWN, NJ											
BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098185276658 MD09	SS/CPAF	RAYTHEON/AZ TUCSON, AZ	0.000	0.000		0.210	Jan 2011	0.000		0.210	Continuing	Continuing	Continuing
BMD 5.1 Development VARIOUS MD09	TBD/TBD	VARIOUS NJ, VA, CA	0.000	0.000		4.541	Jan 2011	0.000		4.541	Continuing	Continuing	Continuing
SM-3 BIK IB Development SM-3 BLK IB DEVELOPMENT MD09	SS/CPAF	Raytheon Tucson, AZ	0.000	0.000		158.595	Jan 2011	0.000		158.595	Continuing	Continuing	Continuing
SM-3 BIK IB Development SM-3 BLK IB DEVELOPMENT - 20098184846516 MD09	TBD/TBD	NSWC/DD Dahlgren, VA	0.000	0.000		4.122	Jan 2011	0.000		4.122	Continuing	Continuing	Continuing
SM-3 BIK IB Development SM-3 BLK IB DEVELOPMENT - 2009818484652 MD09	TBD/TBD	JHU/APL/MD Columbia, MD	0.000	0.000		12.262	Jan 2011	0.000		12.262	Continuing	Continuing	Continuing
SM-3 BIK IB Development SM-3 BLK IB DEVELOPMENT - 20098184846525 MD09	TBD/TBD	NSWC/PHD Port Huneme, CA	0.000	0.000		1.754	Apr 2011	0.000		1.754	Continuing	Continuing	Continuing
	TBD/TBD	VARIOUS	0.000	0.000		4.915	Jan 2011	0.000		4.915	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184846531 MD09		VA, AZ, CA											
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184846536 MD09	TBD/TBD	Aegis BMD VA, AZ, CA	0.000	0.000		22.000	Apr 2011	0.000		22.000	Continuing	Continuing	Continuing
BMDS Level Testing BMDS LEVEL TESTING MD09	TBD/TBD	NSWC/DD DAHLGREN, VA	0.000	0.000		10.021	Jan 2011	0.000		10.021	Continuing	Continuing	Continuing
BMDS Level Testing BMDS LEVEL TESTING - 20098237473958 MD09	TBD/TBD	NSWC/PHD Port Hueneme, CA	0.000	0.000		10.502	Jan 2011	0.000		10.502	Continuing	Continuing	Continuing
BMDS Level Testing BMDS LEVEL TESTING - 20098237473961 MD09	TBD/TBD	JHU/APL COLUMBIA, MD	0.000	0.000		16.809	Jan 2011	0.000		16.809	Continuing	Continuing	Continuing
BMDS Level Testing BMDS LEVEL TESTING - 20098237473966 MD09	TBD/TBD	VARIOUS NJ, VA, CA, HI	0.000	0.000		31.567	Apr 2011	0.000		31.567	Continuing	Continuing	Continuing
BMDS Level Testing BMDS LEVEL TESTING - 2009823747397 MD09	SS/CPIF	LOCKHEED MARTIN MOORESTOWN, NJ	0.000	0.000		22.200	Jan 2011	0.000		22.200	Continuing	Continuing	Continuing

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD09: <i>Aegis BMD</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMDS Level Testing BMDS LEVEL TESTING - 20098237473975 MD09	TBD/TBD	SPAWAR SAN DIEGO, CA	0.000	0.000		1.372	Jan 2011	0.000		1.372	Continuing	Continuing	Continuing
BMDS Level Testing BMDS LEVEL TESTING - 2009823747398 MD09	SS/CPAF	RAYTHEON TUCSON, AZ	0.000	0.000		4.500	Jan 2011	0.000		4.500	Continuing	Continuing	Continuing
BMDS Level Testing BMDS LEVEL TESTING - 20098237473984 MD09	TBD/TBD	PMRF BARKING SANDS, KAUAI, HI	0.000	0.000		7.000	Jan 2011	0.000		7.000	Continuing	Continuing	Continuing
BMDS Level Testing BMDS LEVEL TESTING - 20098237473988 MD09	TBD/TBD	NAWC/PM POINT MUGU, CA	0.000	0.000		2.700	Jan 2011	0.000		2.700	Continuing	Continuing	Continuing
BMDS Level Testing BMDS LEVEL TESTING - 20098237473992 MD09	TBD/TBD	MDA/DTR HUNTSVILLE, AL	0.000	0.000		3.490	Apr 2011	0.000		3.490	Continuing	Continuing	Continuing
Aegis BMD Testing AEGIS BMD TESTING MD09	TBD/TBD	NSWC/DD DAHLGREN, VA	0.000	0.000		3.621	Jan 2011	0.000		3.621	Continuing	Continuing	Continuing
Aegis BMD Testing AEGIS BMD TESTING - 2009818533723 MD09	TBD/TBD	NSWC/PHD PT. HUENEME, CA	0.000	0.000		2.853	Jan 2011	0.000		2.853	Continuing	Continuing	Continuing
	TBD/TBD	JHU/APL/MD COLUMBIA, MD	0.000	0.000		7.971	Jan 2011	0.000		7.971	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aegis BMD Testing AEGIS BMD TESTING - 20098185337242 MD09													
Aegis BMD Testing AEGIS BMD TESTING - 2009818533725 MD09	TBD/TBD	VARIOUS NJ, VA, CA	0.000	0.000		4.181	Jan 2011	0.000		4.181	Continuing	Continuing	Continuing
Aegis BMD Testing AEGIS BMD TESTING MD09	TBD/TBD	SPAWAR SAN DIEGO, CA	0.000	0.000		1.016	Jan 2011	0.000		1.016	Continuing	Continuing	Continuing
Aegis BMD Testing AEGIS BMD TESTING - 20098237413873 MD09	TBD/TBD	CORONA CORONA, CA	0.000	0.000		1.383	Jan 2011	0.000		1.383	Continuing	Continuing	Continuing
Fielding - AWS AWS FIELDING MD09	SS/CPIF	Lockheed Martin Moorestown, NJ	0.000	0.000		56.400	Jan 2011	0.000		56.400	Continuing	Continuing	Continuing
Fielding - AWS AWS FIELDING - 20098184698109 MD09	TBD/TBD	NSWC/PHD Port Hueneme, CA	0.000	0.000		5.000	Oct 2010	0.000		5.000	Continuing	Continuing	Continuing
Fielding - AWS AWS FIELDING - 20098184698114 MD09	TBD/TBD	NSWC/DD Dahlgren, VA	0.000	0.000		10.000	Jan 2011	0.000		10.000	Continuing	Continuing	Continuing
Fielding - AWS AWS FIELDING - 20098184698117 MD09	C/CPAF	Raytheon Washington, DC	0.000	0.000		3.800	Jan 2011	0.000		3.800	Continuing	Continuing	Continuing
Fielding - AWS AWS FIELDING - 20098184698123 MD09	TBD/TBD	PEO IWS Minneapolis, MN	0.000	0.000		2.300	Oct 2010	0.000		2.300	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Fielding - AWS AWS FIELDING - 20098184698133 MD09	TBD/TBD	AEGIS TECHREP Moorestown, NJ	0.000	0.000		1.700	Jan 2011	0.000		1.700	Continuing	Continuing	Continuing
Fielding - AWS AWS FIELDING - 20098184698138 MD09	TBD/TBD	Various NJ, VA, CA	0.000	0.000		19.830	Apr 2011	0.000		19.830	Continuing	Continuing	Continuing
SM-3 Blk IB Manufacturing SM-3 BLK IB MANUFACTURING MD09	SS/CPAF	Raytheon Tucson, AZ	0.000	0.000		161.007	Jan 2011	0.000		161.007	Continuing	Continuing	Continuing
SM-3 Blk IB Manufacturing SM-3 BLK IB MANUFACTURING - 20098184912603 MD09	TBD/TBD	NSWC/DD Port Hueneme, CA	0.000	0.000		1.945	Jan 2011	0.000		1.945	Continuing	Continuing	Continuing
SM-3 Blk IB Manufacturing SM-3 BLK IB MANUFACTURING - 20098184912608 MD09	TBD/TBD	Various MD, AZ	0.000	0.000		1.945	Apr 2011	0.000		1.945	Continuing	Continuing	Continuing
SM-3 Production Support PRODUCTION SUPPORT - CANISTERS MD09	TBD/TBD	PEO IWS Minneapolis, MN	0.000	0.000		15.800	Jan 2011	0.000		15.800	Continuing	Continuing	Continuing
SM-3 Production Support PRODUCTION SUPPORT -	SS/CPAF	Raytheon Tucson, AZ	0.000	0.000		29.102	Jan 2011	0.000		29.102	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PRODUCTION ENGINEERING MD09													
Fleet Integration AWS O&S MD09	SS/CPIF	Lockheed Martin Moorestown, NJ	0.000	0.000		10.500	Jan 2011	0.000		10.500	Continuing	Continuing	Continuing
Fleet Integration AWS O&S - 20098185191909 MD09	TBD/TBD	NSWC/DD Dahlgren, VA	0.000	0.000		2.602	Jan 2011	0.000		2.602	Continuing	Continuing	Continuing
Fleet Integration FLEET INTEGRATION MD09	TBD/TBD	JHU/APL/MD Columbia, MD	0.000	0.000		2.070	Jan 2011	0.000		2.070	Continuing	Continuing	Continuing
Fleet Integration FLEET INTEGRATION - 20098185191927 MD09	TBD/TBD	CSCS Dahlgren, VA	0.000	0.000		2.837	Jan 2011	0.000		2.837	Continuing	Continuing	Continuing
Fleet Integration FLEET INTEGRATION - 20098185191938 MD09	TBD/TBD	NSWC/DD Dahlgren, VA	0.000	0.000		3.535	Jan 2011	0.000		3.535	Continuing	Continuing	Continuing
Fleet Integration FLEET INTEGRATION - 20098185191945 MD09	TBD/TBD	NSWC/PHD Port Hueneme, CA	0.000	0.000		3.198	Oct 2010	0.000		3.198	Continuing	Continuing	Continuing
Fleet Integration FLEET INTEGRATION - 20098185191952 MD09	TBD/TBD	Various VA, MD, CA, HI	0.000	0.000		3.160	Apr 2011	0.000		3.160	Continuing	Continuing	Continuing
SM-3 Operations & Support SM-3 O&S - MAINTENANCE MD09	SS/CPAF	Raytheon Tucson, AZ	0.000	0.000		6.400	Jan 2011	0.000		6.400	Continuing	Continuing	Continuing
	SS/CPAF	Raytheon Tucson, AZ	0.000	0.000		30.000	Jan 2011	0.000		30.000	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SM-3 Operations & Support SM-3 O&S - SPARES MD09													
BMDS Models & Simulations Missile Defense Space Warning Tool (MDST) MD09	C/CPAF	Northrop Grumman CO	0.000	0.000		2.694	Oct 2010	0.000		2.694	Continuing	Continuing	Continuing
BMDS Models & Simulations Performance Assessment PLanning MD09	C/CPAF	Northrop Grumman CO	0.000	0.000		0.629		0.000		0.629	Continuing	Continuing	Continuing
BMDS Models & Simulations BMDS Models & Simulations MD09	C/CPAF	Boeing AL	0.000	0.000		39.009		0.000		39.009	Continuing	Continuing	Continuing
Systems Engineering & Integration Industry MD09	C/CPAF	Boeing VA	0.000	0.000		15.750		0.000		15.750	Continuing	Continuing	Continuing
Systems Engineering & Integration CSS MD09	C/CPFF	CSC VA	0.000	0.000		10.250		0.000		10.250	Continuing	Continuing	Continuing
Systems Engineering & Integration CSS - 200912165600225 MD09	C/CPFF	Cobham CA	0.000	0.000		9.000		0.000		9.000	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		1,157.949		0.000		1,157.949			

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT MD09	TBD/TBD	MDA Arlington, VA	0.000	0.000		1.653	Jan 2011	0.000		1.653	Continuing	Continuing	Continuing
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410791 MD09	TBD/TBD	NAVSEA Washington, DC	0.000	0.000		2.086	Jan 2011	0.000		2.086	Continuing	Continuing	Continuing
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410797 MD09	C/CPFF	GDIT Dahlgren, VA	0.000	0.000		6.058	Jan 2011	0.000		6.058	Continuing	Continuing	Continuing
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410803 MD09	C/CPFF	Paradigm Dahlgren, VA	0.000	0.000		1.699	Jan 2011	0.000		1.699	Continuing	Continuing	Continuing
BMD 4.0.1 Development BMD	C/CPFF	Gryphon Dahlgren, VA	0.000	0.000		0.272	Jan 2011	0.000		0.272	Continuing	Continuing	Continuing

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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
4.0.1 DEVELOPMENT - 20098184410811 MD09													
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410817 MD09	TBD/TBD	Various Dahlgren, VA	0.000	0.000		4.817	Jan 2011	0.000		4.817	Continuing	Continuing	Continuing
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410825 MD09	C/CPIF	Lockheed Martin Arlington, VA	0.000	0.000		0.241	Jan 2011	0.000		0.241	Continuing	Continuing	Continuing
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410834 MD09	C/CPAF	Raytheon Arlington, VA	0.000	0.000		0.195	Jan 2011	0.000		0.195	Continuing	Continuing	Continuing
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410842 MD09	TBD/TBD	Aegis BMD Dahlgren, VA	0.000	0.000		2.628	Apr 2011	0.000		2.628	Continuing	Continuing	Continuing
BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410848 MD09	TBD/TBD	MDA Various Arlington, VA	0.000	0.000		17.000	Apr 2011	0.000		17.000	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 DEVELOPMENT MD09	TBD/TBD	MDA Arlington, VA	0.000	0.000		2.436	Jan 2011	0.000		2.436	Continuing	Continuing	Continuing
BMD 5.0 Development BMD	TBD/TBD	NAVSEA Washington, DC	0.000	0.000		3.071	Jan 2011	0.000		3.071	Continuing	Continuing	Continuing

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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
5.0 DEVELOPMENT - 20098184413988 MD09													
BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184413994 MD09	C/CPFF	GDIT Dahlgren, VA	0.000	0.000		8.921	Jan 2011	0.000		8.921	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414005 MD09	C/CPFF	Paradigm Dahlgren, VA	0.000	0.000		2.502	Jan 2011	0.000		2.502	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414009 MD09	C/CPFF	Gryphon Dahlgren, VA	0.000	0.000		0.401	Jan 2011	0.000		0.401	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414017 MD09	TBD/TBD	Various Dahlgren, VA	0.000	0.000		9.022	Apr 2011	0.000		9.022	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414022 MD09	C/CPIF	Lockheed Martin Arlington, VA	0.000	0.000		0.354	Jan 2011	0.000		0.354	Continuing	Continuing	Continuing
BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414028 MD09	C/CPAF	Raytheon Arlington, VA	0.000	0.000		0.287	Jan 2011	0.000		0.287	Continuing	Continuing	Continuing
	TBD/TBD	Aegis BMD	0.000	0.000		3.695	Apr 2011	0.000		3.695	Continuing	Continuing	Continuing

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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414033 MD09		Dahlgren, VA											
BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414048 MD09	TBD/TBD	MDA Various Arlington, VA	0.000	0.000		17.000	Apr 2011	0.000		17.000	Continuing	Continuing	Continuing
BMD 5.1 Development BMD 5.1 DEVELOPMENT MD09	TBD/TBD	MDA Arlington, VA	0.000	0.000		1.547	Jan 2011	0.000		1.547	Continuing	Continuing	Continuing
BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184460966 MD09	TBD/TBD	NAVSEA Washington, DC	0.000	0.000		1.949	Apr 2011	0.000		1.949	Continuing	Continuing	Continuing
BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184460972 MD09	C/CPFF	GDIT Dahlgren, VA	0.000	0.000		5.661	Jan 2011	0.000		5.661	Continuing	Continuing	Continuing
BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184460977 MD09	C/CPFF	Paradigm Dahlgren, VA	0.000	0.000		1.587	Jan 2011	0.000		1.587	Continuing	Continuing	Continuing
BMD 5.1 Development BMD 5.1 DEVELOPMENT - 2009818446098 MD09	C/CPFF	Gryphon Dahlgren, VA	0.000	0.000		0.255	Jan 2011	0.000		0.255	Continuing	Continuing	Continuing

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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184460984 MD09	TBD/TBD	Various Dahlgren, VA	0.000	0.000		4.545	Apr 2011	0.000		4.545	Continuing	Continuing	Continuing
BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184460989 MD09	C/CPIF	Lockheed Martin Arlington, VA	0.000	0.000		0.225	Jan 2011	0.000		0.225	Continuing	Continuing	Continuing
BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184460995 MD09	C/CPAF	Raytheon Arlington, VA	0.000	0.000		0.182	Jan 2011	0.000		0.182	Continuing	Continuing	Continuing
BMD 5.1 Development BMD 5.1 DEVELOPMENT - 200981844610 MD09	TBD/TBD	Aegis BMD Dahlgren, VA	0.000	0.000		2.478	Apr 2011	0.000		2.478	Continuing	Continuing	Continuing
BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184461008 MD09	TBD/TBD	MDA Various Arlington, VA	0.000	0.000		17.000	Apr 2011	0.000		17.000	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT MD09	TBD/TBD	MDA Arlington, VA	0.000	0.000		2.698	Jan 2011	0.000		2.698	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184490094 MD09	TBD/TBD	NAVSEA Washington, DC	0.000	0.000		3.404	Jan 2011	0.000		3.404	Continuing	Continuing	Continuing

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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SM-3 BIK IB Development SM-3 BLK IB DEVELOPMENT - 20098184490097 MD09	C/CPFF	GDIT Dahlgren, VA	0.000	0.000		9.886	Jan 2011	0.000		9.886	Continuing	Continuing	Continuing
SM-3 BIK IB Development SM-3 BLK IB DEVELOPMENT - 20098184490102 MD09	C/CPFF	Paradigm Dahlgren, VA	0.000	0.000		2.772	Jan 2011	0.000		2.772	Continuing	Continuing	Continuing
SM-3 BIK IB Development SM-3 BLK IB DEVELOPMENT - 20098184490106 MD09	C/CPFF	Gryphon Dahlgren, VA	0.000	0.000		0.445	Jan 2011	0.000		0.445	Continuing	Continuing	Continuing
SM-3 BIK IB Development SM-3 BLK IB DEVELOPMENT - 20098184490111 MD09	TBD/TBD	Various Dahlgren, VA	0.000	0.000		7.436	Apr 2011	0.000		7.436	Continuing	Continuing	Continuing
SM-3 BIK IB Development SM-3 BLK IB DEVELOPMENT - 20098184490116 MD09	C/CPIF	Lockheed Martin Arlington, VA	0.000	0.000		0.392	Jan 2011	0.000		0.392	Continuing	Continuing	Continuing
SM-3 BIK IB Development SM-3 BLK IB DEVELOPMENT - 20098184490122 MD09	C/CPAF	Raytheon Arlington, VA	0.000	0.000		0.318	Jan 2011	0.000		0.318	Continuing	Continuing	Continuing
SM-3 BIK IB Development SM-3 BLK IB DEVELOPMENT - 20098184490127 MD09	TBD/TBD	Aegis BMD Dahlgren, VA	0.000	0.000		5.300	Apr 2011	0.000		5.300	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD09: <i>Aegis BMD</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184490131 MD09	TBD/TBD	MDA Various Arlington, VA	0.000	0.000		18.869	Apr 2011	0.000		18.869	Continuing	Continuing	Continuing
Aegis BMD Testing TESTING MD09	TBD/TBD	MDA Arlington, VA	0.000	0.000		1.984	Jan 2011	0.000		1.984	Continuing	Continuing	Continuing
Aegis BMD Testing TESTING - 20098184514422 MD09	TBD/TBD	NAVSEA Washington, DC	0.000	0.000		2.504	Jan 2011	0.000		2.504	Continuing	Continuing	Continuing
Aegis BMD Testing TESTING - 20098184514427 MD09	C/CPFF	GDIT Dahlgren, VA	0.000	0.000		7.270	Jan 2011	0.000		7.270	Continuing	Continuing	Continuing
Aegis BMD Testing TESTING - 20098184514434 MD09	C/CPFF	Paradigm Dahlgren, VA	0.000	0.000		2.039	Jan 2011	0.000		2.039	Continuing	Continuing	Continuing
Aegis BMD Testing TESTING - 20098184514442 MD09	C/CPFF	Gryphon Dahlgren, VA	0.000	0.000		0.327	Jan 2011	0.000		0.327	Continuing	Continuing	Continuing
Aegis BMD Testing TESTING - 20098184514461 MD09	C/CPIF	Lockheed Martin Arlington, VA	0.000	0.000		0.289	Jan 2011	0.000		0.289	Continuing	Continuing	Continuing
Aegis BMD Testing TESTING - 20098184514466 MD09	C/CPAF	Raytheon Arlington, VA	0.000	0.000		0.234	Jan 2011	0.000		0.234	Continuing	Continuing	Continuing
Aegis BMD Testing TESTING - 20098184514481 MD09	TBD/TBD	MDA Various Arlington, VA	0.000	0.000		7.000	Apr 2011	0.000		7.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD09: <i>Aegis BMD</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		192.934		0.000		192.934			

Remarks
NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMDS Models & Simulations IMTP Modifications M&S Scorecard Update MD09	C/CPFF	Northrop Grumman CO	0.000	0.000		1.798		0.000		1.798	Continuing	Continuing	Continuing
BMDS Models & Simulations Establish Comprehensive Validation Plan MD09	C/CPFF	Northrop Grumman CO	0.000	0.000		3.867		0.000		3.867	Continuing	Continuing	Continuing
BMDS Models & Simulations Data Repository MD09	C/CPFF	Northrop Grumman CO	0.000	0.000		1.619		0.000		1.619	Continuing	Continuing	Continuing
BMDS Models & Simulations Assured Response MD09	C/CPFF	Northrop Grumman CO	0.000	0.000		1.910		0.000		1.910	Continuing	Continuing	Continuing
	TBD/TBD	LTPO	0.000	0.000		1.517		0.000		1.517	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency										DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>					R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>					PROJECT MD09: <i>Aegis BMD</i>				

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMDS Models & Simulations Lower Tier Program Office MD09		AL											
BMDS Models & Simulations SPAWAR - Pacific, Tactical Comm Emulation (TCES) MD09	TBD/TBD	AMRDEC CO	0.000	0.000		2.602		0.000		2.602	Continuing	Continuing	Continuing
BMDS Models & Simulations GTX (PATRIOT, SBIRS, JTACS, ARROW) MD09	TBD/TBD	AMRDEC CO	0.000	0.000		9.244		0.000		9.244	Continuing	Continuing	Continuing
BMDS Models & Simulations GTI MD09	TBD/TBD	AMRDEC CO	0.000	0.000		3.778		0.000		3.778	Continuing	Continuing	Continuing
BMDS Models & Simulations Performance Assessment Events Spt & Hosting MD09	C/CPAF	Northrop Grumman CO	0.000	0.000		5.152		0.000		5.152	Continuing	Continuing	Continuing
BMDS Models & Simulations DSAP Persistent Operation MD09	C/CPAF	Northrop Gruman CO	0.000	0.000		5.530		0.000		5.530	Continuing	Continuing	Continuing
BMDS Models & Simulations Performance Assessment VV&A MD09	C/CPAF	Northrop Grumman CO	0.000	0.000		3.876		0.000		3.876	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD09: <i>Aegis BMD</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMDS Models & Simulations FTM System-Level Post Flight Recon (SPFR) MD09	C/CPAF	Northrop Grumman CO	0.000	0.000		2.706		0.000		2.706	Continuing	Continuing	Continuing
BMDS Models & Simulations FTG Pre-Mission Design & SPFR MD09	C/CPAF	Northrop Grumman CO	0.000	0.000		3.780		0.000		3.780	Continuing	Continuing	Continuing
BMDS Models & Simulations FTX SPFR MD09	C/CPAF	Northrop Grumman CO	0.000	0.000		2.706		0.000		2.706	Continuing	Continuing	Continuing
BMDS Models & Simulations FTT SPFR MD09	C/CPAF	Northrop Grumman CO	0.000	0.000		2.706		0.000		2.706	Continuing	Continuing	Continuing
BMDS Models & Simulations FTG, FTM, FFT, FTX, SPFR to Elements MD09	C/CPAF	Northrop Grumman CO	0.000	0.000		5.191		0.000		5.191	Continuing	Continuing	Continuing
BMDS Models & Simulations PLET-C Engineering Test Design MD09	C/CPAF	Northrop Grumman CO	0.000	0.000		2.372		0.000		2.372	Continuing	Continuing	Continuing
BMDS Models & Simulations International M&S Support to DI MD09	C/FFP	Mantech CO	0.000	0.000		0.606		0.000		0.606	Continuing	Continuing	Continuing
	C/FFP	Mantech	0.000	0.000		0.447		0.000		0.447	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD09: <i>Aegis BMD</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMDS Models & Simulations International Agreement (US, GE Annex, US, UK lethality) MD09		CO											
BMDS Models & Simulations International Agreements BASIL MD09	C/FFP	Mantech CO	0.000	0.000		0.270		0.000		0.270	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		61.677		0.000		61.677			

Remarks

NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD09: <i>Aegis BMD</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	1,412.560	0.000	1,412.560			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD09: <i>Aegis BMD</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
BMD 3.6.1 Ship Installations									■	■	■	■	■	■	■	■	■	■	■	■								
BMD 4.0.1 Ship Installations									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
BMD 5.0 Ship Installations															■	■	■	■	■	■	■	■	■	■	■	■	■	■
BMD 4.0.1 Development									■	■																		
BMD 4.0.1 Certification										■																		
BMD 4.0.1 ENG REL Development									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
BMD 4.0.1 ENG REL System Design Review (SDR)										■																		
BMD 4.0.1 ENG REL Preliminary Design Review (PDR)														■														
BMD 4.0.1 ENG REL Critical Design Review (CDR)																			■									
BMD 4.0.1 ENG REL: Engineering Assessment (EA) #1																							■					
BMD 4.0.1 ENG REL: Engineering Assessment (EA) #2																											■	
BMD 5.0 Development									■	■	■	■	■	■	■	■	■	■	■	■	■							
BMD 5.0 Demo #1												■																
BMD 5.0 Demo #2																■												
BMD 5.0 Certification																							■					
BMD 5.1 System Readiness Review (SRR)									■																			
BMD 5.1 Development									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD09: <i>Aegis BMD</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
BMD 5.1 System Design Review (SDR)													■															
BMD 5.1 Preliminary Design Review (PDR)																	■											
BMD 5.1 Critical Design Review (CDR)																					■							
BMD 5.1 Demo																												■
SM-3 Blk IB Missile Deliveries									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SM-3 Blk IIA Preliminary Design Review (PDR)													■															
SM-3 Blk IIA Critical Design Review (CDR)																	■											
SM-3 Blk IB Hazard Assessment Testing									■	■																		
SM-3 Blk IB Manufacturing Readiness Review (MRR)									■																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD09: <i>Aegis BMD</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
BMD 3.6.1 Ship Installations	1	2011	4	2013
BMD 4.0.1 Ship Installations	1	2011	4	2015
BMD 5.0 Ship Installations	3	2012	4	2015
BMD 4.0.1 Development	1	2011	2	2011
BMD 4.0.1 Certification	2	2011	2	2011
BMD 4.0.1 ENG REL Development	1	2011	4	2015
BMD 4.0.1 ENG REL System Design Review (SDR)	2	2011	2	2011
BMD 4.0.1 ENG REL Preliminary Design Review (PDR)	2	2012	2	2012
BMD 4.0.1 ENG REL Critical Design Review (CDR)	2	2013	2	2013
BMD 4.0.1 ENG REL: Engineering Assessment (EA) #1	4	2014	4	2014
BMD 4.0.1 ENG REL: Engineering Assessment (EA) #2	2	2015	2	2015
BMD 5.0 Development	1	2011	1	2014
BMD 5.0 Demo #1	4	2011	4	2011
BMD 5.0 Demo #2	1	2013	1	2013
BMD 5.0 Certification	1	2014	1	2014
BMD 5.1 System Readiness Review (SRR)	1	2011	1	2011
BMD 5.1 Development	1	2011	4	2015
BMD 5.1 System Design Review (SDR)	1	2012	1	2012

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD09: <i>Aegis BMD</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
BMD 5.1 Preliminary Design Review (PDR)	1	2013	1	2013
BMD 5.1 Critical Design Review (CDR)	1	2014	1	2014
BMD 5.1 Demo	4	2015	4	2015
SM-3 Blk IB Missile Deliveries	1	2011	4	2015
SM-3 Blk IIA Preliminary Design Review (PDR)	1	2012	1	2012
SM-3 Blk IIA Critical Design Review (CDR)	1	2013	1	2013
SM-3 Blk IB Hazard Assessment Testing	1	2011	2	2011
SM-3 Blk IB Manufacturing Readiness Review (MRR)	1	2011	1	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
ZX40: <i>Program-Wide Support</i>	37.995	51.625	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	89.620
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> See Section A: Mission Description and Budget Item Justification ; <i>FY 2010 Plans:</i> NA	37.995	51.625	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> NA					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	37.995	51.625	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>MD40: Program-Wide Support</i>	0.000	0.000	54.718	0.000	54.718	49.913	49.301	46.719	37.323	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> NA <i>FY 2010 Plans:</i> NA	0.000	0.000	54.718	0.000	54.718

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> NA					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	54.718	0.000	54.718

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603892C: <i>BMD AEGIS</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	Continuing	Continuing
<i>WX12: Space Tracking and Surveillance System (STSS) Capability Development</i>	203.343	161.609	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	364.952
<i>MD12: Space Tracking and Surveillance System (STSS)</i>	0.000	0.000	108.842	0.000	108.842	94.738	54.331	50.990	33.070	Continuing	Continuing
<i>ZX40: Program-Wide Support</i>	6.488	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	6.488
<i>MD40: Program-Wide Support</i>	0.000	0.000	3.836	0.000	3.836	3.762	2.093	1.938	1.591	Continuing	Continuing

Note

In accordance with the Missile Defense Agency revised budget structure, funding for the MDA Space Architecture in FY 2009 will remain in PE 0603893C in Project WX12. For FY 2011, funding for the Precision Tracking Space System, previously known as MDA Space Architecture/STSS Follow-on Constellation, will reside in Program Element 0604883C in Project MD10.

The Near Field Infrared Experiment (NFIRE) program funding will be captured in this Program Element, Project WX12, for FY 2010 only. Funding for NFIRE will discontinue in FY 2011.

The FY 2011 program is balanced, reflecting the four focus areas of the current Missile Defense Program: to develop, rigorously test, and field an integrated BMDS architecture to counter existing regional threats, continue a viable Homeland Defense against rogue threats beyond 2030; demonstrate our proven technologies show Missile Defense works; and develop technologies to Hedge against future missile threat growth.

The best way 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 (C2BMC). 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 BMD capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide both the best sensor information on the enemy missile's location and track as well as a more diverse and effective set of weapon options for the Combatant Commander to defeat the attack -- all connected by a unifying C2BMC system. As a result, an effort funded in a Program Element may be

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	
<p>critical to success of efforts in other Program Elements -- we refer to these connections as ``interdependencies.`` Throughout the budget justification material, we have attempted to highlight interdependencies in order to fully explain the relationship between different parts of the proposed program.</p> <p>A. Mission Description and Budget Item Justification</p> <p>The Space Tracking and Surveillance System (STSS) launched two demonstration satellites on 25 September 2009 and has completed 50% of its system functionality testing. Upon completion of the system functionality tests, the satellites will begin system performance testing. Improved quality of service (i.e., track data of sufficient accuracy and low enough latency to enable weapons to complete ballistic missile engagements) is provided by STSS within the context of this Program Element. Funds are provided for STSS on-orbit operations which includes contractor operation of the STSS Demonstration Satellites and software upgrades (through FY 2010); Government costs; Element and BMDS Testing; Data Collection and Analysis activities. Near Field Infrared Experiment (NFIRE) tests and experiments are funded through FY 2010. Funding will also be provided for engineering efforts associated with Common Threat activities.</p> <p>STSS</p> <p>The STSS program will emphasize continued research and development to address the more sophisticated threats we expect to encounter in the far term. The greatest hedge against missile defense threats of all ranges remains a highly available early missile tracking capability from space. Space sensors provide the most cost effective and operationally suitable means of providing global persistent surveillance and engagement, directly addressing the number one missile defense priority need for STRATCOM and other Combatant Commanders. The STSS Demonstration Satellites will 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. Data from STSS testing planned for FY 2010 and FY 2011 will validate the ability to track cold, midcourse objects and close the fire control loop with BMDS interceptors from space. Additionally, STSS provides a new infrared sensor phenomenology for the BMDS, which, when combined with radars, provides robustness against current and advanced countermeasures.</p> <p>MDA has developed and is testing the STSS Demonstration Satellites to demonstrate key functions of space sensors. Lessons learned from the Demonstration Satellites efforts will provide key data as MDA pursues longer term space sensor needs.</p> <p>Space sensors extend BMDS sensor coverage to a global level. STSS will demonstrate the capability of satellites to track ballistic missiles and the ability to provide accurate tracking information to the BMDS battle manager to close the global fire control loop with BMDS interceptors, thus extending the effective range of BMDS interceptors and other sensors.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>
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Space-based sensors are not limited by basing rights issues or deployment decisions, and will allow cost effective coverage of countries and large areas not accessible from ground based sensors. Approximately fifty Army Navy/Transportable Radar Surveillance - Model 2 (TPY-2) radars or approximately twenty sea-based X-Band radars are required to provide the equivalent mid-latitude coverage of a spaced-based constellation.

Space based visible and Infrared (IR) sensors will complement radars and contribute to a sensor architecture more robust to countermeasures.

Space-based sensors will enable near continuous threat observation and tracking from launch to intercept, covering threats by augmenting the coverage of the BMDS radars, and providing state vectors to Command and Control, Battle Management and Communications (C2BMC) to enable interceptor fire control via multiple BMDS assets (Aegis, Ground-based Midcourse Defense (GMD), Terminal High Altitude Area Defense (THAAD))

MDA Element testing is based on an integrated, comprehensive, and phased test program. Element systems, subsystems, and components are tested early in development and are necessary prior to conducting BMD-System level testing. Space Tracking and Surveillance System (STSS) Element Level testing is funded as part of a capabilities development program and reflected in this Program Element (PE) submission. BMD Test and Targets Element within PE 0603888C in the consolidated MDA-wide System Test Program will execute funds in support of this PE for the planning, design, execution, and management of STSS Demonstration Satellites in the BMD System testing in accordance with the BMDS Test Policy, MDA Directive 3202.03 (Jan 09). This applies to all Flight, Integrated Ground, and Distributed Ground Tests and Post-test analysis and reconstructions listed in the Integrated Master Test Plan (IMTP).

Goals for the Space Tracking and Surveillance System (STSS) Demonstration Satellites include:

- Demonstrate capability of space sensors in the utilization of STSS as a mandatory asset for all future MDA flight tests
- Demonstrate capability to acquire, track and report ballistic missile and intercept events from lift-off through midcourse to reentry
- Demonstrate capability to perform autonomous acquisition-to-track handover within a satellite
- Demonstrate capability to perform track handover to a satellite from Overhead Persistent Infrared (OPIR) or other sources
- Demonstrate capability to uplink commands and downlink mission, health, and status data directly and via cross link satellite-to-satellite
- Develop upgrades to enable demonstration of tracking advanced threats, closing the fire control loop with Aegis, and rapid distribution of real-time STSS data to multiple users
- Demonstrate closing the global fire control loop with BMDS weapons and integrated testing

Near Field Infrared Experiment

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>

The Near Field Infrared Experiment (NFIRE) technology project was designed to collect near field phenomenology data for use in plume to hard body handover algorithms for boost phase interceptor programs. MDA is using this data to validate the models and simulations that are fundamental to developing the guidance and endgame homing algorithms for boost phase interceptors. A secondary objective of the experiment has been to collect hyper-temporal short wave infrared and visible data for assessing early launch detection and tracking capability. The experiment included three plume signature mission types: targets of opportunity, dedicated fly-bys, and ground observations. The dedicated fly-by experiments have been accomplished. The Near Field Infrared Experiment (NFIRE) satellite also 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. The NFIRE satellite is operated from the Missile Defense Space Experimentation Center (MDSEC) by the Ballistic Missile Defense Space System. Data products are utilized by multiple programs to improve missile engagement performance.

Goals for Near Field Infrared Experiment:

- Conduct multiple data collection missions from the MDSEC against ground, air, space and ballistic missile targets of opportunity
- Conduct low earth orbit satellite-to-satellite and satellite-to-ground laser communication experiments
- Provide data to validate models and simulations that are fundamental to developing the navigation, guidance and control, and endgame homing algorithms, as well as laser communication proof of concept

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	208.923	180.000	0.000	0.000	0.000
Current President's Budget	209.831	161.609	112.678	0.000	112.678
Total Adjustments	0.908	-18.391	112.678	0.000	112.678
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		-18.391			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	4.002	0.000			
• SBIR/STTR Transfer	-3.094	0.000			
• Other Adjustment Detail	0.000	0.000	112.678	0.000	112.678

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY
0400: *Research, Development, Test & Evaluation, Defense-Wide*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE
PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*

Change Summary Explanation

FY 2009 increase of \$.908 million reflects MDA programmatic changes to support program requirements and SBIR/STTR transfer.

FY 2010 decrease of \$18.391 million reflects Congressional directed and undistributed reductions.

No FY 2011 data provided in PB10.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>WX12: Space Tracking and Surveillance System (STSS) Capability Development</i>	203.343	161.609	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	364.952
Quantity of RDT&E Articles	2	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, funding for the Space Tracking and Surveillance System (STSS) for FY 2011 is now captured in this Program Element under Project MD12.

The Near Field Infrared Experiment (NFIRE) Program funding will be captured in this Program Element, Project WX12, for FY 2010 only. Funding for NFIRE will discontinue in FY 2011.

A. Mission Description and Budget Item Justification

The Space Tracking and Surveillance System (STSS) project is segmented into three primary pieces: the STSS Demonstration Satellites, which includes Software updates; Government costs; and MDA Space Architecture activity. Funding will also be provided for engineering efforts associated with Common Threat activities.

The Space Tracking and Surveillance System (STSS) Demonstration Satellites will demonstrate key functions of missile tracking with space sensors. The knowledge gained from these efforts will contribute to future MDA space sensor constellation development. The STSS Demonstration Satellites provide key knowledge on which to base the design of a future constellation. The STSS Demonstration Satellites were launched 25 September 2009 with visible and infrared sensors into low earth orbit for testing with other BMDS elements. These two satellites will provide valuable risk reduction for acquisition, tracking, and discrimination functionality to include stereo data fusion, cueing radars over the horizon and over-the-horizon fire control. The program will demonstrate 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. STSS will participate with other BMDS Flight Tests and take advantage of Targets of Opportunity (TOOs). MDA provided funds to the National Aeronautics and Space Administration (NASA) for launch services for the two Demonstration Satellites using a single Delta II launch vehicle.

The two Demonstration satellites are being operated 24 hours a day, 7 days a week, 365 days a year from the ground station processing center at the Missile Defense Space Experimentation Center (MDSEC) with a government and contractor team. There is a backup satellite operations site at the Northrop Grumman Aerospace Systems facility in Redondo Beach, California. The first three months of on-orbit activities were dedicated to checking functionality of all subsystems to ensure the

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
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<p>satellite is working and operating successfully in their orbital environment. Laser calibration tests will be conducted to verify the satellites payloads are pointing precisely for tracking missiles. These initial checkouts precede a series of robust performance tests which consists of aircraft tracking tests and satellite tracking tests (both simulating missiles). Once performance is verified to ensure successful missile target tracking, cooperative and dedicated missile testing begins.</p> <p>As the Space Tracking and Surveillance System (STSS) Demonstration Satellites are operated and tested, they will collect data within the satellites` field of view. Data collection commences upon completion and success of initial check-out activities, which occur in 2nd Qtr FY 2010. STSS will strive to meet reasonable expectations to view all available Targets of Opportunity (TOOs) to include participation with other BMDS target and flight tests that will provide an adequate demonstration of the MDA Space Layer capabilities and allow collection of future system risk reduction information.</p> <p>MDA will initiate planning of integrated BMDS intercept tests based on track data passed from the STSS Demonstration Satellites through Command and Control, Battle Management and Communications (C2BMC) to Aegis, Ground-based Midcourse Defense (GMD), or other interceptors.</p> <p>Software upgrades will provide improvements to the STSS` utility to the BMDS. Lessons learned from design and development and operation of the Demonstration Satellites will guide the upgrade work. Software upgrades are funded through FY 2010 by this Program Element.</p> <p>STSS Demonstration Satellites and Software Upgrades will provide data to the BMD Digital Simulations Architecture (DSA) which is the primary Modeling and Simulation (M&S) System framework used to integrate Element baselines prior to flight or ground testing, facilitate technical trade-offs, concept analysis and trade studies, as well as providing support to Wargames and exercises within the BMDS Program. The DSA-performance architecture and Element and component high fidelity models support performance assessment (PA) and technical assessment (TA) events, which provide critical system level performance data relative to all Elements, system engineers, M&S developers, the Operational Test Agency (OTA) and Warfighters. The DSA-virtual architecture supports Element baseline integration, training, portions of ground testing and exercises.</p> <p>STSS Demonstration Satellites and Software Upgrades will support the BMDS Hardware-in-the-Loop (HWIL) Modeling and Simulation (M&S) through data collection efforts, allowing for enhanced modeling within the BMDS system-level HWIL single stimulation framework to support full-envelope BMDS ground test, flight test, and training events based upon Agency and Warfighter needs.</p> <p>The Space Tracking and Surveillance System (STSS) Demo Analysis Center (SDAC) will enable independent government analysis of STSS Demonstration Satellites data. The Center infrastructure will include network communications, encryption/decryption devices, and software tools for mission planning and simulation, and data management tools. This infrastructure enables test engineering and analysis support for STSS Demo validation and verification, BMDS testing, and collection of scientific data for refinement of BMDS-relevant models.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>
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In conjunction with lessons learned from the Space Tracking and Surveillance System (STSS) Demonstration program and the Near Field Infrared Experiment (NFIRE) program, MDA Space Architecture modeling and simulation activities will assess the capability of a low earth orbit constellation to complement sensor coverage and missile detection and tracking capabilities provided by Advanced Overhead Persistent Infrared (OPIR) sensors.

Threat Systems Engineering supports the planning, design and specification, integration and implementation, and test verification and assessment phases of the systems engineering process. The Threat Systems Engineering uses intelligence community data to define the BMDS threat space and directly supports the development of the BMD System Description Document and System and Element Specifications. This threat space is documented in the Adversary Data Packages (ADP), which includes common and consistent representation of Missile Systems and countermeasures to drive BMDS requirements, designs, and directly supports the execution of Integrated Master Test Plan (IMTP) (i.e. flight test targets, ground tests and digital simulations, and pre-mission analysis). Threat Systems Engineering also develops scenarios (trajectory and signature) for system and element utilization for compliance and assessment evaluations of BMDS capability to defend homeland, deployed forces, and friends and allies.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Demonstration Satellites See Description Below <i>FY 2009 Accomplishments:</i> Integrated the two satellites with the National Aeronautics and Space Administration (NASA) booster and Orbital Insertion Stage (OIS) Launched two STSS Demonstration Satellites into Low Earth Orbit (LEO) on 25 September 2009 Conducted post launch analysis Conducted initial on-orbit check out from the Missile Defense Space Experimentation Center (MDSEC) Conducted mission planning and mission assurance, coordinated range activities, continued target build for: BMDS Flight Test for Space Tracking and Surveillance System (STSS) Sensor Characterization Participated in development of MDA BMDS Integrated Master Test Plan (IMTP)	187.375	118.687	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Supported development of STSS-related Critical Engagement Conditions (CECs) and ensured their traceability to the Integrated Master Test Plan (IMTP). ; CECs are the conditions where data is obtained from flight and ground tests in order to anchor models and simulations. ;</p> <p>Nine (9) CECs developed--0% completed</p> <p>Collection of test data from CECs used in updating and verification, validation, and accreditation of modeling and simulation representations for assessing system performance</p> <p>Collection of test data will begin with system performance testing of the STSS Demonstration Satellites in FY 2010</p> <p>Continued set up of STSS Demo Analysis Center for independent government validation and verification activities of STSS Demonstration Satellites data</p> <p>The Space Knowledge Center identified risks, proposed mitigation strategies, and shared knowledge across program to gain efficiencies across MDA programs</p> <p><i>FY 2010 Plans:</i></p> <p>Conduct tests from the Missile Defense Space Experimentation Center (MDSEC) with resident space objects, ground based and airborne targets</p> <p>FY 2010 testing of the STSS Demonstration Satellites will begin the execution of the STSS data collection for nine (9) CECs</p> <p>No CECs (0%) will be completed in FY 2010 as additional data collections are required to be statistically significant</p> <p>Additional data collection in FY 2011 will be required to complete the CECs</p> <p>Collection of test data from CECs used in updating and verification, validation, and accreditation of modeling and simulation representations for assessing system performance</p> <p>Conduct cooperative tests with other BMDS elements to include planning, execution and analyses; perform data collection on other targets of opportunity</p> <p>Conduct hardware/software refresh for the Ground Station to prevent obsolescence</p> <p>Continue software upgrade activity as required</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Initiate planning for integrated BMDS intercept tests based on track data passed from the Space Tracking and Surveillance System (STSS) Demonstration Satellites through Command and Control, Battle Management and Communications (C2BMC) to Aegis, Ground-based Midcourse Defense (GMD), or other interceptors</p> <p><i>FY 2011 Base Plans:</i> FY 2011 Planned Program: Referenced in Project MD12</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>MDA Space Architecture See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Conducted modeling and simulation for BMDS space layer Completed BMDS utility assessment of STSS Developed capability needs document for future BMDS space architecture</p> <p><i>FY 2010 Plans:</i> N/A</p> <p><i>FY 2011 Base Plans:</i> MDA Space Architecture becomes Precision Tracking Space System (PTSS) in FY 2011 and Planned Program is referenced in Project MD10, Program Element 0604883C</p> <p><i>FY 2011 OCO Plans:</i> NA</p>		15.968	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Common Threat See Description Below <i>FY 2009 Accomplishments:</i> N/A <i>FY 2010 Plans:</i> Maintain and update the agency-wide Common and consistent BMDS threat Continue to update adversary missile capabilities and characterizations consistent with projected threat environment for BMDS Builds Produce all the threat definition and scenario data required to support the BMDS Integrated Master Test Plan, including several Flight Tests Ground Test, BMDS Performance Assessment 2009 (PA-09), Technical Assessment 2010 (TA-10), and FY 2010 war games and exercises Produce scenario data to support Element and Component analysis of alternatives, requirements development, design and assessment for BMDS Integrated Build D updates and all phases of the European Phased Adaptive Approach (PAA) including: Terminal High Altitude Area Defense (THAAD), Precision Tracking Space System (PTSS), Air-Borne Infra-Red (ABIR), Aegis BMD Ashore, Aegis BMD 5.1, Far Term Sea-based Terminal, Early Intercept, Army Navy/Transportable Radar Surveillance - Model 2 (AN/TPY-2), Command and Control, Battle Management and Communications (C2BMC), and Space Tracking and Surveillance System (STSS) Develop threat data for special projects Validate BMDS test targets are threat representative <i>FY 2011 Base Plans:</i> N/A <i>FY 2011 OCO Plans:</i> NA		0.000	1.185	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Near Field Infrared Experiment (NFIRE) See Description Below <i>FY 2009 Accomplishments:</i> Reference Program Element 0603895C, ;Project ;WX16 for FY 2009 Accomplishments <i>FY 2010 Plans:</i> NOTE: The Near Field Infrared Experiment (NFIRE) Program funding will be captured in this Program Element for FY 2010. There is no funding for NFIRE beyond FY 2010. Continue On-Orbit Operations at the Missile Defense Space Experimentation Center (MDSEC) ;to support data collection and analysis on targets of opportunity Conduct cooperative tests with other BMDS elements to include planning, execution and analyses; perform data collection on other targets of opportunity Continue laser communication experiments to assess viability of the technology Continue to support, as requested by Air Force Space Command (AFSPC) and other agencies, Space Situational Awareness Assess satellite health/utility for potential, future utilization <i>FY 2011 Base Plans:</i> N/A <i>FY 2011 OCO Plans:</i> NA		0.000	11.352	0.000	0.000	0.000
Element/BMDS Integration and Test See Description Below		0.000	30.385	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> Test planning occurred in the Space Tracking and Surveillance System (STSS) Demonstration Satellites task during FY 2009 in which STSS personnel participated in development of MDA BMDS Integrated Master Test Plan (IMTP)</p> <p><i>FY 2010 Plans:</i> Conduct acquisition/calibration of Demonstration Satellites with ground laser source Perform planning and execution of Missile Surrogate Testing (Aircraft and Resident Space Objects) Perform planning and execution of Space Tracking and Surveillance System (STSS) participation in BMDS flight tests Plan and participate in available Targets of Opportunity (TOOs) Plan and coordinate range activities to support the MDA Integrated Master Test Plan (IMTP) Conduct participation of High Altitude Observatory (HALO) II to collect ``truth`` data that will verify satellites` sensor performance Complete setup of STSS Demo Analysis Center for engagement in independent government validation and verification activities of STSS Demonstration Satellites data, participation in BMDS testing, and collection of scientific data for refinement of BMDS-relevant models.</p> <p><i>FY 2011 Base Plans:</i> FY 2011 Planned Program: Referenced in MD12</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
Accomplishments/Planned Programs Subtotals		203.343	161.609	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The Space Tracking and Surveillance System (STSS) program follows the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, incremental development, and evolutionary acquisition. The STSS Demonstration Satellites 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. The contract for the STSS Demonstration Satellites effort was awarded in third quarter FY 2002. This contract implements MDA's capability-based acquisition strategy by a) using largely existing satellite hardware as a low risk opportunity, b) building upon the lessons learned from previous development efforts and c) establishing a series of planned enhancements to bring added capability to the BMDS.

The Space Tracking and Surveillance System (STSS) Software Upgrades effort utilizes the STSS Demonstration Satellites prime contractor, Northrop Grumman Aerospace Systems (NGAS), with subcontractors playing key roles as needed. The contract for the STSS Demonstration Satellites activity was awarded in third quarter FY 2002.

Competition will be used for future procurement and services as appropriate.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. Advisory and Assistance Services (A&AS) support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Demonstration Satellites Capability Based R&D WX12	SS/CPAF	NGAS CA	296.145	90.355	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Demonstration Satellites Launch Vehicle Integration WX12	TBD/TBD	NASA FL	17.386	0.000		0.000		0.000		0.000	0	17.386	17.386
Demonstration Satellites Element Integration WX12	TBD/TBD	SDTW, NAVAIR Kirtland AFB NM, Pt Mugu CA	6.655	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Demonstration Satellites Advanced Algorithm Development WX12	TBD/TBD	MIT/LL, Lockheed Martin, Zantech, Sparta, CSC Hanscom AFB MA, LAAFB CA	1.150	0.000		0.000		0.000		0.000	0	1.150	1.150
Demonstration Satellites Risk Reduction Analysis WX12	TBD/TBD	AFRL NM	2.629	0.000		0.000		0.000		0.000	0	2.629	2.629
Demonstration Satellites Systems Engineering WX12	TBD/TBD	Aerospace Los Angeles AFB CA, Schriever AFB CO	29.650	10.511	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Demonstration Satellites Knowledge Center WX12	Various/ Various	Various Various	2.607	0.000		0.000		0.000		0.000	0	2.607	2.607
MDA Space Architecture System Engineering WX12	Various/ Various	Various Various	1.600	0.000		0.000		0.000		0.000	0	1.600	1.600

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MDA Space Architecture Modeling and Simulation-1 WX12	TBD/TBD	Sandia National Laboratory Albuquerque, NM	6.160	0.000		0.000		0.000		0.000	0	6.160	6.160
MDA Space Architecture Modeling and Simulation-2 WX12	TBD/TBD	Aerospace Los Angeles AFB, CA	5.300	0.000		0.000		0.000		0.000	0	5.300	5.300
MDA Space Architecture Risk Reduction Analysis WX12	C/FFP	Sparta Centreville, VA	2.800	0.000		0.000		0.000		0.000	0	2.800	2.800
MDA Space Architecture Modeling and Simulation-3 WX12	TBD/TBD	SAF/FMB Washington DC	1.708	0.000		0.000		0.000		0.000	0	1.708	1.708
Common Threat Common Threat WX12	Various/ Various	Various Various	0.000	1.185	Apr 2010	0.000		0.000		0.000	0	1.185	1.185
Near Field Infrared Experiment (NFIRE) Prime Contract WX12	SS/CPAF	General Dynamics AZ	0.000	4.278	Jan 2010	0.000		0.000		0.000	0	4.278	4.278
Near Field Infrared Experiment (NFIRE) Mission Planning/Data Reduction WX12	TBD/TBD	MIT/LL MA	0.000	2.830	Jul 2010	0.000		0.000		0.000	0	2.830	2.830
Near Field Infrared Experiment (NFIRE) Satellite Operations WX12	SS/CPFF	MDSEC CO	0.000	4.244	Jan 2010	0.000		0.000		0.000	0	4.244	4.244
Subtotal			373.790	113.403		0.000		0.000		0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks

In FY 2009, funding for Capability Based R&D efforts was placed on contract for Northrop Grumman Aerospace Systems (NGAS) to complete the development of the Demonstration Satellites, perform the Space Vehicle-to-Launch Vehicle integration, launch the two demonstration vehicles, conduct mission planning, initial satellite check-out and begin operations and testing of the Demonstration Satellites. In FY 2010, funding is provided to NGAS to continue mission planning for missile flight tests, conduct testing and evaluation for Targets of Opportunity. Funding in FY 2009 was provided for Software Drop 0 and upload to the Demonstration Satellites in FY 2010. In FY 2010 funds will be provided to continue Software Upgrades for External Data Review, Improving Onboard Tracker, Optimizing Track Revisit, and improving control of Front End Processors. Additionally, funding is provided in FY 2010 to cover costs for replacing mission operations hardware and software.

In FY 2009, funded Launch Vehicle Integration for Delta II and launch services provided by the National Aeronautics and Space Administration (NASA) and the costs for transporting the satellites to the launch site for integration onto the launch vehicle.

Element Integration efforts are divided into several areas for FY 2009 (Funding in FY 2010 captured under Element/BMDS Integration and Test):

Funding goes to the Navy at Pt Mugu, CA for the planning and calibration testing using after-burning aircraft or other sources for the Demonstration Satellites. Aircraft are used to generate targets for the Acquisition sensor and Track sensor with Below The Horizon (BTH) backgrounds.

The Space Tracking and Surveillance System (STSS) Demonstration Satellites require assets for missile tests to be conducted jointly by the Air Force Satellite Control Network (AFSCN) and the Space and Missile Systems Center (SMC) Test Wing. These assets are critical in supporting STSS launches and the subsequent operations and testing of the Demo Satellites.

The High Altitude Observatory-II assets are funded to capture data in all phases of the targets' flights with infrared sensors. The data is used to anchor results for which the performance of the Demonstration Satellites' sensor can be assessed.

Funding covers cost associated with the continued set up of STSS Demo Analysis Center (SDAC), including: facility modification & accreditation, installation of network communication and encryption devices, installation of software tools for mission planning and simulation, creation of database and data management tools, and development of Overhead Persistent Infrared (OPIR) data analysis tools. This infrastructure enables test engineering and analysis support for STSS Demo validation and verification, BMDS testing, and collection of scientific data for refinement of BMDS-relevant models.

Advanced Algorithm Development was accomplished by a team of multiple contractors and government organizations to include, but not limited to: the Massachusetts Institute of Technology/Lincoln Laboratory (MIT/LL), Defense Microelectronics Activity, Northrop Grumman Space Technology, Lockheed Martin, Photon Research Association, SPARTA, and Computer Science Corporation/Nichols Research Corporation (CSC/Nichols).

BMD Systems Engineering provides System Description Documents and System Specifications for elements to design, build, integrate and test BMDS components. These products optimize performance at the system level and further ensure that the assessment of the designed BMD System is based on sufficient ground and flight testing. Compliance of STSS

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
<p>to BMD System level requirements is monitored in a series of requirements and design reviews both at the system and element levels. Systems Engineering support is provided by Aerospace directly to the Demonstration Satellites effort.</p> <p>Common threat engineering produces common and consistent adversary missile trajectory and signature data and directly supports the development of BMD System architecture, BMD System Specification, and the execution of Integrated Master Test Plan (IMTP). These BMDS common threat data are updated to reflect the latest intelligence community assessments of adversary capabilities and are contained in the Adversary Data Packages (ADP) for BMDS Integrated Builds and drives BMDS ground tests, flight tests, digital simulations, and pre- and post-mission analysis activities.</p> <p>Near Field Infrared Experiment (NFIRE) funding will be forwarded to several contractors and government organizations to include, but not limited to General Dynamics, Air Force Research Laboratory (AFRL) and the Missile Defense Space Experimentation Center (MDSEC). For FY 2010, the Space Tracking and Surveillance System (STSS) Program Element (PE) 0603893C will provide funding for the NFIRE program, in Project WX12 as there is no funding programmed in PE 063895C.</p>													

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Demonstration Satellites Program Mission Support WX12	Various/ Various	SMC CA	11.449	8.550	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Demonstration Satellites Other Government Agency (OGA) Civilian WX12	Various/ Various	SMC CA	5.138	3.424	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Demonstration Satellites MDA Civilian WX12	Various/ Various	MDA AL	1.120	2.470	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Demonstration Satellites Other Government Agency (OGA) Contract Support Services (CSS) WX12	Various/ Various	SMC, MDA CA, AL	6.453	3.377	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			24.160	17.821		0.000		0.000		0.000			

Remarks

Demonstration Satellites Support Costs include the following:

- MDA Civilian Salaries - Program office is providing funds for this expenditure to the responsible functional manager
 - Other Government Agency (OGA) Civilian personnel - Reimbursement of Air Force Personnel costs that directly support the Space Tracking and Surveillance System (STSS) program, for the Demonstration Satellites and Software Upgrades
 - Contract Support Services (CSS) Costs - Program office is providing funds for this expenditure to the responsible functional managers for administrative support, Comprehensive Cost and Requirement System (CCARs) administrative support, logistics and financial management/cost estimating support
 - AF tenant related costs - Base network support and Los Angeles Air Force Base shared costs for: Telephone Operations and maintenance, Multimedia Equipment Maintenance and Art services, local online Unit Manning Document application, base-wide maintenance, Microsoft Enterprise Licensing
 - Other program costs - the Program office is responsible for funding personnel travel, training, hardware and software purchases and maintenance and supplies
- Starting FY 2010, CSS effort will begin to transition to an enterprise-wide Advisory and Assistance Services (A&AS) contract. This approach is being pursued to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Element/BMDS Integration and Test Space Tracking and Surveillance System (STSS) Demo Sensor Calibration with Aircraft WX12	TBD/TBD	NAVAIR Pt Mugu CA	0.000	2.826	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Element/BMDS Integration and Test Ground Support for Acquisition Line-of-Sight Calibration WX12	TBD/TBD	AFRL Kirtland AFB NM	0.000	1.238	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Element/BMDS Integration and Test STSS Demo Analysis Center (SDAC) - Government Verification & Validation (V&V) WX12	Various/ Various	Various Various	0.000	1.336	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Element/BMDS Integration and Test Truth Sensors (High Altitude Observatory (HALO) II) WX12	TBD/TBD	MDA AL	0.000	0.365	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Element/BMDS Integration and Test BMDS Integration-Test Engineering and Resources WX12	TBD/TBD	Various Various	0.000	3.708	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Element/BMDS Integration and Test Infrared (IR) Star Calibration WX12	TBD/TBD	Mt Lemmon Tucson, AZ	0.000	0.050	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Element/BMDS Integration and Test STSS Capability Based R&D-Test Support WX12	SS/CPAF	NGAS Redondo Beach, CA	0.000	13.250	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Element/BMDS Integration and Test Systems Engineering WX12	TBD/TBD	Aerospace Los Angeles AFB CA	0.000	7.612	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			0.000	30.385		0.000		0.000		0.000			

Remarks

Element/BMDS Integration and Test efforts are divided into several areas for FY 2010 (FY 2009 costs included in Element Integration under Demonstration Satellites above):

Funding goes to the Navy at Pt Mugu, CA for the planning and calibration testing using after-burning aircraft or other sources for the Demonstration Satellites. Aircraft are used to generate targets for the Acquisition sensor and Track sensor with Below The Horizon (BTH) backgrounds.

Funding for Ground Support for Acquisition Line-of-Sight (LOS) Calibration goes to the Air Force Research Laboratory (AFRL) to provide laser ground source to perform line-of-sight calibration of acquisition sensors on board the two Space Tracking and Surveillance System (STSS) Demonstration Satellites.

Funding covers cost associated with the continued set up of Space Tracking and Surveillance System (STSS) Demo Analysis Center, including: facility modification & accreditation, installation of network communication and encryption devices, installation of software tools for mission planning and simulation, creation of database and data management tools, and development of Overhead Persistent Infrared (OPIR) data analysis tools. This infrastructure enables test engineering and analysis support for STSS Demo validation and verification, BMDS testing, and collection of scientific data for refinement of BMDS-relevant models.

The High Altitude Observatory-II assets are funded to capture data in all phases of the targets' flights with infrared sensors. The data is used to anchor results for which the performance of the Demonstration Satellites' sensor can be assessed.

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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMDs Integration-Test Engineering and Resources funding covers test engineering to conduct pre-mission planning, execution, and post-mission analyses for testing associated with STSS participation in BMDs flight tests. The STSS Capability Based R&D-Test Support funding covers costs associated with the STSS Prime Contractor providing planning, execution, analyses, and reporting support for program office directed STSS-related testing activities. Funding for Systems Engineering is allocated to Aerospace to provide independent test engineering to: assist in requirements definition, mission planning and tasking capability for BMDs missile flight tests and targets of opportunity; prepare test plans and engagement scripts; analyze mission results and prepare detailed reports; aid in issue resolution; support interface with design engineers to understand and develop operating and test procedures; and support interface with other agencies.													

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Demonstration Satellites Aerospace WX12	TBD/TBD	Aerospace CA	19.650	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Demonstration Satellites Space Dynamics Laboratory (SDL) WX12	TBD/TBD	SDL UT	0.449	0.000		0.000		0.000		0.000	0	0.449	0.449
Subtotal			20.099	0.000		0.000		0.000		0.000			

Remarks

For FY 2010, all Aerospace costs are appropriately aligned under the Product Development Cost Category as these are system engineering efforts for the Demonstration Satellites. BMD Systems Engineering provides System Description Documents and System Specifications for elements to design, build, integrate and test BMDs components. These products optimize performance at the system level and further ensure that the assessment of the designed BMD System is based on sufficient ground and flight testing. Compliance of the Space Tracking and Surveillance System (STSS) to BMD System level requirements is monitored in a series of requirements and design reviews both at the system and element levels. Systems Engineering support is provided by Aerospace directly to the Demonstration Satellites effort.

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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Space Dynamics Laboratory (SDL) is funded via University Affiliated Research Center (UARC) contract.													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			418.049	161.609		0.000		0.000		0.000			

Remarks

NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Space Tracking and Surveillance System (STSS) - Satellite Integration and Test	■																											
STSS - Launch Integration and Test			■	■																								
STSS - Launch (2 Demonstration Satellites)				■																								
STSS - Operational and Test Readiness				■	■	■																						
STSS - Missile Surrogate (Aircraft) Tests					■	■																						
STSS Demonstration Satellites On-Orbit Operations				■	■	■	■	■																				
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-2Q2010						■																						
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-3Q2010							■																					
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-4Q2010									■																			
Near Field Infrared Experiment (NFIRE) On-Orbit Operations					■	■	■	■																				
NFIRE -Targets of Opportunity-1Q2010					■																							
NFIRE -Targets of Opportunity-2Q2010						■																						
NFIRE -Targets of Opportunity-3Q2010							■																					
Near Field Infrared Experiment (NFIRE) - Targets of Opportunity-4Q2010									■																			
						■																						

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
NFIRE Laser Comm Terminal (LCT) Experiments/Operations-2Q2010																												
NFIRE LCT Experiments/Operations-3Q2010							█																					
NFIRE LCT Experiments/Operations-4Q2010								█																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT WX12: <i>Space Tracking and Surveillance System (STSS) Capability Development</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Space Tracking and Surveillance System (STSS) - Satellite Integration and Test	1	2009	1	2009
STSS - Launch Integration and Test	3	2009	4	2009
STSS - Launch (2 Demonstration Satellites)	4	2009	4	2009
STSS - Operational and Test Readiness	4	2009	2	2010
STSS - Missile Surrogate (Aircraft) Tests	2	2010	3	2010
STSS Demonstration Satellites On-Orbit Operations	4	2009	4	2010
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-2Q2010	2	2010	2	2010
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-3Q2010	3	2010	3	2010
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-4Q2010	4	2010	4	2010
Near Field Infrared Experiment (NFIRE) On-Orbit Operations	1	2010	4	2010
NFIRE -Targets of Opportunity-1Q2010	1	2010	1	2010
NFIRE -Targets of Opportunity-2Q2010	2	2010	2	2010
NFIRE -Targets of Opportunity-3Q2010	3	2010	3	2010
Near Field Infrared Experiment (NFIRE) -Targets of Opportunity-4Q2010	4	2010	4	2010
NFIRE Laser Comm Terminal (LCT) Experiments/Operations-2Q2010	2	2010	2	2010
NFIRE LCT Experiments/Operations-3Q2010	3	2010	3	2010
NFIRE LCT Experiments/Operations-4Q2010	4	2010	4	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>				PROJECT MD12: <i>Space Tracking and Surveillance System (STSS)</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD12: <i>Space Tracking and Surveillance System (STSS)</i>	0.000	0.000	108.842	0.000	108.842	94.738	54.331	50.990	33.070	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, funding for Program Element 0603893C, Project MD12 was moved from Project WX12 in FY 2011.

This Program Element funds one of the major focus areas of the integrated BMDS architecture, the Space Tracking and Surveillance System (STSS). It represents the demonstration and development of space sensor technologies that will hedge against future missile threat growth.

A. Mission Description and Budget Item Justification

The Space Tracking and Surveillance System (STSS) Demonstration Satellites will demonstrate key functions of missile tracking with space sensors. The knowledge gained from these efforts will contribute to future MDA space sensor constellation development. The STSS Demonstration Satellites provide two on-orbit satellite assets with visible and infrared sensors into low earth orbit for testing with other BMDS elements and will provide key knowledge on which to base the design of a future constellation. These two satellites will provide valuable risk reduction for acquisition, tracking, and discrimination functionality to include stereo data fusion, cueing radars over the horizon and over-the-horizon fire control. The program will continue to demonstrate 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. On-orbit, STSS Demonstration Satellites will collect data within the satellites' field of view. Data collection and analyses continues in FY 2011 with STSS striving to meet reasonable expectations to view all available Targets of Opportunity (TOOs) to include participation with other BMDS target and flight tests that will provide demonstration of the MDA Space Layer capabilities and allow collection of future system risk reduction information.

MDA Element testing is based on an integrated, comprehensive, and phased test program. Element systems, subsystems, and components are tested early in development and are necessary prior to conducting BMD-System level testing. STSS Element Level testing is funded as part of a capabilities development program and reflected in this Program Element (PE) submission. BMD Test and Targets Element within PE 0603888C in the consolidated MDA-wide System Test Program will execute funds in support of this PE for the planning, design, execution, and management of STSS Demonstration Satellites in the BMD System testing in accordance with the BMDS Test Policy, MDA Directive 3202.03 (Jan 09). This applies to all Flight, Integrated Ground, and Distributed Ground Tests and Post-test analysis and reconstructions listed in the Integrated Master Test Plan (IMTP). The Space Tracking and Surveillance System (STSS) Demonstration Satellites demonstrate key

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD12: <i>Space Tracking and Surveillance System (STSS)</i>
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functions of space sensors. MDA will continue planning for and conduct integrated BMDS intercept tests based on track data passed from the STSS Demonstration Satellites through Command and Control, Battle Management and Communications (C2BMC) to Aegis, GMD, or other interceptors.

STSS Demonstration Satellites will provide data to the BMD Digital Simulations Architecture (DSA) which is the primary Modeling and Simulation (M&S) System framework used to integrate Element baselines prior to flight or ground testing, facilitate technical trade-offs, concept analysis and trade studies, as well as providing support to Wargames and exercises within the BMDS Program. The DSA-performance architecture and Element and component high fidelity models support performance assessment (PA) and technical assessment (TA) events, which provide critical system level performance data relative to all Elements, system engineers, M&S developers, the Operational Test Agency (OTA) and Wargames. The DSA-virtual architecture supports Element baseline integration, training, portions of ground testing and exercises.

STSS Demonstration Satellites will support BMDS Hardware-in-the-Loop (HWIL) Modeling and Simulation (M&S) Program through data collection efforts, allowing for enhanced modeling within the BMDS system-level framework to support full-envelope BMDS ground test, flight test, and training events based upon Agency and Warfighter needs.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Demonstration Satellites See Description Below <i>FY 2009 Accomplishments:</i> FY 2009 Accomplishments: Referenced in Project WX12 <i>FY 2010 Plans:</i> FY 2010 Planned Program: Referenced in Project WX12 <i>FY 2011 Base Plans:</i> Conduct tests from the Missile Defense Space Experimentation Center (MDSEC) with resident space objects, ground based and airborne targets	0.000	0.000	84.401	0.000	84.401

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD12: <i>Space Tracking and Surveillance System (STSS)</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>FY 2011 testing of the Space Tracking and Surveillance System (STSS) Demonstration Satellites continues the execution of the STSS-related Critical Engagement Conditions (CECs)** with sufficient data collected to complete 44% of the CECs (4 of 9) by the end of FY 2011 Collection of test data from CECs used in updating and verification, validation, and accreditation of modeling and simulation representations for assessing system performance</p> <p>** CECs are the conditions where data is obtained from flight and ground tests in order to anchor models and simulations.</p> <p>Conduct cooperative tests with other BMDS elements to include planning, execution and analyses; perform data collection on other targets of opportunity Conduct independent government validation of STSS Demonstration Satellites data in the STSS Demo Analysis Center Initiate planning for integrated BMDS intercept tests based on track data passed from the STSS Demonstration Satellites through Command and Control, Battle Management and Communications (C2BMC) to Aegis, Ground-based Midcourse Defense (GMD), or other interceptors Evaluate capability to provide appropriate Quality of Service (QoS) data (i.e., track data of sufficient accuracy and low enough latency to allow BMDS weapons to complete ballistic missile engagements) in support of BMDS elements and components to enable Integrated Build C and Build D functionality, including improved BMDS integrated sensor correlation and improved BMD System Track generation</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
Element/BMDS Integration and Test See Description Below		0.000	0.000	24.441	0.000	24.441

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD12: <i>Space Tracking and Surveillance System (STSS)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> FY 2009 Accomplishments: Referenced in Project WX12</p> <p><i>FY 2010 Plans:</i> FY 2010 Planned Program: Referenced in Project WX12</p> <p><i>FY 2011 Base Plans:</i> Plan and participate in available Targets of Opportunity (TOOs) Conduct planning and execution of Missile Surrogate Testing (Aircraft and Resident Space Objects) Conduct acquisition/calibration of Demonstration Satellites with ground laser source Plan and coordinate range activities to support the MDA Integrated Master Test Plan (IMTP) Continue Space Tracking and Surveillance System (STSS) Demo Analysis Center participation in BMDS testing and collection of scientific data for refinement of BMDS-relevant models</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	108.842	0.000	108.842

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD12: <i>Space Tracking and Surveillance System (STSS)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD12: <i>Space Tracking and Surveillance System (STSS)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>											
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The Space Tracking and Surveillance System (STSS) program follows the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, incremental development, and evolutionary acquisition. The STSS Demonstration Satellites 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. The contract

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD12: <i>Space Tracking and Surveillance System (STSS)</i>
<p>for the STSS Demonstration Satellites effort was awarded in third quarter FY 2002. This contract implements MDA's capability-based acquisition strategy by a) using largely existing satellite hardware as a low risk opportunity, b) building upon the lessons learned from previous development efforts and c) establishing a series of planned enhancements to bring added capability to the BMDS.</p> <p>Competition will be used for future procurement and services as appropriate.</p> <p>MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.</p> <p>E. Performance Metrics NA</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD12: <i>Space Tracking and Surveillance System (STSS)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Demonstration Satellites Capability Based R&D MD12	SS/CPAF	NGAS CA	0.000	0.000		65.584	Jul 2011	0.000		65.584	Continuing	Continuing	Continuing
Demonstration Satellites Systems Engineering MD12	TBD/TBD	Aerospace Los Angeles AFB CA, Schriever AFB CO	0.000	0.000		4.065	Jul 2011	0.000		4.065	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		69.649		0.000		69.649			

Remarks

Funding for Capability Based R&D efforts is placed on contract for Northrop Grumman Aerospace Systems (NGAS) to assist in conducting mission planning and operations of the Demonstration Satellites.

BMD Systems Engineering provides System Description Documents and System Specifications for elements to design, build, integrate and test BMDs components. These products optimize performance at the system level and further ensure that the assessment of the designed BMD System is based on sufficient ground and flight testing. Compliance of the Space Tracking and Surveillance System (STSS) to BMD System level requirements is monitored in a series of requirements and design reviews both at the system and element levels. Systems Engineering support is provided by Aerospace directly to the Demonstration Satellites effort.

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Demonstration Satellites Program Mission Support MD12	Various/ Various	SMC CA	0.000	0.000		7.258	Jul 2011	0.000		7.258	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Demonstration Satellites Other Government Agency (OGA) Civilian MD12	Various/ Various	SMC CA	0.000	0.000		2.620	Jul 2011	0.000		2.620	Continuing	Continuing	Continuing
Demonstration Satellites MDA Civilian MD12	Various/ Various	MDA AL	0.000	0.000		2.565	Jul 2011	0.000		2.565	Continuing	Continuing	Continuing
Demonstration Satellites Contract Support Services (CSS) MD12	Various/ Various	MDA AL	0.000	0.000		2.309	Jul 2011	0.000		2.309	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		14.752		0.000		14.752			

Remarks

Demonstration Satellites Support Costs include the following

MDA Civilian Salaries - Program office is providing funds for this expenditure to the responsible functional manager

Other Government Agency (OGA) Civilian personnel - Reimbursement of Air Force Personnel costs that directly support the Space Tracking and Surveillance System (STSS) program, for the Demonstration Satellites

Contract Support Services (CSS) Costs - Program office is providing funds for this expenditure to the responsible functional managers for administrative support, Comprehensive Cost and Requirement System (CCARs) administrative support, logistics and financial management/cost estimating support

AF tenant related costs - Base network support and Los Angeles Air Force Base shared costs for: Telephone Operations and maintenance, Multimedia Equipment Maintenance and Art services, local online Unit Manning Document application, base-wide maintenance, Microsoft Enterprise Licensing

Other program costs - the Program office is responsible for funding personnel travel, training, hardware and software purchases and maintenance and supplies

Starting FY 2010, Contract Support Services efforts will begin to transition to an enterprise-wide Advisory and Assistance (A&AS) contract. This approach is being pursued to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs. A&AS support include engineering and technical services; studies, analyses, and evaluation; and management and professional services.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD12: <i>Space Tracking and Surveillance System (STSS)</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Element/BMDS Integration and Test Space Tracking and Surveillance System (STSS) Demo Sensor Calibration with Aircraft MD12	TBD/TBD	NAVAIR Pt Mugu CA	0.000	0.000		0.862	Jan 2011	0.000		0.862	Continuing	Continuing	Continuing
Element/BMDS Integration and Test Ground Support for Acquisition Line-of-Sight Calibration MD12	TBD/TBD	AFRL Kirtland AFB NM	0.000	0.000		0.649	Jan 2011	0.000		0.649	Continuing	Continuing	Continuing
Element/BMDS Integration and Test STSS Demo Analysis Center (SDAC) - Government Verification & Validation (V&V) MD12	Various/ Various	Various Various	0.000	0.000		1.363	Apr 2011	0.000		1.363	Continuing	Continuing	Continuing
Element/BMDS Integration and Test Truth Sensors (High Altitude Observatory (HALO) II) MD12	TBD/TBD	MDA AL	0.000	0.000		0.376	Jan 2011	0.000		0.376	Continuing	Continuing	Continuing
Element/BMDS Integration and Test BMDS Integration-Test Engineering and Resources MD12	Various/ Various	Various Various	0.000	0.000		5.811	Jan 2011	0.000		5.811	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD12: <i>Space Tracking and Surveillance System (STSS)</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Element/BMDS Integration and Test Infrared (IR) Star Calibration MD12	TBD/TBD	Mt Lemmon Tuscon, AZ	0.000	0.000		0.054	Oct 2010	0.000		0.054	Continuing	Continuing	Continuing
Element/BMDS Integration and Test STSS Capability Based R&D-Test Support MD12	C/CPAF	NGAS Redondo Beach, CA	0.000	0.000		9.494	Jul 2011	0.000		9.494	Continuing	Continuing	Continuing
Element/BMDS Integration and Test Systems Engineering MD12	TBD/TBD	Aerospace Los Angeles AFB CA	0.000	0.000		5.832	Jul 2011	0.000		5.832	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		24.441		0.000		24.441			

Remarks

Element/BMDS Integration and Test

Funding goes to the Navy at Pt Mugu, CA for the planning and calibration testing using after-burning aircraft or other sources for the Demonstration Satellites. Aircraft are used to generate targets for the Acquisition sensor and Track sensor with Below The Horizon (BTH) backgrounds.

Funding for Ground Support for Acquisition Line-of-Sight (LOS) Calibration goes to the Air Force Research Laboratory (AFRL) to provide laser ground source to perform line-of-sight calibration of acquisition sensors on board the two Space Tracking and Surveillance System (STSS) Demonstration Satellites.

Funding for the STSS Demo Analysis Center maximizes return on investment to further the development of the future BMDS space layer. Costs covered include the purchase and maintenance of software tools for mission planning and simulation, data management and Overhead Persistent Infrared (OPIR) data analysis as well as test engineering and analysis support for BMDS testing and collection of scientific data for refinement of BMDS-relevant models.

The High Altitude Observatory-II assets are funded to capture data in all phases of the targets' flights with infrared sensors. The data is used to anchor results for which the performance of the Demonstration Satellites' sensor can be assessed.

BMDS Integration-Test Engineering and Resources funding covers (for FY 2011): test engineering to conduct pre-mission planning, execution, and post-mission analyses for testing events associated with STSS participation in BMDS flight tests.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD12: <i>Space Tracking and Surveillance System (STSS)</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

The STSS Capability Based R&D-Test Support funding covers costs associated with the STSS Prime Contractor providing planning, execution, analyses, and report support for program office directed STSS-related testing activities.
Funding for Systems Engineering is allocated to Aerospace to provide independent test engineering to: assist in requirements definition, mission planning and tasking capability for BMDs missile flight tests and targets of opportunity; prepare test plans and engagement scripts, analyze mission results and prepare detailed reports; aid in issue resolution; support interface with design engineers to understand and develop operating and test procedures; and support interface with other government agencies.

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	0.000	0.000		108.842		0.000		108.842			

Remarks

NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD12: <i>Space Tracking and Surveillance System (STSS)</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Space Tracking and Surveillance System (STSS) Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-1Q2011									■																			
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-2Q2011										■																		
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-3Q2011											■																	
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-4Q2011												■																
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-1Q2012													■															
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-2Q2012														■														
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-3Q2012															■													
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-4Q2012																■												
STSS Demonstration Satellites On-Orbit Operations-1Q2011-4Q2011									■	■	■	■																
STSS Demonstration Satellites On-Orbit Operations-1Q2012-4Q2012													■	■	■	■												
STSS Demonstration Satellites On-Orbit Operations-1Q2013-4Q2013																	■	■	■	■								

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD12: <i>Space Tracking and Surveillance System (STSS)</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Space Tracking and Surveillance System (STSS) Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-1Q2011	1	2011	1	2011
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-2Q2011	2	2011	2	2011
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-3Q2011	3	2011	3	2011
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-4Q2011	4	2011	4	2011
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-1Q2012	1	2012	1	2012
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-2Q2012	2	2012	2	2012
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-3Q2012	3	2012	3	2012
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-4Q2012	4	2012	4	2012
STSS Demonstration Satellites On-Orbit Operations-1Q2011-4Q2011	1	2011	4	2011
STSS Demonstration Satellites On-Orbit Operations-1Q2012-4Q2012	1	2012	4	2012
STSS Demonstration Satellites On-Orbit Operations-1Q2013-4Q2013	1	2013	4	2013
FTS-02 (STSS Demonstrator Flight Test)	1	2014	1	2014
Space Tracking and Surveillance System (STSS) Demonstration Satellites On-Orbit Operations-1Q2014-4Q2014	1	2014	4	2014
Space Tracking and Surveillance System (STSS) Demonstration Satellites On-Orbit Operations-1Q2015-4Q2015	1	2015	4	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
ZX40: <i>Program-Wide Support</i>	6.488	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	6.488
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> See Section A: Mission Description and Budget Item Justification ; <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA	6.488	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	6.488	0.000	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>											
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD40: <i>Program-Wide Support</i>	0.000	0.000	3.836	0.000	3.836	3.762	2.093	1.938	1.591	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11.

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> NA <i>FY 2010 Plans:</i> NA	0.000	0.000	3.836	0.000	3.836

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> NA					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	3.836	0.000	3.836

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603913C: <i>ISRAELI COOPERATIVE</i>											
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
WX15: <i>Multiple Kill Vehicles (MKV) Capability Development</i>	220.247	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	220.247
ZX40: <i>Program-Wide Support</i>	5.780	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	5.780

Note
The content in FY08-15 project WX15 is a continuation of the efforts reported in FY07 in project 0515 and was explained in that project in PB09. The Department is canceling the Multiple Kill Vehicle program in FY10. The agency will conduct an orderly drawdown of the program using FY09 funds.

A. Mission Description and Budget Item Justification
The Ballistic Missile Defense System needs volume kill capability to respond to evolving enemy threats. During flight, the enemy can disguise their warhead or deploy decoys and other debris around their warhead. These disguises make it harder for our sensors to determine which object is the actual lethal warhead. Today, we would have to launch multiple interceptors, each with a single kill vehicle, to ensure we hit the lethal warhead. Our multiple kill vehicle payloads will allow a single interceptor to deliver several kill vehicles to attack a multitude of threat objects.

We were developing kill vehicles for ground-based midcourse interceptors, kinetic energy interceptors, and Aegis Standard Missile-3. These kill vehicles use information from the system to identify, seek out, and destroy lethal objects within a threat cluster. While in flight, the kill vehicles receive and transmit data from the ground to ensure they hit their designated targets. With the multiple kill vehicles, we can destroy all credible objects with one interceptor. This saves interceptor inventory and reduces infrastructure costs.

Our top payload maturity risks are in propulsion, engagement management, coordinated attack, and the seeker. Our top programmatic risks are in achieving commonality, reducing cost, and proving we are ready for testing, production, and fielding.
Our knowledge points demonstrate and validate confidence in the payloads`:

Major subsystems capabilities

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>
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Engagement management performance
 Seeker algorithms
 Readiness in hardware-in-the-loop test facilities and flight testing
 Commonality among kill vehicles
 Production cost commitments, rates, and processes
 Procurement and fielding

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	283.481	0.000	0.000	0.000	0.000
Current President's Budget	226.027	0.000	0.000	0.000	0.000
Total Adjustments	-57.454	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-7.236	0.000			
• SBIR/STTR Transfer	-4.182	0.000			
• Other Adjustment Detail	-46.036	0.000	0.000	0.000	0.000

Change Summary Explanation

FY 2009 decrease of \$57,454 thousand for year of execution reprogrammings to support BMDS priorities \$4,182 thousand to support the SBIR/STTR Program and 46,036 thousand OUSD Mid Year Reduction.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT WX15: <i>Multiple Kill Vehicles (MKV) Capability Development</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>WX15: Multiple Kill Vehicles (MKV) Capability Development</i>	220.247	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	220.247
Quantity of RDT&E Articles	2	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

We focused commonality standards, modular approaches, and proven technologies where sensible and beneficial to reduce risk for integrating kill vehicles across all interceptors. Our master test plans progress from digital simulation to ground test to system flight test in representative operational environments.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Payload Development-6 See Description Below <i>FY 2009 Accomplishments:</i> ELEMENT PAYLOAD DEVELOPMENT We focused our early pathfinder testing on the higher risk elements of our kill vehicle concepts (engagement management, sensors, and propulsion systems). ENGAGEMENT MANAGEMENT: Proving we can engage multiple targets is critical to our success and contributes to our knowledge points. Using digital simulations, we can test our ability to manage the engagement (non real time).	116.785	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT WX15: <i>Multiple Kill Vehicles (MKV) Capability Development</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Systems Engineering-2 See Description Below <i>FY 2009 Accomplishments:</i> Complete an orderly drawdown of the ;Multiple Kill Vehicle ;program using FY 2009 funds. Updated Adversary Data Package Updated scenario data Performed Future Epoch warfighter wargame Completed Payload Requirements Review documentation Delivered payload capability specification Delivered payload external Interface Requirement Specification. <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA <i>FY 2011 OCO Plans:</i> NA		85.712	0.000	0.000	0.000	0.000
System Test and Evaluation-2 See Description Below <i>FY 2009 Accomplishments:</i> Complete an orderly drawdown of the ;Multiple Kill Vehicle ;program using FY 2009 funds.		10.949	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT WX15: <i>Multiple Kill Vehicles (MKV) Capability Development</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: NA					
Accomplishments/Planned Programs Subtotals	220.247	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
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• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
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• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
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• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
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• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
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	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

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

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• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
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• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

Because multiple kill is a new capability for the Ballistic Missile Defense System, we believe there is inherently some development risk. We identified a series of knowledge points to burn down this development risk. Our acquisition strategy used competitive prototyping via a parallel path strategy with two providers; Lockheed Martin and Raytheon Missile Systems. In this approach, we incrementally contracted and funded each contractor based on their progress in proving out their capability offerings.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>				PROJECT WX15: <i>Multiple Kill Vehicles (MKV) Capability Development</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Element Payload Development Payload Development-1 WX15	TBD/CPAF	Lockheed Martin Sunnyvale, CA	268.091	0.000		0.000		0.000		0.000	0	268.091	0
Element Payload Development Payload Development-2 WX15	TBD/CPAF	Raytheon Tucson, AZ	2.000	0.000		0.000		0.000		0.000	0	2.000	0
Element System Engineering System Engineering-1 WX15	TBD/CPAF	Lockheed Martin Sunnyvale, CA	101.802	0.000		0.000		0.000		0.000	0	101.802	0
Element System Engineering System Engineering-2 WX15	TBD/CPAF	Raytheon Tucson, AZ	46.800	0.000		0.000		0.000		0.000	0	46.800	0
Element Test and Evaluation System Test and Evaluation-1 WX15	TBD/CPAF	Lockheed Martin Sunnyvale, CA	0.000	0.000		0.000		0.000		0.000	0	0	0
Element Test and Evaluation System Test and Evaluation-2 WX15	TBD/CPAF	Raytheon Tucson, AZ	0.000	0.000		0.000		0.000		0.000	0	0	0
Subtotal			418.693	0.000		0.000		0.000		0.000	0.000	418.693	0.000

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT WX15: <i>Multiple Kill Vehicles (MKV) Capability Development</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Element Payload Development Payload Development Labs-1 WX15	TBD/TBD	DRS(NVL) Ft. Belvoir, VA	9.042	0.000		0.000		0.000		0.000	0	9.042	0
Element Payload Development Payload Development Labs-2 WX15	TBD/TBD	RVS(NVL) Ft. Belvoir, VA	10.385	0.000		0.000		0.000		0.000	0	10.385	0
Element Payload Development Payload Development FFRDC WX15	TBD/TBD	Space Dynamics Laboratory Logan, UT	5.045	0.000		0.000		0.000		0.000	0	5.045	0
Element Payload Development Payload Development-1 WX15	TBD/CPAF	Aerojet Sacramento, CA	20.350	0.000		0.000		0.000		0.000	0	20.350	0
Element Payload Development Payload Development-2 WX15	TBD/CPAF	ATK Elkton, MD	6.422	0.000		0.000		0.000		0.000	0	6.422	0
Element Payload Development Payload Development-3 WX15	TBD/CPAF	Pratt Whitney/ RocketDyne Canoga Park, CA	14.170	0.000		0.000		0.000		0.000	0	14.170	0
Element Payload Development Lithium Battery Development WX15	TBD/TBD	LithChem Folcroft, PA	2.480	0.000		0.000		0.000		0.000	0	2.480	0
	TBD/TBD	ITT Huntsville, AL	3.517	0.000		0.000		0.000		0.000	0	3.517	0

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT WX15: <i>Multiple Kill Vehicles (MKV) Capability Development</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Element Payload Development Payload Development-4 WX15													
Element Payload Development Payload Development-5 WX15	TBD/TBD	Sandia Albuquerque, NM	3.074	0.000		0.000		0.000		0.000	0	3.074	0
Element Payload Development Payload Development-6 WX15	Various/ Various	Various Various	10.653	0.000		0.000		0.000		0.000	0	10.653	0
Element System Engineering Systems Engineering SETA-1 WX15	TBD/CPFF	Sparta Arlington, VA	16.391	0.000		0.000		0.000		0.000	0	16.391	0
Element System Engineering Systems Engineering SETA-2 WX15	TBD/CPFF	Computer Sciences Corp Arlington, VA	11.973	0.000		0.000		0.000		0.000	0	11.973	0
Element System Engineering Systems Engineering FFRDC-1 WX15	TBD/TBD	MIT Lincoln Lab Lexington, MA	14.364	0.000		0.000		0.000		0.000	0	14.364	0
Element System Engineering Systems Engineering FFRDC-2 WX15	TBD/TBD	JHU Applied Physics Lab Laurel, MD	10.692	0.000		0.000		0.000		0.000	0	10.692	0
	TBD/CPAF	Boeing Huntsville, AL	10.411	0.000		0.000		0.000		0.000	0	10.411	0

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT WX15: <i>Multiple Kill Vehicles (MKV) Capability Development</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Element System Engineering Systems Engineering-1 WX15													
Element System Engineering Systems Engineering-2 WX15	Various/ Various	Various Various	3.691	0.000		0.000		0.000		0.000	0	3.691	0
Element System Engineering Common Threat WX15	Various/ Various	Various Various	2.722	0.000		0.000		0.000		0.000	0	2.722	0
Subtotal			155.382	0.000		0.000		0.000		0.000	0.000	155.382	0.000

Remarks

NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Element Test and Evaluation System Test and Evaluation Facilities WX15	TBD/TBD	NHTF/WASP/ KHILS/AEDC 10V/7V Edwards AFB, CA/Arnold AFB, TN	12.664	0.000		0.000		0.000		0.000	0	12.664	0

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 ITEM NOMENCLATURE PE 0603894C: MULTIPLE KILL VEHICLE	PROJECT WX15: Multiple Kill Vehicles (MKV) Capability Development
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Element Test and Evaluation System Test and Evaluation SETA WX15	TBD/CPFF	Sparta Arlington, VA	7.029	0.000		0.000		0.000		0.000	0	7.029	0
Element Test and Evaluation System Test and Evaluation-1 WX15	Various/ Various	Various Various	3.251	0.000		0.000		0.000		0.000	0	3.251	0
Element Test and Evaluation System Test and Evaluation-2 WX15	TBD/CPAF	Boeing Huntsville, AL	3.000	0.000		0.000		0.000		0.000	0	3.000	0
Subtotal			25.944	0.000		0.000		0.000		0.000	0.000	25.944	0.000

Remarks

NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Element Program Operations Program Operations - Gov't Personnel and Travel WX15	TBD/TBD	MDA Arlington, VA/ Huntsville, AL	8.840	0.000		0.000		0.000		0.000	0	8.840	0

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT WX15: <i>Multiple Kill Vehicles (MKV) Capability Development</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Element Program Operations Program Operations SETA WX15	TBD/CPFF	Paradigm Technologies, Inc. Arlington, VA	4.469	0.000		0.000		0.000		0.000	0	4.469	0
Element Program Operations Program Operations WX15	Various/ Various	Various Arlington, VA/ Huntsville, AL	5.332	0.000		0.000		0.000		0.000	0	5.332	0
Element Program Operations Infrastructure Support WX15	Various/ Various	Various Colorado Springs, CO	2.919	0.000		0.000		0.000		0.000	0	2.919	0
Subtotal			21.560	0.000		0.000		0.000		0.000	0.000	21.560	0.000

Remarks

NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	621.579	0.000		0.000		0.000		0.000	0.000	621.579	0.000

Remarks

NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT WX15: <i>Multiple Kill Vehicles (MKV) Capability Development</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Engagement Management Simulation			■																									
Engineering Reviews			■																									
Hover Test	■																											
Algorithm Tests			■																									
Cost Analysis Requirements Descriptions	■																											
Airplane Captive Carry Seeker Testing				■																								
Define and Develop external Interfaces Requirement Specifications			■																									
Multiple Lots of Focal Plane Arrays-2Q FY 2009		■																										
Multiple Lots of Focal Plane Arrays-3Q FY 2009			■																									

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT WX15: <i>Multiple Kill Vehicles (MKV) Capability Development</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Engagement Management Simulation	3	2009	3	2009
Engineering Reviews	3	2009	3	2009
Hover Test	1	2009	1	2009
Algorithm Tests	3	2009	3	2009
Cost Analysis Requirements Descriptions	1	2009	1	2009
Airplane Captive Carry Seeker Testing	4	2009	4	2009
Define and Develop external Interfaces Requirement Specifications	3	2009	3	2009
Multiple Lots of Focal Plane Arrays-2Q FY 2009	2	2009	2	2009
Multiple Lots of Focal Plane Arrays-3Q FY 2009	3	2009	3	2009

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
ZX40: <i>Program-Wide Support</i>	5.780	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	5.780
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> See Section A: Mission Description and Budget Item Justification ; <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA	5.780	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: NA					
Accomplishments/Planned Programs Subtotals	5.780	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>			R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>				PROJECT ZX40: <i>Program-Wide Support</i>				
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>											
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441
D. Acquisition Strategy											
NA											
E. Performance Metrics											
NA											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603894C: <i>MULTIPLE KILL VEHICLE</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Cost Totals	0.000	0.000		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	Continuing	Continuing
MD33: <i>MD Space Exp Center (MDSEC)</i>	0.000	0.000	10.535	0.000	10.535	10.842	11.156	11.581	12.017	Continuing	Continuing
WX16: <i>Near Field Infrared Experiment (NFIRE)</i>	10.989	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	10.989
WX23: <i>BMDs Space Test Bed</i>	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	5.000
WX33: <i>MD Space Exp Center (MDSEC)</i>	7.142	10.219	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	17.361
ZX40: <i>Program-Wide Support</i>	0.119	2.273	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	2.392
MD40: <i>Program-Wide Support</i>	0.000	0.000	0.407	0.000	0.407	0.340	0.191	0.168	0.138	Continuing	Continuing

Note

In accordance with the Missile Defense Agency revised budget structure, funding for the Missile Defense Space Experimentation Center (MDSEC) in FY 2009 and FY 2010 remains in PE 0603895C in Project WX33. Beginning in FY 2011, funding for MDSEC is now captured in Project MD33.

Near Field Infrared Experiment (NFIRE) Program funding will be captured in Program Element 0603893C, Project WX12, for FY 2010 only. There is no funding allocated in this Program Element 0603895C for NFIRE after FY 2009.

The FY 2011 program is balanced, reflecting the four focus areas of the current Missile Defense Program: to develop, rigorously test, and field an integrated BMDs architecture to counter existing regional threats, continue a viable Homeland Defense against rogue threats beyond 2030; demonstrate our proven technologies show Missile Defense works; and develop technologies to Hedge against future missile threat growth.

The best way 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 (C2BMC). 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 BMD capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide both the best sensor information on the enemy missile's location and track as well as a more diverse and effective set of weapon

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>
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options for the Combatant Commander to defeat the attack -- all connected by a unifying C2BMC system. As a result, an effort funded in a Program Element may be critical to success of efforts in other Program Elements -- we refer to these connections as ``interdependencies.'' Throughout the budget justification material, we have attempted to highlight interdependencies in order to fully explain the relationship between different parts of the proposed program.

A. Mission Description and Budget Item Justification

This Program Element encompasses and funds the Missile Defense Space Experimentation Center (MDSEC) and the development of the Near Field Infrared Experiment (NFIRE) which transferred to Program Element 0603893C, Space Tracking and Surveillance System (STSS) beginning FY 2010.

Missile Defense Space Experimentation Center

The Missile Defense Space Experimentation Center (MDSEC) provides MDA elements with a single location for BMDS space sensor layer operations and integration to support the ballistic missile defense mission. MDSEC annual operating expenses provide security, configuration management, engineering, test, experiment, data, and logistics support for MDA stakeholders within the MDSEC. The MDSEC will develop and refine on-orbit operations for the STSS Demonstration Satellites and NFIRE.

MDSEC is a collaborative experimentation environment for all BMDS elements that rely on, experiment with, integrate with, or seek to improve the BMDS capability by utilizing space-based, systems-derived data. Programs currently interacting within the MDSEC activity are: STSS, NFIRE, External Sensors Laboratory (ESL), BMDS Overhead Persistent Infrared (OPIR) Architecture (BOA), and Command and Control, Battle Management and Communications (C2BMC). Through these experiments MDSEC supports the full range of MDA Unifying Missile Defense Functions (UMDFs), which increase the effectiveness of the BMD System (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 MDSEC Sensor Registration Health & Status Monitoring (SRHSM) Experiment feeds directly into UMDF 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). Other MDSEC experiments support UMDFs ranging from, 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), to Communications (providing the worldwide connection of sensors and shooters to command authorities). These MDSEC experiments support the UMDFs and are 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 all ranges of ballistic threats.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>

Modeling and Simulation (M&S) activities at the Missile Defense Space Experimentation Center (MDSEC) support all phases of Space Tracking and Surveillance System (STSS) maturation, including: development and necessary revision of Mission Planning and Analysis Tools, Data Collection Events, System Functional and Performance Tests, flight test missions, ground tests, wargames, exercises, and performance assessments (PAs).

Goals for the MDSEC:

- Develop and refine ground operational concepts for MDA space systems, sensors, data, services, and networks
- Conduct satellite operations for MDA space sensor satellites (STSS, Near Field Infrared Experiment (NFIRE))
- Develop and install MDSEC Interchange System (MIS) to provide robust access to MDA space data and stakeholder net-centric sensor tasking request interface
- Develop a security environment to support data integration, test, demonstrations, and experiments across multiple security levels
- Develop an integration laboratory 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
- Provides infrastructure to demonstrate integration of missile defense space capabilities with other defense and national security systems

Near Field Infrared Experiment (NFIRE)

The NFIRE satellite is operated from the MDSEC by the Ballistic Missile Defense Space System. Data products are utilized by multiple programs to improve missile engagement performance. Funding for NFIRE in FY 2010 is provided under Program Element 063893C, Space Tracking and Surveillance System (STSS).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	24.686	12.549	0.000	0.000	0.000
Current President's Budget	23.250	12.492	10.942	0.000	10.942
Total Adjustments	-1.436	-0.057	10.942	0.000	10.942
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		-0.057			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-1.071	0.000			
• SBIR/STTR Transfer	-0.365	0.000			
• Other Adjustment Detail	0.000	0.000	10.942	0.000	10.942

Change Summary Explanation

FY 2009 decrease of \$1.436 million reflects MDA programmatic changes to support program requirements and SBIR/STTR transfer.

FY 2010 decrease of \$.057 million reflects Congressional undistributed reductions.

No FY 2011 data provided in PB10.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD33: <i>MD Space Exp Center (MDSEC)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD33: <i>MD Space Exp Center (MDSEC)</i>	0.000	0.000	10.535	0.000	10.535	10.842	11.156	11.581	12.017	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, funding for Program Element 0603895C, Project MD33 moves from Project WX33 in FY 2011.

A. Mission Description and Budget Item Justification

The Missile Defense Space Systems operates the Missile Defense Space Experimentation Center (MDSEC) to provide a single location for MDA elements to conduct satellite on-orbit operations and to conduct flight test, demonstrations, experiments, data integration, algorithm development and test, and concept exploration. The annual operating expenses for the MDSEC provide overhead functions to include security, configuration management, engineering, test, demonstration, experiment, data analysis and integration, and logistics support for satellite operations and other MDA stakeholders such as the Sensors Directorate's External Sensors Lab. The MDSEC Space Layer activities include integration and experimentation across a broad range of BMDS activities to include target signatures, sensor registration, health and status, sensor performance, sensor and weapons netting (with Command and Control, Battle Management and Communications (C2BMC) and X-Lab), modeling and simulation, and advanced features, discrimination, typing, clutter mitigation, and target kill and impact point assessments.

In addition to the satellite operations for Space Tracking and Surveillance System (STSS) and Near Field Infrared Experiment (NFIRE) at the MDSEC, the facility provides a multi-level security environment for sensor data management and integration across all space and terrestrial sensor data activities. MDSEC experiments leverage DoD (Defense Support Program, Space Based Infrared System) and National Security Space capabilities. MDSEC activities support analysis, demonstration and integration of space sensor capabilities into developmental and operational MDA elements. MDSEC enables the development of advanced technology and algorithms including fusion of multiple sensor types (radar, overhead persistent infrared, electro-optical and other merging sensor technologies). MDSEC supports mission integration of space-based missile tracking (boost and midcourse phases), sensor and weapons cueing via C2BMC, features and discrimination, kill and impact point assessments into C2BMC, Aegis, Terminal High Altitude Area Defense (THAAD), Ground-based Midcourse Defense (GMD), and other (non-MDA) mission areas to include space situational awareness, technical intelligence, and battle space characterization.

The MDSEC provides infrastructure to operate and control MDA satellites such as STSS and NFIRE. In addition, the MDSEC provides infrastructure to integrate and demonstrate missile defense space capabilities with other defense and national security systems. The MDSEC infrastructure provides MDA stakeholders capabilities

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD33: <i>MD Space Exp Center (MDSEC)</i>
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for supporting flight tests, conducting concept development, demonstrations, experiments, and developing and evaluating algorithms within a multi-security level environment.

The Missile Defense Space Experimentation Center (MDSEC) capabilities include the MDSEC Interchange System (MIS) and the MDSEC Integration Lab. The MIS will provide a common, secure data architecture for MDA, DoD, and National Security Space sensor data and a satellite sensor tasking request tool interface with stakeholders. The MDSEC Lab provides a common location for stakeholder collaboration with access to the space sensor layer data via the MIS during tests and experiments.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Missile Defense Space Experimentation Center (MDSEC) See Description Below <i>FY 2009 Accomplishments:</i> FY 2009 Accomplishments: Referenced in Project WX33 <i>FY 2010 Plans:</i> FY 2010 Planned Program: Referenced in Project WX33 <i>FY 2011 Base Plans:</i> Continue maturation of the Space Tracking and Surveillance System (STSS) ;and potentially Near Field Infrared Experiment (NFIRE) ;satellite on-orbit operations Participate in cooperative tests with other BMDS elements to include planning, execution and analyses; perform data collection on other targets of opportunity Use test data, modeling and simulation, and integrated BMDS ground tests to demonstrate space-based infrared sensor contributions to BMDS performance Provide core infrastructure support and conduct joint experiments with the External Sensors Laboratory (ESL), X-Lab, and the BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA)	0.000	0.000	10.535	0.000	10.535

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD33: <i>MD Space Exp Center (MDSEC)</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	10.535	0.000	10.535

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD33: <i>MD Space Exp Center (MDSEC)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD33: <i>MD Space Exp Center (MDSEC)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>											
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

All functions and operations of the Missile Defense Space Experimentation Center (MDSEC) are currently financed through a 10-year MDSEC Joint National Integration Center (JNIC) Research and Development Contract (JRDC) Services Contract. The annual operating expenses has been consolidated into one centralized delivery order on the contract which will include core capabilities (labor and hardware) that are performed in the MDSEC and will support all of the MDSEC participants.

Competition will be used for future procurement and services as appropriate.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. Advisory and Assistance Services (A&AS) support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD33: <i>MD Space Exp Center (MDSEC)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Missile Defense Space Experimentation Center (MDSEC) MDSEC Support (JRDC Services Contract) MD33	TBD/TBD	MDIOC CO	0.000	0.000		6.892		0.000		6.892	Continuing	Continuing	Continuing
Missile Defense Space Experimentation Center (MDSEC) MDSEC/ External Sensors Laboratory (ESL) Experiments MD33	Various/ Various	Various Various	0.000	0.000		1.913		0.000		1.913	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		8.805		0.000		8.805			

Remarks

Operations of the Missile Defense Space Experimentation Center (MDSEC) are currently financed through a 10-year MDSEC Joint National Integration Center (JNIC) Research and Development Contract (JRDC) Services Contract. The annual operating expenses have been consolidated into one centralized delivery order on the contract which will include core capabilities (labor and hardware) that are performed in the MDSEC and will support all of the MDSEC participants.

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Missile Defense Space Experimentation Center (MDSEC) Contract	Various/ Various	MDIOC, MDA CO. AL	0.000	0.000		0.706		0.000		0.706	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD33: <i>MD Space Exp Center (MDSEC)</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Support Services (CSS) MD33													
Subtotal			0.000	0.000		0.706		0.000		0.706			

Remarks

Contract Support Services (CSS) above reflect Joint National Integration Center (JNIC) Technical Advisory and Assistance Services (JTAAS) and systems engineering support. BMD Systems Engineering provides System Description Documents and System Specifications for elements to design, build, integrate, and test BMDs components. These products optimize performance at the system level and further ensure that the assessment of the designed BMD System is based on sufficient ground and flight testing.

Starting FY 2010, CSS efforts will begin to transition to an enterprise-wide Advisory and Assistance Services (A&AS) contract. This approach is being pursued to implement national engineering and support services for the BMDs mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD33: <i>MD Space Exp Center (MDSEC)</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Missile Defense Space Experimentation Center (MDSEC) Space Dynamics Laboratory (SDL) MD33	TBD/TBD	SDL UT	0.000	0.000		1.024		0.000		1.024	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		1.024		0.000		1.024			

Remarks
Space Dynamics Laboratory (SDL) is funded via University Affiliated Research Center (UARC) contract.

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		10.535		0.000		10.535			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD33: <i>MD Space Exp Center (MDSEC)</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Space Tracking and Surveillance System (STSS) Demonstration Satellites Operations-1Q2011-4Q2011									■	■	■	■																
STSS Demonstration Satellites Operations-1Q2012-4Q2012													■	■	■	■												
STSS Demonstration Satellites Operations-1Q2013-4Q2013																	■	■	■	■								
STSS Demonstration Satellites Dedicated Flight Test - FTS-02 (STSS Demonstrator Flight Test)																					■							
STSS Demonstration Satellites Operations-1Q2014-4Q2014																					■	■	■	■				
STSS Demonstration Satellites Operations-1Q2015-4Q2015																									■	■	■	■
External Sensors Lab Engineering Baseline Release (5.1/5.2)																■												
STSS External Sensors Laboratory (ESL)- BMDs Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) Midcourse Tracking Experiments-1Q2011-4Q2011									■	■	■	■																
External Sensors Lab Engineering Baseline Release (6.1/6.2)																■												
Space Tracking and Surveillance System (STSS) External Sensors Laboratory (ESL)-													■	■	■	■												

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD33: <i>MD Space Exp Center (MDSEC)</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) Midcourse Tracking Experiments-1Q2012-4Q2012																												
STSS/ESL-BOA/X-Lab System Track Experiments-1Q2011-4Q2011								■	■	■	■																	
STSS/ESL-BOA/X-Lab System Track Experiments-1Q2012-4Q2012												■	■	■	■													
STSS/ESL-BOA OPIR Cueing Experiments-1Q2011-4Q2011								■	■	■	■																	
STSS/ESL-BOA OPIR Cueing Experiments-1Q2012-4Q2012												■	■	■	■													
STSS Sensor Registration Health & Status Experiments-1Q2011-4Q2011								■	■	■	■																	
Normalized ESL Operations-1Q2013-4Q2013														■	■	■	■											
Normalized ESL Operations-1Q2014-4Q2014																		■	■	■	■							
Normalized ESL Operations-1Q2015-4Q2015																						■	■	■	■			
Normalized Command and Control, Battle Management and Communications (C2BMC) X-Lab Operations-1Q2013-4Q2013														■	■	■	■											
Normalized C2BMC X-Lab Operations-1Q2014-4Q2014																		■	■	■	■							
Normalized C2BMC X-Lab Operations-1Q2015-4Q2015																						■	■	■	■			

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD33: <i>MD Space Exp Center (MDSEC)</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Space Tracking and Surveillance System (STSS) Demonstration Satellites Operations-1Q2011-4Q2011	1	2011	4	2011
STSS Demonstration Satellites Operations-1Q2012-4Q2012	1	2012	4	2012
STSS Demonstration Satellites Operations-1Q2013-4Q2013	1	2013	4	2013
STSS Demonstration Satellites Dedicated Flight Test - FTS-02 (STSS Demonstrator Flight Test)	1	2014	1	2014
STSS Demonstration Satellites Operations-1Q2014-4Q2014	1	2014	4	2014
STSS Demonstration Satellites Operations-1Q2015-4Q2015	1	2015	4	2015
External Sensors Lab Engineering Baseline Release (5.1/5.2)	4	2012	4	2012
STSS External Sensors Laboratory (ESL)-BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) Midcourse Tracking Experiments-1Q2011-4Q2011	1	2011	4	2011
External Sensors Lab Engineering Baseline Release (6.1/6.2)	4	2012	4	2012
Space Tracking and Surveillance System (STSS) External Sensors Laboratory (ESL)-BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) Midcourse Tracking Experiments-1Q2012-4Q2012	1	2012	4	2012
STSS/ESL-BOA/X-Lab System Track Experiments-1Q2011-4Q2011	1	2011	4	2011
STSS/ESL-BOA/X-Lab System Track Experiments-1Q2012-4Q2012	1	2012	4	2012
STSS/ESL-BOA OPIR Cueing Experiments-1Q2011-4Q2011	1	2011	4	2011
STSS/ESL-BOA OPIR Cueing Experiments-1Q2012-4Q2012	1	2012	4	2012
STSS Sensor Registration Health & Status Experiments-1Q2011-4Q2011	1	2011	4	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD33: <i>MD Space Exp Center (MDSEC)</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Normalized ESL Operations-1Q2013-4Q2013	1	2013	4	2013
Normalized ESL Operations-1Q2014-4Q2014	1	2014	4	2014
Normalized ESL Operations-1Q2015-4Q2015	1	2015	4	2015
Normalized Command and Control, Battle Management and Communications (C2BMC) X-Lab Operations-1Q2013-4Q2013	1	2013	4	2013
Normalized C2BMC X-Lab Operations-1Q2014-4Q2014	1	2014	4	2014
Normalized C2BMC X-Lab Operations-1Q2015-4Q2015	1	2015	4	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX16: <i>Near Field Infrared Experiment (NFIRE)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>WX16: Near Field Infrared Experiment (NFIRE)</i>	10.989	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	10.989
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

Near Field Infrared Experiment (NFIRE) funding ends in this Program Element in FY 2009; FY 2010 funding is in PE 0603893C, Project WX12, Space Tracking and Surveillance System.

A. Mission Description and Budget Item Justification

The Near Field Infrared Experiment (NFIRE) technology effort collected high and low resolution images of a boosting rocket to improve our understanding of exhaust plume phenomenology and plume-to-rocket body discrimination. MDA is using this data to validate the models and simulations that are fundamental to developing the guidance and endgame homing algorithms for boost phase interceptors. A secondary objective of the experiment has been to collect hyper-temporal short wave infrared and visible data for assessing early launch detection and tracking capability. The experiment has included three plume signature mission types: targets of opportunity, dedicated fly-bys, and ground observations. Targets of opportunity may include aircraft flights, space launches and missile tests at a viewing distance of 100 to 1000 kilometers. Dedicated fly-bys were high resolution observations of a dedicated target vehicle at a range of less than 10 kilometers. Ground observations may included bright burning events such as forest fires, volcanoes, and static tests of rocket engines. In addition to the plume data collections, NFIRE carries a Laser Communication Terminal and has conducted communication experiments with the German Terra SAR-X satellite. These experiments tested low earth orbit satellite-to-ground and satellite-to-satellite capabilities of the terminal for potential incorporation into the Ballistic Missile Defense System. The laser communication experiments have been conducted on a non-interference basis with the other MDA missions. The NFIRE satellite continues to be operated from the Missile Defense Space Experimentation Center (MDSEC). Data products are utilized by multiple programs to improve missile engagement performance.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Near Field Infrared Experiment (NFIRE) See Description Below	10.989	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX16: <i>Near Field Infrared Experiment (NFIRE)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> Conducted data analysis on position/orientation of the Near Field Infrared Experiment (NFIRE) Mission 2B missile target relative to the exhaust plume in order to be able to predict future position and velocity of missile body as well as assess the impact of the earth, earth limb, and space backgrounds Performed On-Orbit Operations at the Missile Defense Space Experimentation Center (MDSEC) ;to support data collection and analysis on targets of opportunity Pursued laser communication experiments to assess viability of the technology Supported Space Situational Awareness as requested by Air Force Space Command (AFSPC) and other agencies</p> <p><i>FY 2010 Plans:</i> FY 2010 Planned Program: Referenced in PE 0603893C, Project WX12</p> <p>Funding moved to PE 0603893C, Space Tracking and Surveillance System</p> <p><i>FY 2011 Base Plans:</i> N/A</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	10.989	0.000	0.000	0.000	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX16: <i>Near Field Infrared Experiment (NFIRE)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>											
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX16: <i>Near Field Infrared Experiment (NFIRE)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>											
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX16: <i>Near Field Infrared Experiment (NFIRE)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0901598C: <i>Management Headquarters-MDA</i>											

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX16: <i>Near Field Infrared Experiment (NFIRE)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Near Field Infrared Experiment (NFIRE) Prime Contractor WX16	SS/CPAF	General Dynamics AZ	5.209	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Near Field Infrared Experiment (NFIRE) Science Team WX16	TBD/TBD	MIT/LL MA	3.623	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Near Field Infrared Experiment (NFIRE) Track Sensor Payload WX16	TBD/TBD	AFRL NM	0.238	0.000		0.000		0.000		0.000	0	0.238	0.238
Near Field Infrared Experiment (NFIRE) Missile Defense Integration and Operations Center (MDIOC) Research and Development Contract WX16	SS/CPAF	MDIOC CO	8.947	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Near Field Infrared Experiment (NFIRE) International Telecommunication Union (ITU) Registration WX16	TBD/TBD	NA Switzerland	0.012	0.000		0.000		0.000		0.000	0	0.012	0.012
Subtotal			18.029	0.000		0.000		0.000		0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX16: <i>Near Field Infrared Experiment (NFIRE)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
NFIRE funding will be forwarded to several contractors and organizations to include General Dynamics, Air Force Research Laboratory (AFRL), and the Missile Defense Integration and Operations Center (MDIOC).

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX16: <i>Near Field Infrared Experiment (NFIRE)</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	18.029	0.000		0.000		0.000		0.000				

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX16: <i>Near Field Infrared Experiment (NFIRE)</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Targets of Opportunity	■	■	■	■																								
Laser Comm Terminal Experiments/ Operations	■	■	■	■																								
On-Orbit Operations	■	■	■	■																								

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX16: <i>Near Field Infrared Experiment (NFIRE)</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Targets of Opportunity	1	2009	4	2009
Laser Comm Terminal Experiments/Operations	1	2009	4	2009
On-Orbit Operations	1	2009	4	2009

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency									DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>				PROJECT WX23: <i>BMDS Space Test Bed</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost	
<i>WX23: BMDS Space Test Bed</i>	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	5.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0			
Note NA												
A. Mission Description and Budget Item Justification This is a congressionally directed study to conduct an objective and independent assessment of the technical feasibility, cost effectiveness, and operational effects of adding a Space Based Interceptor layer to the Ballistic Missile Defense System as an alternative option against future ballistic missile threats.												
B. Accomplishments/Planned Program (\$ in Millions)												
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total		
Space-Based Intercept Studies See Description Below <i>FY 2009 Accomplishments:</i> Completed source selection for independent team to conduct an independent study of the feasibility and advisability of developing a space-based interceptor element to the BMDS. The study began in August 2009 and will continue through August 2010, with a final report delivered by December 2010. <i>FY 2010 Plans:</i> N/A <i>FY 2011 Base Plans:</i> N/A						5.000	0.000	0.000	0.000	0.000		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX23: <i>BMDS Space Test Bed</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	5.000	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX23: <i>BMDS Space Test Bed</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX23: <i>BMDS Space Test Bed</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>											
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX23: <i>BMDs Space Test Bed</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Space-Based Intercept Studies Planning & Analysis WX23	Various/ Various	Various Various	5.000	0.000		0.000		0.000		0.000	0	5.000	5.000
Subtotal			5.000	0.000		0.000		0.000		0.000	0.000	5.000	5.000

Remarks
NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX23: <i>BMDS Space Test Bed</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	5.000	0.000		0.000		0.000		0.000	0.000	5.000	5.000

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX23: <i>BMDS Space Test Bed</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015							
	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				
Studies and Scenario Development				■	■	■	■	■																								
Report Preparation							■	■	■																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX23: <i>BMDS Space Test Bed</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Studies and Scenario Development	4	2009	4	2010
Report Preparation	3	2010	1	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX33: <i>MD Space Exp Center (MDSEC)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
WX33: <i>MD Space Exp Center (MDSEC)</i>	7.142	10.219	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	17.361
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, funding for the Missile Defense Space Experimentation Center (MDSEC) is now captured in Project MD33 beginning FY 2011.

A. Mission Description and Budget Item Justification

The Missile Defense Space Systems operates the Missile Defense Space Experimentation Center (MDSEC) to provide a single location for MDA elements to conduct satellite on-orbit operations and to conduct flight test, demonstrations, experiments, data integration, algorithm development and test, and concept exploration. The annual operating expenses for the MDSEC provide overhead functions to include security, configuration management, engineering, test, demonstration, experiment, data analysis and integration, and logistics support for satellite operations and other MDA stakeholders such as the Sensors Directorate's External Sensors Lab. The MDSEC Space Layer activities include integration and experimentation across a broad range of BMDS activities to include target signatures, sensor registration, health and status, sensor performance, sensor and weapons netting (with Command and Control, Battle Management and Communications (C2BMC) and X-Lab), modeling and simulation, and advanced features, discrimination, typing, clutter mitigation, and target kill and impact point assessments.

In addition to the satellite operations for the Space Tracking and Surveillance System (STSS) and Near Field Infrared Experiment (NFIRE) at the MDSEC, the facility provides a multi-level security environment for sensor data management and integration across all space and terrestrial sensor data activities. MDSEC experiments leverage DoD (Defense Support Program, Space Based Infrared System) and National Security Space capabilities. MDSEC activities support analysis, demonstration and integration of space sensor capabilities into developmental and operational MDA elements. MDSEC enables the development of advanced technology and algorithms including fusion of multiple sensor types (radar, overhead persistent infrared, electro-optical and other merging sensor technologies). MDSEC supports mission integration of space-based missile tracking (boost and midcourse phases), sensor and weapons cueing via C2BMC, features and discrimination, kill and impact point assessments into C2BMC, Aegis, Terminal High Altitude Area Defense (THAAD), Ground-based Midcourse Defense (GMD), and other (non-MDA) mission areas to include space situational awareness, technical intelligence, and battle space characterization.

The Missile Defense Space Experimentation Center (MDSEC) provides infrastructure to operate and control MDA satellites such Space Tracking and Surveillance System (STSS) and Near Field Infrared Experiment (NFIRE). In addition, the MDSEC provides infrastructure to integrate and demonstrate missile defense space

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX33: <i>MD Space Exp Center (MDSEC)</i>
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capabilities with other defense and national security systems. The MDSEC infrastructure provides MDA stakeholders capabilities for supporting flight tests, conducting concept development, demonstrations, experiments, and developing and evaluating algorithms within a multi-security level environment.

MDSEC capabilities include the MDSEC Interchange System (MIS) and the MDSEC Integration Lab. The MIS will provide a common, secure data architecture for MDA, DoD, and National Security Space sensor data and a satellite sensor tasking request tool interface with stakeholders. The MDSEC Lab provides a common location for stakeholder collaboration with access to the space sensor layer data via the MIS during tests and experiments.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Missile Defense Space Experimentation Center (MDSEC) See Description Below <i>FY 2009 Accomplishments:</i> Developed and refined satellite on-orbit operations Established access to Space Tracking and Surveillance System (STSS) data at multiple security levels Provided for the exchange of archived and real-time data and data products from established and future BMDS programs Provided a net-centric satellite sensor tasking request tool for stakeholders Integrated new MDSEC stakeholders as appropriate <i>FY 2010 Plans:</i> Continue maturation of Space Tracking and Surveillance System (STSS) and Near Field Infrared Experiment (NFIRE) satellite on-orbit operations Participate in cooperative tests with other BMDS elements to include planning, execution and analyses; perform data collection on other targets of opportunity Use test data, modeling and simulation, and integrated BMDS ground tests to demonstrate space-based infrared sensor contributions to BMDS performance Provide core infrastructure support and conduct joint experiments with the External Sensors Laboratory (ESL), X-Lab, and the BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA)	7.142	10.219	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX33: <i>MD Space Exp Center (MDSEC)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> FY 2011 Planned Program: Referenced in Project MD33					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	7.142	10.219	0.000	0.000	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX33: <i>MD Space Exp Center (MDSEC)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX33: <i>MD Space Exp Center (MDSEC)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603913C: <i>ISRAELI COOPERATIVE</i>											
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

All functions and operations of the Missile Defense Space Experimentation Center (MDSEC) are currently financed through a 10-year MDSEC Joint National Integration Center (JNIC) Research and Development Contract (JRDC) Services Contract. The annual operating expenses has been consolidated into one centralized delivery order on the contract which will include core capabilities (labor and hardware) that are performed in the Missile Defense Space Experimentation Center (MDSEC) and will support all of the MDSEC participants.

Competition will be used for future procurement and services as appropriate.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

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E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX33: <i>MD Space Exp Center (MDSEC)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Missile Defense Space Experimentation Center (MDSEC) MDSEC Support (JRDC Services Contract) WX33	TBD/TBD	MDIOC CO	9.314	7.160	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Missile Defense Space Experimentation Center (MDSEC) MDSEC/ External Sensors Laboratory (ESL) Experiments WX33	Various/ Various	Various Various	3.683	1.600	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			12.997	8.760		0.000		0.000		0.000			

Remarks

Operations of the Missile Defense Space Experimentation Center (MDSEC) are currently financed through a 10-year MDSEC Joint National Integration Center (JNIC) Research and Development Contract (JRDC) Services Contract. The annual operating expenses have been consolidated into one centralized delivery order on the contract which will include core capabilities (labor and hardware) that are performed in the MDSEC and will support all of the MDSEC participants.

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Missile Defense Space Experimentation Center (MDSEC) Other	Various/ Various	MDIOC, MDA, AFSPC CO, AL	0.386	0.477	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Agency Contract Support Services (CSS) WX33													
Subtotal			0.386	0.477			0.000			0.000			

Remarks

Other Government Agency (OGA) Contract Support Services (CSS) above reflect Joint National Integration Center (JNIC) Technical Advisory and Assistance Services (JTAAS) and systems engineering support. BMD Systems Engineering provides System Description Documents and System Specifications for elements to design, build, integrate, and test BMDS components. These products optimize performance at the system level and further ensure that the assessment of the designed BMD System is based on sufficient ground and flight testing.

Starting FY 2010, CSS efforts will begin to transition to an enterprise-wide Advisory and Assistance Service (A&AS) contract. This approach is being pursued to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce overhead costs. A&AS support include engineering and technical services; studies, analyses, and evaluation; and management and professional services.

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000			0.000			0.000			

Remarks

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Missile Defense Space Experimentation Center (MDSEC) Space Dynamics Laboratory (SDL) WX33	TBD/TBD	SDL UT	0.482	0.982	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			0.482	0.982		0.000		0.000		0.000			

Remarks
Space Dynamics Laboratory (SDL) is funded via University Affiliated Research Center (UARC) contract.

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.865	10.219		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Near Field Infrared Experiment (NFIRE) Satellite Operations-1Q2009-1Q2010	■	■	■	■	■																							
NFIRE Satellite Operations-2Q2010-4Q2010						■	■	■																				
Space Tracking and Surveillance System (STSS) Demonstration Satellites Operations-4Q2009-1Q2010						■	■																					
STSS Demonstration Satellites Operations-2Q2010-4Q2010						■	■	■																				
Target Signature Experiments-1Q2009	■																											
Target Signature Experiments-2Q2009		■																										
Target Signature Experiments-3Q2009			■																									
Target Signature Experiments-4Q2009				■																								
Space Tracking and Surveillance System (STSS)/External Sensors Laboratory (ESL)-BMD Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) Midcourse Tracking Experiments-1Q2009 - 1Q2010	■	■	■	■	■																							
External Sensors Lab Engineering Baseline Release (4.0/4.1)											■																	
Space Tracking and Surveillance System (STSS)/External Sensors Laboratory (ESL)-BMD Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) Midcourse Tracking Experiments-2Q2010 - 4Q2010						■	■	■																				

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Space Tracking and Surveillance System (STSS)/External Sensors Laboratory (ESL)-BMD Operational Overhead Persistent Infrared (OPIR) Architecture (BOA)/X-Lab System Track Experiments-1Q2009 - 1Q2010	■	■	■	■	■																							
Modified Common Network Interface Processor (CNIP) Software																												
STSS/ESL-BOA/X-Lab System Track Experiments-2Q2010 - 4Q2010																												
STSS/ESL-BOA OPIR Cueing Experiments-1Q2009 - 1Q2010	■	■	■	■	■																							
Modified Tactical Digital Information Link (TADIL) J 3.6 Message (with acceleration)																												
STSS/ESL-BOA OPIR Cueing Experiments-2Q2010 - 4Q2010																												
Sensor Netting Experiments (MDSEC)																												
Sensor Tracking Experiments (MDSEC)																												
Target Signature Experiments (MDSEC)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
STSS Sensor Registration Health & Status Experiments-1Q2009 - 1Q2010	■	■	■	■	■																							
STSS Sensor Registration Health & Status Experiments-2Q2010 - 4Q2010																												
Targets of Opportunity-1Q2010-4Q2010																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Command and Control, Battle Management and Communications (C2BMC) Policy Project-1Q2009-4Q2009	■	■	■	■																								
Command and Control, Battle Management and Communications (C2BMC) Policy Project-1Q2010-2Q2010						■	■																					
Missile Defense Space Experimentation Center (MDSEC) Interchange System (MIS)-1Q2009-1Q2010	■	■	■	■	■																							
MDSEC Interchange System (MIS)-2Q2010-4Q2010						■	■	■																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX33: <i>MD Space Exp Center (MDSEC)</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Near Field Infrared Experiment (NFIRE) Satellite Operations-1Q2009-1Q2010	1	2009	1	2010
NFIRE Satellite Operations-2Q2010-4Q2010	2	2010	4	2010
Space Tracking and Surveillance System (STSS) Demonstration Satellites Operations-4Q2009-1Q2010	4	2009	1	2010
STSS Demonstration Satellites Operations-2Q2010-4Q2010	2	2010	4	2010
Target Signature Experiments-1Q2009	1	2009	1	2009
Target Signature Experiments-2Q2009	2	2009	2	2009
Target Signature Experiments-3Q2009	3	2009	3	2009
Target Signature Experiments-4Q2009	4	2009	4	2009
Space Tracking and Surveillance System (STSS)/External Sensors Laboratory (ESL)-BMD Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) Midcourse Tracking Experiments-1Q2009 - 1Q2010	1	2009	1	2010
External Sensors Lab Engineering Baseline Release (4.0/4.1)	4	2010	4	2010
Space Tracking and Surveillance System (STSS)/External Sensors Laboratory (ESL)-BMD Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) Midcourse Tracking Experiments-2Q2010 - 4Q2010	2	2010	4	2010
Space Tracking and Surveillance System (STSS)/External Sensors Laboratory (ESL)-BMD Operational Overhead Persistent Infrared (OPIR) Architecture (BOA)/X-Lab System Track Experiments-1Q2009 - 1Q2010	1	2009	1	2010
Modified Common Network Interface Processor (CNIP) Software	4	2010	4	2010

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT WX33: <i>MD Space Exp Center (MDSEC)</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
STSS/ESL-BOA/X-Lab System Track Experiments-2Q2010 - 4Q2010	2	2010	4	2010
STSS/ESL-BOA OPIR Cueing Experiments-1Q2009 - 1Q2010	1	2009	1	2010
Modified Tactical Digital Information Link (TADIL) J 3.6 Message (with acceleration)	4	2010	4	2010
STSS/ESL-BOA OPIR Cueing Experiments-2Q2010 - 4Q2010	2	2010	4	2010
Sensor Netting Experiments (MDSEC)	3	2009	4	2010
Sensor Tracking Experiments (MDSEC)	4	2009	4	2010
Target Signature Experiments (MDSEC)	1	2009	4	2010
STSS Sensor Registration Health & Status Experiments-1Q2009 - 1Q2010	1	2009	1	2010
STSS Sensor Registration Health & Status Experiments-2Q2010 - 4Q2010	2	2010	4	2010
Targets of Opportunity-1Q2010-4Q2010	1	2010	4	2010
Command and Control, Battle Management and Communications (C2BMC) Policy Project-1Q2009-4Q2009	1	2009	4	2009
Command and Control, Battle Management and Communications (C2BMC) Policy Project-1Q2010-2Q2010	1	2010	2	2010
Missile Defense Space Experimentation Center (MDSEC) Interchange System (MIS)-1Q2009-1Q2010	1	2009	1	2010
MDSEC Interchange System (MIS)-2Q2010-4Q2010	2	2010	4	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
ZX40: <i>Program-Wide Support</i>	0.119	2.273	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	2.392
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> See Section A: Mission Description and Budget Item Justification ; <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA	0.119	2.273	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.119	2.273	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>											
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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R-1 Line Item #87

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>MD40: Program-Wide Support</i>	0.000	0.000	0.407	0.000	0.407	0.340	0.191	0.168	0.138	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> NA <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA	0.000	0.000	0.407	0.000	0.407

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: NA					
Accomplishments/Planned Programs Subtotals					
	0.000	0.000	0.407	0.000	0.407

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>											
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	Continuing	Continuing
BX01: <i>Ballistic Missile Defense C2BMC Block 2.0</i>	83.418	27.454	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	110.872
CX01: <i>Ballistic Missile Defense C2BMC Block 3.0</i>	138.899	248.320	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	387.219
WX01: <i>BC Capability Development</i>	0.000	0.772	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.772
XX01: <i>Command & Control, Battle Management, Communications (C2BMC) Sustainment</i>	42.465	46.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	88.665
MD01: <i>Command & Control, Battle Management, Communications (C2BMC)</i>	0.000	0.000	331.155	0.000	331.155	350.771	280.359	313.766	288.453	Continuing	Continuing
ZX40: <i>Program-Wide Support</i>	10.392	11.988	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	22.380
MD40: <i>Program-Wide Support</i>	0.000	0.000	11.470	0.000	11.470	13.314	9.419	10.156	10.483	Continuing	Continuing

Note
In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Projects CX01 and XX01 for FY 2011 - FY 2015 are now captured in Project MD01. The content previously planned in Project WX01 FY 2011 - FY 2015 is now captured in Project MD25 (Program Element 0603175C).

The FY 2011 program is balanced reflecting the four focus areas of the current Missile Defense Program: to develop, rigorously test, and field an integrated BMDS architecture to counter existing regional threats, continue a viable Homeland Defense against rogue threats beyond 2030; demonstrate our proven technologies to show Missile Defense works; and develop technologies to hedge against future missile threat growth.

A. Mission Description and Budget Item Justification

The mission of the Missile Defense Agency continues to be one of developing and fielding an integrated, layered 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. Potential adversaries are increasing Short-

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Range Ballistic Missile (SRBM), Medium-Range Ballistic Missile (MRBM), Intermediate-Range Ballistic Missile (IRBM), and Intercontinental Ballistic Missile (ICBM) inventories, even as they are developing more advanced and capable systems. Current trends indicate that adversary ballistic missile systems, with the integration of advanced liquid- or solid-propellant propulsion technologies, are becoming more mobile, survivable, reliable, accurate and capable of flying longer distances. To protect the United States, our deployed forces, and other critical assets from this growing threat requires a synchronized, layered defense.

The Ballistic Missile Defense Command and Control, Battle Management, and Communications (C2BMC) Program establishes the System by linking together the external sensors and weapons of independent Elements into a layered missile defense system such that the whole is far more capable and robust than the sum of its parts -- thus increasing the footprint of the 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 Phased Array Tracking Radar Intercept on Target (Patriot), Terminal High Altitude Area Defense (THAAD), Aegis Ballistic Missile Defense (BMD), Ground Based Midcourse Defense (GMD); and sensors such as the Army/Navy/Transportable Radar Surveillance-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).

The best way 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 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, and 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 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.

The C2BMC Program provides: 1) the communications links and connectivity between BMDS Elements, 2) a battle management function that allows a shoot/look/shoot approach which maximizes BMDS effectiveness, while minimizing the number of weapons expended (it is important to note that C2BMC provides a battle management function; it does not have a fire control system), 3) control of the BMDS radars, taking data from multiple sensors tracking the same threat, and correlating it into one optimal track - that has sufficient Quality of Service (QoS) for BMDS Element's fire control, 4) real-time awareness of the battle as it unfolds to include interoperability with North Atlantic Treaty Organization (NATO), and 5) advanced battle planning capability which enables warfighters to place BMDS assets in ideal locations in anticipation of an upcoming battle.

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The C2BMC Program has integrated six BMDS Elements (GMD, Aegis BMD, THAAD, SBIRS, Sensors, and PATRIOT) and Coalition Partners; is in 31 locations with 12 customers in 17 time zones; has deployed over 800 pieces of equipment and Satellite Communications (SATCOM) using three frequency bands; has stood up over 70 crew positions; trains over 700 operators, maintenance personnel, and testers per year; and is supported by over 48,000 miles of Defense Information Systems Agency (DISA) communication lines.

MDA has a set of Unifying Missile Defense Functions (UMDFs), which increase the effectiveness of the BMD System (including probability of engagement success, increase in defended area and raid size capacity, additional redundancy of architecture, and unity of command) through the integration of MDA developed capabilities. These UMDF efforts are: Sensor Registration (reporting of sensor errors/biases); Correlation (ensuring the information from multiple sensors seeing a threat relates to the same object); System Track (provide a single engageable track of a threat, that has sufficient Quality of Service (QoS) -that is, sufficient data accuracy and low enough latency- for BMDS Element's fire control, to be able to complete ballistic missile engagements, using 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). UMDFs are 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 all ranges of ballistic threats.

Each of these UMDFs is led by a single BMDS Element, with participation from the others, to ensure products do not duplicate work. C2BMC is at the heart of these UMDFs and enables integrated system performance of all BMDS Elements. It collects the information from all BMDS sensors, understands and considers all data errors/bias, correlates data between sensors, uses specific sensor discriminated data and fuses it between sensors, creates an engageable system track that has sufficient Quality of Service (QoS) for BMDS Element's fire control, identifies the best pairing of sensor to shooter for optimal intercept, and quickly communicates information and direction to BMDS Elements and command elements world-wide. As a result, C2BMC leads the Correlation, System Track, Battle Management, and Communications UMDF teams.

The C2BMC Program provides quality, safety, and mission assurance operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety, and reliability.

The BMD Digital Simulations Architecture (DSA) is the primary Modeling and Simulation (M&S) System framework used to integrate Element baselines prior to flight or ground testing, facilitate technical trade-offs, concept analysis and trade studies, as well as providing support to Wargames and exercises within the BMDS Program.

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The DSA-performance architecture with the C2BMC Model (BCM) supports Performance Assessment (PA) events, which provide critical system level performance data relative to all elements, system engineers, M&S developers, the Operational Test Agency (OTA) and Warfighters. The DSA-virtual architecture supports C2BMC and other BMDS Element baseline integration, training, and portions of ground testing and exercises.

The BMD Single Stimulation Framework (SSF) utilizes Hardware-in-the-Loop (HWIL) assets to primarily support BMDS ground testing, pre and post flight test mission construction and reconstruction, and portions of the training capability, Wargames, exercises and BMDS contingency studies, as well as various other use cases to enable BMDS performance in a simulated environment. The C2BMC Program supports the M&S Program by providing HWIL representation ready for integration into the BMDS system-level framework to support full-envelope BMDS ground test, flight test, and training events based upon Agency and Warfighter needs.

C2BMC provides the capabilities for leaders at multiple levels of command to see, assess, and react to ballistic missile threats. C2BMC capabilities are provided through four capability areas: BMD Planner, Situational Awareness, Global Engagement Manager (GEM), and BMD Communications Network.

BMD Planner: The Planner provides warfighters the capability to explore the effectiveness of various defensive designs in order to plan the most effective defense by optimizing the location and mix/pairing of sensors and interceptors. The Planner is flexible enough to allow the warfighter to function in the three modes of activity: Deliberate Planning (24-36 months before a battle), Crisis Action Planning (hours or days before an attack, based on updated information), and Dynamic Planning (near real-time agility for changing situations). System models used in the Planner today include the GMD system, used to defend the U.S.; and the AN/TPY-2 radar, Aegis BMD, PATRIOT, and THAAD systems used to defend against theater missile attacks.

Situational Awareness: This capability is used to turn detailed data into usable information that commanders can act on in the event of a missile defense threat. Situational Awareness information is provided by the Combatant Commands` - Command and Control (COCOM C2) screens (displays and decision aids). Situational Awareness display emphasizes a common ballistic missile picture and summary screens used at the Presidential level down to the operational level of command. The systems available today include an interface with the Ground Based Midcourse Defense (GMD) missile fire control system, Aegis BMD and PATRIOT via Link 16, sensor management control of the AN/TPY-2 radar, and a direct data connection to SBIRS information.

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Global Engagement Manager (GEM): The GEM provides the first true BMDS battle management capability through C2BMC. GEM provides the foundation for various BMD Elements and external sensors and interceptors to work synergistically for optimal performance. The GEM will provide enhanced sensor management control of world-wide X-band radars, assign a specific sensor to track a specific threat, calculate the most likely track of an incoming missile, and then recommend the most effective weapon to target pairing, maximizing probability of hit/kill.

BMD Communications Network: The BMD Communications Network ties together sensors (both BMDS radars and space sensors) and weapons systems via the Combatant Commands Command and Control screens and GEM, thereby enabling the National Command Authority and the commanders at the strategic, theater and tactical levels to optimally engage ballistic missile threats at any range, in any phase of flight, at any time including near simultaneous theater, regional and homeland attacks. The BMD Communications Network builds on existing and new global grid data and communications networks to provide a robust, end-to-end, high availability, operational communications network (COMNET) infrastructure that quickly and unambiguously shares information across the global BMDS. This sharing of information is performed securely with special emphasis on preventing cyber attack via a BMDS Network Operations and Security Center (BNOSC). Effective networking management and operations relies on the ability to manage, coordinate, and integrate a wide variety of equipment platforms, interfaces with other DoD communications systems, existing/evolving information standards and capabilities, and adherence to DoD Information Assurance Certification and Accreditation Process (DIACAP). Defense Information Systems Agency (DISA) services are also highly leveraged in providing world-wide communications.

The C2BMC Program employs a robust incremental development program to deliver enhanced and new capabilities to the warfighter. Each incremental delivery (identified using the generic nomenclature of Spiral x.# (e.g., Spiral 6.4) includes the software, hardware, and network connectivity needed to operate the BMDS.

The C2BMC Program includes support for and analysis of BMDS-level wargames and tests with fielded capabilities. The average timeframe to develop, test, and field the next increment of capability is 24-36 months with new capability fielded every two years on average. Therefore multiple capability increments are in staggered stages of development at any time. The key test event for development is start of Cycle 2, Simulation-Based Verification, when software completes internal C2BMC development and begins testing with other BMDS Elements. Completion of Cycle 5, Site Activation Testing, coupled with successful participation in BMDS ground test campaigns, signals delivery of fully functioning operational software.

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The C2BMC Program provides the program office personnel to manage the BMDS Concurrent Test Training and Operations (CTTO) activities. CTTO is responsible for providing warfighters the means to train using high-fidelity simulations of realistic scenarios while using operational (deployed) equipment and networks. The key is to safely separate training events from real-world operations (i.e., allowing the warfighter to train on the same equipment they will use in a real battle).

The C2BMC Program provides the program office personnel to manage the development and implementation of Distributed Multi-Echelon Training System (DMETS), a capability which enables warfighters to train where they fight by generating realistic, interactive, threat scenarios that address all phases of the kill chain and varied sensor/shooter combinations. The system allows for scalable training of the BMDS using a parallel architecture either physically or logically separated from the operational one.

To expand capability to defend allies & deployed forces from short- to medium-range threats in one region/theater the C2BMC Program will:

- Expand BMD Communications Network
- Enhanced deliberative/crisis action planning
- Enhanced situational awareness to perform command and control at Combatant Commands (COCOMs) and the National Military Command Center (NMCC)
- Initial fielding of the Global Engagement Manager (GEM) capability at the Kenney Air Operations Center (Hickam Air Force Base, Hawaii)
- Improved system reliability and availability to support test and operations
- Updated C2BMC model (BCM) a key component of the BMD Distributed Simulation Architecture, continuously validated by Critical Engagement Conditions (CECs) for system-level performance assessments to verify models and simulations
- Development of Unifying Missile Defense Functions (UMDF) capabilities

To expand defense of the United States to include limited Iranian long-range and theater threats, C2BMC goals are to deliver:

- Expand BMD Communications Network
- BMD Planner and Situational Awareness capability that fully incorporates intelligence information
- Initial interfaces between weapons and sensors compatible with DoD network-centric service-oriented architecture
- Northern Command (NORTHCOM) and European Command (EUCOM) expansion of Global Engagement Manager (GEM) coordination
- Updated C2BMC model (BCM) a key component of the BMD Distributed Simulation Architecture, continuously validated by Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs)** for system-level performance assessments to verify models and simulations
- Development of Unifying Missile Defense Functions (UMDF) capabilities

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**CEC/EMEs are the conditions and events where data is obtained from flight and ground tests in order to anchor system models and simulations.

The Phased Adaptive Approach (PAA) was developed in response to the rapid proliferation of short and medium range ballistic missiles in Iran and the threat they pose to U.S. Allies and partners, as well as to U.S. deployed personnel and their accompanying families in the Middle East and in Europe. By leveraging recent advances in sensor and interceptor technologies, the United States will aggressively counter this growing regional threat with a more powerful and agile system. The United States is pursuing a four phased approach with will provide a more effective missile defense capability for defense of NATO territories and enhance U.S. homeland defense, it will be complementary of and interoperable with those being developed by NATO, be applicable in our theaters around the world, and will be more adaptable and flexible in order to counter threat advances and provide increased defended areas over time. The initial phase includes the deployment of current and proven missile defense, including the sea-based Aegis Weapons System, the SM-3 interceptor (Block IA), and sensors such as the forward-based Army Navy/Transportable Radar Surveillance system (AN/TPY-2). Subsequent phases will be implemented based on technical maturity, appropriate testing, and threat driven requirements.

Sustainment

Sustain worldwide C2BMC operational capability 24 hours a day, 7 days a week, 365 days a year-- on site personnel supporting 31 locations, across 17 time zones, and over 800 pieces of equipment. Additional sites are planned to be added in FY 2010 including the Navy Maritime Operating Center in Bahrain. The 31 locations supported are:

U.S. Forces Korea (USFK); U.S. Forces Japan (USFJ); Shariki; Pacific Command (PACOM) at Camp Smith; Air Operations Center (AOC) at Hickam Air Force Base (AFB); Defense Information Systems Agency Defense Enterprising Computing Center (DISA DECC) Pacific; U.S. Pacific Fleet (PACFLT); Pacific Missile Range Facility (PMRF); Fort Greely, Alaska (FGA); Alaska Command (ALCOM); Vandenberg AFB; 32nd Army Air and Missile Defense Command (AAMDC); Cheyenne Mountain Air Force Station (CMAFS); Peterson AFB; Missile Defense Integration and Operations Center (MDIOC) at Shriever AFB; Huntsville, AL (Von Braun II); Central Command (CENTCOM), Tampa, FL; South Carolina National Guard (SCNG); Pentagon; White House; MDA; Missile Defense National Team (MDNT); Navy Europe (NAVEUR); Israel; Stuttgart; Ramstein Air Base (AB); Patch and Rhine Ord Barracks; and the United Kingdom (4 sites)
Provide 24 hours a day, 7 days a week, 365 days a year help desk (Control Center at the MDIOC) for real-time issue resolution
Develop curriculum and provide C2BMC operator, maintenance personnel, and tester training on C2BMC equipment and capabilities (approximately 700 people per year)
Lease communication lines via Defense Information Systems Agency (DISA) for global BMD Network Communications

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Capability Development

Assess feasibility and establish requirements for beyond line of sight launch-on / engage-on network capability

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	288.287	340.014	0.000	0.000	0.000
Current President's Budget	275.174	334.734	342.625	0.000	342.625
Total Adjustments	-13.113	-5.280	342.625	0.000	342.625
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		-5.280			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-8.843	0.000			
• SBIR/STTR Transfer	-4.270	0.000			
• Other Adjustment Detail	0.000	0.000	342.625	0.000	342.625

Change Summary Explanation

FY 2009 decrease of \$13.113 million reflects SBIR/STTR Transfers and MDA adjustments

FY 2010 decrease of \$5.280 million reflects Congressional directed reductions

No FY 2011 data provided in PB10.

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
BX01: <i>Ballistic Missile Defense C2BMC Block 2.0</i>	83.418	27.454	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	110.872
Quantity of RDT&E Articles	0	1	0	0	0	0	0	0	0		

Note

RDT&E Articles are defined as major C2BMC capability increments (identified as a specific Spiral) which are fielded at multiple locations including Combatant Commands and other operational sites. Budget Project BX01 includes one RDT&E Article, Spiral 6.4C, which is planned for operational fielding in FY 2010. This Budget Project completes in FY 2010.

To accelerate the fielding of capabilities to the warfighter, the C2BMC Program divided Spiral 6.4 capabilities into two increments for testing and fielding purposes. The two spirals are identified as Spiral 6.4C and 6.4D. All capabilities are initially fielded on the Parallel Staging Network (PSN) to characterize system performance before the next incremental spiral is added. Base Spiral 6.4 capabilities and the ability to manage multiple radars within a region are developed and tested in Spiral 6.4C. These capabilities will be validated during FY 2010 BMDS ground tests prior to operational declaration. Engineering and development of Spiral 6.4D are described in Budget Project CX01.

The key test event for development is the start of Cycle 2, Simulation-Based Verification, when software completes internal C2BMC development and begins testing with other BMDS Elements. Completion of Cycle 5, Site Activation Testing, coupled with successful participation in BMDS ground test campaigns, signals delivery of fully functioning operational software.

A. Mission Description and Budget Item Justification

Today, the center of gravity for integrated Ballistic Missile Defense System (BMDS) is with C2BMC at the Combatant Command (COCOM) Headquarters, where Ballistic Missile Defense (BMD) mission planning, situational awareness, and decisions aids are focused. All data processing is performed at Strategic Command (STRATCOM), Northern Command (NORTHCOM), Pacific Command (PACOM), and European Command (EUCOM) headquarters. Adding CENTCOM capabilities to the BMDS is in the planning stages. Users of the system are either collocated with, or directly connected to the equipment suites at these COCOMs. As the system evolves, the center of gravity will shift from the COCOMs to the Air Operations Centers (AOCs) and supporting Service Components, where real-time, automated battle management will be introduced. While the Area Air Defense Commander's staff focuses on fighting the battle, senior leaders at COCOM Headquarters will be able to watch the battle unfold and guide decisions using C2BMC-provided decision aids. Together, these separate capabilities enable the warfighter to prioritize theater, regional, and homeland defense missions. To accomplish this shift in the center of gravity and meet the C2BMC mission objective to manage all sensors and

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<p>all weapons, to defeat any threat, in any phase of flight, the C2BMC Program of work includes concentrated effort on developing complementary, networked, C2BMC system capabilities (i.e., global BMD planning and situational awareness at the Combatant Commands Headquarters and Global Engagement Manager (GEM) at the Air Operations Center for initial deployment by the end of FY 2010).</p> <p>To defend allies and deployed forces from short- to medium-range threats in one region/theater, C2BMC goals are to deliver:</p> <ul style="list-style-type: none">Expand BMDS Communications NetworkImproved C2BMC system reliability and availabilityInitial Global Engagement Manager (GEM) capability (automated sensor management, track downselect/forwarding on Link-16, and operator track-level management) at the Kenney Headquarters Air Operations Center which supports multiple AN/TPY-2 radarsEnhanced BMD Planner with better user displays, flexible defense designs, and faster analysisEnhanced situational awareness in support of command and control decisions at the Combatant Command (COCOM) Headquarters with additional Ground Based Midcourse Defense (GMD) essential elements of information and more informative visual representationsEnhanced network monitoring and Secret Internet Protocol Router Network (SIPRNET) information assuranceUpdated C2BMC model (BCM) supporting the BMD Distributed Simulation Architecture, continuously validated by Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs)** for system-level performance assessments to verify models and simulationsSupport for development of Unifying Missile Defense Functions (UMDFs) capabilitiesRobust secure Information Assurance (IA) architecture <p>**CEC/EMEs are the conditions and events where data is obtained from flight and ground tests in order to anchor system models and simulations.</p> <p>C2BMC ELEMENT</p> <p>The BMD Planner will be improved to include updated representations of the capabilities of each BMDS weapon and sensor and Concept of Operations (CONOPS) to increase fidelity in all planning phases. Also included is an initial merging of the BMD Planner and Joint Engine for Defense Analysis (JEDA) graphical user interface (previously two separately running programs) with Defended Area Analysis to provide a more rapid view of how well a particular plan performs its mission; thus, allowing the analysis of more options in a shorter time.</p> <p>Situational Awareness improvements include enhancements such as inclusion of additional battlespace information to include new tabular and graphical displays of early warning and track information and common threat track identification across BMDS Elements to eliminate operator confusion. Improvements also include additional GMD essential elements of information. Additionally, the C2BMC Program is incorporating additional Information Assurance (IA) controls (via a web proxy</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603896C: <i>BMD C2BMC</i>	BX01: <i>Ballistic Missile Defense C2BMC Block 2.0</i>

architecture) to protect its applications and hardware from external threats across the Secret Internet Protocol Router Network (SIPRNET). Planner and situational awareness improvements functionalities are included in BMDS Integrated Build C and D approved content.

The first deployment of Global Engagement Manager (GEM) will improve warfighter ability by optimizing sensor-weapons pairing and increasing AN/TPY-2 control and effectiveness. At the end of FY 2010, GEM will have the primary task of managing multiple AN/TPY-2 radars in a region or theater for threat acquisition and discrimination, correlating that data, and publishing it on Link-16 to other BMD elements, functionalities included in BMDS Integrated Build D approved content. It will also allow the operator the ability to modify the execution of the BMDS fight based on real-time battlefield learning and provide the ability to manipulate individual threat tracks based on other intelligence. GEM also delivers battle management capabilities for the following Unifying Missile Defense Functions (UMDFs): correlation of multiple sensor tracks for a given target, as seen by different sensors, for common track identification (Multi-Hypothesis Correlator/Ballistic Missile Launch Event Association-Global Vision (MHC/BLEA-GV)); initial capability to identify the real threat (i.e., discrimination) by providing the conduit for AN/TPY-2 radar discrimination data to the GMD for more accurate fire control solutions; and initial ability to process multiple sensor inputs into a single engageable system track that has sufficient Quality of Service (QoS) -that is, sufficient data accuracy and low enough latency- for Element`s fire control to enable successful ballistic missile engagements (initially, for internal C2BMC consumption only).

The BMD Communications Network portion of C2BMC will provide initial network enterprise capabilities, starting with centralized detailed network performance monitoring within the BMDS Network Operations and Security Center (BNOSC) and cryptographic device management. This ensures truly integrated network operations (enterprise management, network defense, and situational awareness), eliminating seams across the global communications infrastructure and optimizing information flow based on the global vice regional Ballistic Missile Defense (BMD) mission. The centralized network operations approach reduces the global operations & sustainment (O&S) footprint, consolidating resources and reducing operations and maintenance (O&M) costs. The BNOSC establishes centralized network defense, allowing for a consolidated approach to defending the network, identifying network attack trends, and initiating a coordinated response across the entire BMD Communications Network. Centralized cryptographic device management ensures planned and unplanned crypto changes are tightly coordinated across the Agency Elements and COCOMs, reducing network downtime by minimizing outages caused by cross-organization coordination challenges. The BNOSC will evolve to full network monitoring to ensure messages and communications are properly routed to avoid bottlenecks. Additionally, BMDS Communications System Complex-Transportable (BCSC-T), High Mobility Multipurpose Wheeled Vehicle (HMMWV) Based Communications Node (HBCN), and C2BMC Deployable Interface Node (CDIN) communications capability will continue to be developed, constructed, and fielded concurrent with the AN/TPY-2 to connect it to the BMDS from deployed locations.

Matured capabilities will be included in Spiral 6.4, and then delivered to the field for concurrent development testing and operational use.

B. Accomplishments/Planned Program (\$ in Millions)

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT BX01: <i>Ballistic Missile Defense C2BMC Block 2.0</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Update C2BMC model (BCM) as part of the BMD Distributed Simulation Architecture, validate by critical engagement conditions (CECs) for system-level performance assessment to verify models and simulations ; ; Field Spiral 6.4C capability to declare operational Continue development and acquisition of CDINs (C2BMC Element will fund software capability and project management; Sensors Element will fund hardware, installation, and checkout)</p> <p><i>FY 2011 Base Plans:</i> N/A</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>C2BMC Site Activation and Fielding See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Site Activation efforts continue to address the fielding and upgrade of C2BMC associated hardware and software (Suites, Enterprise Work Stations (EWS), BMD Planners, web browsers, and communications equipment) which enable the warfighter to plan, see, and manage the ballistic missile defense battle.</p> <p>Acquired and installed Spiral 6.4C Combatant Command (COCOM) hardware and software at Northern Command (NORTHCOM), Strategic Command (STRATCOM), and Pacific Command (PACOM) Acquired and installed PACOM Test Gateway Acquired and installed AN/TPY-2 Spiral 6.4C hardware upgrades</p>		10.223	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT BX01: <i>Ballistic Missile Defense C2BMC Block 2.0</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Acquired and installed Spiral 6.4C Global Engagement Manager (GEM) hardware and software at Kenney Headquarters</p> <p>Acquired and installed Ft. Greely, AK (FGA) Spiral 6.4C hardware</p> <p>Acquired and installed C2BMC Deployable Interface Node (CDIN) hardware and software at Pacific Missile Range Facility (PMRF) (C2BMC Element funded software capability and project management; Sensors Element funded hardware, installation, and checkout)</p> <p>Updated production drawings and installation procedures</p> <p>Acquired and installed Enterprise Work Stations, web browsers, and Planners</p> <p>Acquired and installed training suite at European Command (EUCOM)</p> <p>Deployed and supported communications capabilities to Ramstein and Israel for the Contingency Architecture Activation Team (CAAT) in cooperation with the Sensors Element (C2BMC Element funded software capability and project management; Sensors Element funded hardware, installation, and checkout)</p> <p><i>FY 2010 Plans:</i> N/A</p> <p><i>FY 2011 Base Plans:</i> N/A</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
Accomplishments/Planned Programs Subtotals		83.418	27.454	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>											
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0605502C: <i>Small Business Innovative Research BMDO</i>											
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

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 emphasizing 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. 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.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMD mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Spiral 6.4 C2BMC Communications Network C2BMC Hardware (HW)/ Software(SW) Development/Integration & Test (I&T) BX01	SS/CPAF	Lockheed Martin Team Colorado Springs, CO	24.154	8.812	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Spiral 6.4 C2BMC Communications Network C2BMC HW/ SW Development/I&T BX01	SS/CPAF	Lockheed Martin Team Huntsville, AL	3.660	1.335	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Spiral 6.4 C2BMC Communications Network C2BMC Product Engineering & Development BX01	SS/CPAF	Lockheed Martin Team Arlington, VA	45.381	16.556	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Spiral 6.4 C2BMC Communications Network C2BMC Network BX01	Various/ Various	Services, DISA, Agencies -	0.000	0.751	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
C2BMC Site Activation and Fielding Suites and Communications Gateways BX01	SS/CPAF	Lockheed Martin Team -	10.223	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			83.418	27.454		0.000		0.000		0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT BX01: <i>Ballistic Missile Defense C2BMC Block 2.0</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	83.418	27.454		0.000	0.000	0.000		

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Complete Spiral 6.4 HW Installations		■																										
Spiral 6.4C Cycle 2 Testing			■	■																								
Spiral 6.4C Cycle 5 Testing				■	■																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Complete Spiral 6.4 HW Installations	2	2009	2	2009
Spiral 6.4C Cycle 2 Testing	3	2009	4	2009
Spiral 6.4C Cycle 5 Testing	4	2009	1	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT CX01: <i>Ballistic Missile Defense C2BMC Block 3.0</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
CX01: <i>Ballistic Missile Defense C2BMC Block 3.0</i>	138.899	248.320	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	387.219
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project CX01 for FY 2011 - FY 2015 is now captured in Project MD01.

RDT&E Articles are defined as major C2BMC capability increments (identified as a specific Spiral) which are fielded at multiple locations including Combatant Commands and other operational sites. Budget Project CX01 initiates the engineering and development effort for RDT&E Article Spiral 6.4D. CX01 also includes the initial evaluation of future Spiral 8.2 architecture. Spiral 6.4D will be completed in Budget Project MD01.

As BMDS Overhead Persistent Infra-Red (OPIR) Architecture (BOA) has already been developed as a prototype in the C2BMC X-Lab, it was deemed feasible to deploy it operationally on the Spiral 6.4 hardware architecture. Therefore, BOA capability and other capabilities deemed acceptable to run on the Spiral 6.4 hardware architecture will be incrementally developed, tested, and fielded in Spiral 6.4D. This capability is included in BMDS Integrated Build D approved content.

The key test event for development is start of Cycle 2, Simulation-Based Verification, when software completes internal C2MBC development and begins testing with other BMDS Elements. Completion of Cycle 5, Site Activation Testing, coupled with successful participation in BMDS ground test campaigns, signals delivery of fully functioning operational software.

A. Mission Description and Budget Item Justification

Based on the Missile Defense Agency's defined architectures and system specifications, the Command and Control, Battle Management and Communications (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 any phase, in all theaters. The C2BMC Program will also work to increase coalition partners' capabilities.

To expand defense of the United States to include limited Iranian long-range threats, C2BMC goals are to deliver:

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<p>Fully integrated BMD Planner and situational awareness displays with integrated intelligence information and defended asset priority schemes Initial interfaces between weapons and sensors compatible with DoD network-centric service-oriented architecture - network enabled command and control Northern Command (NORTHCOM) and European Command (EUCOM) expansion of Global Engagement Manager (GEM) Incorporation of BMDS Overhead Persistent Infra-Red (OPIR) Architecture (BOA) sensor data for radar cueing Update C2BMC model (BCM), continuously validated by Critical Engagement Conditions (CECs), for system-level performance assessment to verify models and simulations Improved network monitoring and computer network defense at the BMDS Network Operations and Security Center (BNOSC) Incorporate emerging Enhanced C2BMC advanced technologies into the C2BMC architecture Robust secure Information Assurance (IA) architecture</p> <p>C2BMC ELEMENT</p> <p>The BMD Planner will evolve to a net centric capability and add integrated air and missile defense capability. The system will be designed to interface with the service components and their evolving systems and enable cross planning between the Combatant Commanders. The Planner will continue to initialize the Global Engagement Manager (GEM) capability as it comes on line and will continue to be the initialization source for situational awareness.</p> <p>Situational Awareness (SA) improvements include the migration to network centric command and control which is tied to evolving Department of Defense command and control architectures. Other improvements include a Regional Summary Screen combining Combatant Command (COCOM) and GEM information, enhanced Protection Capability (PROCAP) to give the warfighter an assessment of how the BMDS architecture is protecting a specific defended area by a display of individual weapon system engagements and information coordination with updates of command authority decision information (Essential Elements of Information), display of debris fields (consequence management) based on Element provided data. The result will be an integrated common operating picture across the Combatant Commands. C2BMC will evolve SA capability on network enabled command and control to reduce hardware footprint and expand SA to additional users.</p> <p>C2BMC battle management, via the GEM, delivers Common X-Band radar (AN/TPY-2 and Sea-Based X-Band) sensor control and capabilities for the following Unifying Missile Defense Functions (UMDFs), which are included in BMDS Integrated Build D approved content.</p> <p>Improved threat/object correlation, by accounting for sensor bias and threat features to calculate a common threat track from multiple sensors, incorporation of BMDS Overhead Non-imaging Infra-Red (OPIR) Architecture (BOA) and Space Based Infra-Red System (SBIRS) (Increment 2) sensor data for improved radar cueing, and improved engageable system threat tracks, that has sufficient Quality of Service (QoS) -that is, sufficient data accuracy and low enough latency- for BMDS Element's fire control to enable successful ballistic missile engagements, for regional elements via Link-16 and EHF (e.g., Terminal High Altitude Area Defense (THAAD) and Aegis BMD) and Ground Based Midcourse Defense (GMD) Fire Control (GFC)</p>		

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<p>Integrated BMDS system discrimination via data fusion</p> <p>Sensor registration to assess the quality of radar data received in the BMDS</p> <p>System track generation and publishing to all BMDS Elements using multiple (geographically filterable) sensors, with an ability to create a Target Object Map for use in the GMD interceptor end-game</p> <p>Sensor management and weapons engagement coordination aids to direct the BMDS fight and make efficient use of limited inventory</p> <p>Engagement direction with sensor-weapon system target pairing</p> <p>BMDS battle management will operate in two regions as well as across regions while providing global situational awareness.</p> <p>The BMD Communications Network portion of C2BMC includes upgrades to the Parallel Staging Network, a dedicated Secret Internet Protocol Router Network (SIPRNET) point-of-presence for greater network service and security, computer network defense, and continued improvement in network monitoring for information assurance via the BMDS Network Operations and Security (BNOSC). Development, construction and integration of the BMDS Communications System Complex-Transportable (BCSC-T), High Mobility Multipurpose Wheeled Vehicle (HMMWV) Based Communications Node (HBCN), and C2BMC Deployable Interface Node (CDIN) also continue. The BCSC-T is a relocatable standardized communication complex. The HBCN and CDIN are both a rapidly deployable standardized communication complex. The BCSC-T, CDIN, and HBCN provide terrestrial communication control functionalities as well as satellite communications and power supply system.</p> <p>Common threat engineering efforts begin in FY 2010. Threat engineering produces common and consistent adversary trajectory and signature data and directly supports the development of BMD System architecture, BMD Specification, and execution of the Integrated Master Test Plan (IMTP). These BMDS common threat data are updated to reflect the latest intelligence community assessments of adversary capabilities and are contained in the Adversary Data Packages (ADP) for BMDS Builds and drives BMDS ground tests, flight tests, digital simulation, and pre- and post-mission analysis activities.</p> <p>Matured capability will be included in Spirals 6.4D and then delivered to the field for concurrent development testing and operational use.</p> <p>SITE ACTIVATION</p> <p>C2BMC capabilities (hardware and software) will be deployed to Northern Command (NORTHCOM), Strategic Command (STRATCOM), Pacific Command (PACOM), European Command (EUCOM), and Central Command (CENTCOM) with existing sites receiving upgrades as needed. A Global Engagement Manager (GEM) suite will be deployed in EUCOM with back-up suite added. Deployment to these Combatant Commands continues to expand the BMDS on a global scale, providing increased protection to the U.S., and its friends and Allies. Current capability will expand with numerous BMD Planner, web browser, and Enterprise Workstation installations per warfighter requirements. Site Activation also includes participation in planning for future BMDS operations and site installations.</p>		

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Spiral 6.4 C2BMC Communications Network</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> The C2BMC Program accomplishes objectives by integrating work across four capability areas: BMD Planner, Situational Awareness, Global Engagement Manager (GEM), and BMD Communications Network, so mature capabilities are integrated and incrementally delivered to the warfighter. Spirals 6.4D and 8.2 are planned in Budget Project CX01 and are included in BMDS Integrated Build D approved content.</p> <p>Initiated engineering of BMDS Overhead Persistent Infra-Red (OPIR) Architecture (BOA) sensor data into operational C2BMC sensor management schema Initiated Spiral 6.4D application and network engineering Initiated Spiral 6.4D BMD Planner, Situational Awareness, Global Engagement Manager (GEM), and BMD Communications Network software development, coding, and integration Initiated evaluation of future ;Spiral 8.2 architectures Continued maturation and integration of U.S. BMDS with North Atlantic Treaty Organization (NATO) Active Layered Theater Ballistic Missile Defense (ALTBMD) Incorporated Command and Control Integrated Air and Missile Defense XML Schema (CIXS) standard in C2BMC architecture to ensure interoperability across the Services and NATO Participated with other BMDS Elements in transitioning GMD Communications Network (GCN) to Defense Information System Network (DISN) Identified risks, proposed mitigation strategies, and shared knowledge across programs to gain efficiencies across MDA programs</p>	138.899	222.440	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> NA</p> <p><i>FY 2010 Plans:</i> Site activation efforts will continue to address the fielding and upgrade of C2BMC associated hardware and software (COCOM suites, Global Engagement Manager suites, Enterprise Work Stations (EWS), web browsers, BMD Planners and communications equipment) which enable the warfighter to plan, see, and manage the ballistic missile defense battle.</p> <p>Acquire and install Spiral 6.4D Combatant Command (COCOM) hardware on Parallel Staging Networks (PSNs) at Northern Command (NORTHCOM), Strategic Command (STRATCOM), and Pacific Command (PACOM) Update production drawings and installation procedures Acquire and install Enterprise Work Stations, Web Browsers, and Planners Initial network enabled capability installation at Combatant Commands (COCOMS) Deploy CDINs to support testing and operations (AN/TPY-2 and THAAD) (C2BMC Element funds software capability and project management; Sensors Element funds hardware, installation, and checkout) Field NORTHCOM GEM which is the back-up for the GEM at PACOM</p> <p><i>FY 2011 Base Plans:</i> FY 2011 Plans are in Budget Project MD01</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
Accomplishments/Planned Programs Subtotals		138.899	248.320	0.000	0.000	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>											
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0605502C: <i>Small Business Innovative Research BMDO</i>											
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

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 ends 1 Q FY 2012. A follow-on contracting strategy will be developed in FY 2010. 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.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Spiral 6.4 C2BMC Communications Network C2BMC Hardware(HW)/ Software(SW) Development, Integration & Test (I&T) CX01	SS/CPAF	Lockheed Martin Team Colorado Springs, CO	21.866	47.855	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Spiral 6.4 C2BMC Communications Network C2BMC HW/ SW Development, I&T CX01	SS/CPAF	Lockheed Martin Team Huntsville, AL	3.313	7.251	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Spiral 6.4 C2BMC Communications Network C2BMC Product Engineering & Development CX01	SS/CPAF	Lockheed Martin Team Arlington, VA	41.083	89.909	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Spiral 6.4 C2BMC Communications Network Contract Support Services (CSS) CX01	SS/FFP	Cobham Analytic Solution (formerly SPARTA) Arlington, VA	26.139	19.843	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Spiral 6.4 C2BMC Communications Network Federally Funded Research Development Centers CX01	SS/CPAF	MITRE, IDA, ORNL, MIT/LL Arlington, VA	14.971	11.215	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Spiral 6.4 C2BMC Communications Network MDA Civilian, Travel, and PCS CX01	Various/ Various	- Arlington VA/ Huntsville, AL/ Colorado Springs, CO	6.655	6.736	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Spiral 6.4 C2BMC Communications Network C2BMC Network CX01	Various/ Various	Services, DISA, Agencies -	15.798	22.938	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Spiral 6.4 C2BMC Communications Network C2BMC Program Office Move CX01	Various/ Various	- -	0.000	15.000	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Spiral 6.4 C2BMC Communications Network GCN Transition CX01	Various/ Various	DISA -	10.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Spiral 6.4 C2BMC Communications Network Common Threat Engineering CX01	Various/ Various	Various Various	0.000	1.693	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Site Activation and Fielding Suites and Communications Gateways CX01	SS/CPAF	Lockheed Martin Team -	0.000	25.880		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			139.825	248.320		0.000		0.000		0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT CX01: <i>Ballistic Missile Defense C2BMC Block 3.0</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT CX01: <i>Ballistic Missile Defense C2BMC Block 3.0</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	139.825	248.320		0.000		0.000		0.000			

Remarks

NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT CX01: <i>Ballistic Missile Defense C2BMC Block 3.0</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 6.4D Spiral Design Review																												
Spiral 6.4 GEM Hardware Install at NORTHCOM																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT CX01: <i>Ballistic Missile Defense C2BMC Block 3.0</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Spiral 6.4D Spiral Design Review	1	2010	1	2010
Spiral 6.4 GEM Hardware Install at NORTHCOM	3	2010	3	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT WX01: <i>BC Capability Development</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
WX01: <i>BC Capability Development</i>	0.000	0.772	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.772
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project WX01 FY 2011 is now captured in Project MD25 (Program Element 0603175C).

A. Mission Description and Budget Item Justification

Project WX01 funds a BC Weapon and Sensor Resource Management Study to establish the feasibility and engineering requirements for implementation of a Beyond Line-of-Sight (BLOS) BMDS Launch-On Network and Engage-On Network capability. Network Centric Fire Control, where weapons can be committed and guided in-flight on system level tracks, would allow present-day and advanced interceptors to engage to the limits of their kinematic envelopes, unconstrained by Earth curvature and the tracking range of local sensors. This capability, needed for Early Intercept development, would enable the defense to prosecute earlier engagements and significantly expand the battlespace, potentially enabling shoot-look-shoot tactics and reducing overall interceptor inventory requirements. Network Centric Fire Control could also have compelling logistical and readiness implications; where land, sea, and airborne shooters could be plugged directly into a global fire control grid and engage even in the absence of organic sensor support. The concept relies upon the redundancy and survivability of the global fire control network, the delivery of trusted system level tracks, and the worldwide management of weapon and sensor resources. It must be extensible as the BMDS grows. This major study will lay the groundwork for an implementation roadmap and a phased demonstration plan with knowledge points for resolving critical technical and operational issues.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Weapon and Sensor Resource Management Study See Description Below <i>FY 2009 Accomplishments:</i> NA	0.000	0.772	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT WX01: <i>BC Capability Development</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> BMDS Launch-On Network and Engage-On Network Architecture Definition for Early Intercept BMDS Network Based Fire Control Performance Assessment Network Failure Mode Analysis Build battle manager interfaces for Unmanned Aerial Vehicle (UAV), space-based sensors, and fire control</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.772	0.000	0.000	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT WX01: <i>BC Capability Development</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603884C: <i>Ballistic Missile Defense Sensors</i>											
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT WX01: <i>BC Capability Development</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

Federally Funded Research and Development Center (FFRDC)/University Affiliated Research Center (UARC)/National Laboratory community, with MDA specialists in support, will define and quantitatively characterize a reference concept for BMDS Launch-On Network / Engage-On Network that could be tested and demonstrated cooperatively with the BMDS Element Program Offices in the years beyond FY 2011. Output of this Global Engagement Management and Fire Control Study will be performance specifications, an accounting of critical and operational issues that would have to be resolved on the way to implementation, and a detailed program plan with knowledge points for resolving those issues through simulation, experimentation and demonstration.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603896C: <i>BMD C2BMC</i>	WX01: <i>BC Capability Development</i>

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT WX01: <i>BC Capability Development</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Weapon and Sensor Resource Management Study Weapon and Sensor Resource Management Study WX01	TBD/TBD	FFRDC/UARC/A&AS	0.000	0.772	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			0.000	0.772		0.000		0.000		0.000			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT WX01: <i>BC Capability Development</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	0.000	0.772		0.000		0.000		0.000			

Remarks

NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT WX01: <i>BC Capability Development</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 Launch-On Network and Engage-On Network Architecture Definition					■																							
BMDS Network Based Fire Control Performance Assessment						■	■	■																				
Network Failure Mode Analysis						■	■	■																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT WX01: <i>BC Capability Development</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
BMDS Launch-On Network and Engage-On Network Architecture Definition	1	2010	1	2010
BMDS Network Based Fire Control Performance Assessment	2	2010	4	2010
Network Failure Mode Analysis	2	2010	4	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>				PROJECT XX01: <i>Command & Control, Battle Management, Communications (C2BMC) Sustainment</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
XX01: <i>Command & Control, Battle Management, Communications (C2BMC) Sustainment</i>	42.465	46.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	88.665
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project XX01 FY 2011 - FY 2015 is now captured in Project MD01.

A. Mission Description and Budget Item Justification

Operations and Sustainment

C2BMC Program Operations and Sustainment (O&S) consists of 1) sustaining C2BMC operational capability worldwide 24 hours a day, 7 days a week, 365 days with on-site personnel in 17 time zones, supporting 31 current locations and over 100 major sub-systems; 2) on-site maintenance sub-systems for all C2BMC including suites, planners, remote Enterprise Work Stations (EWS), and GEM Work Stations (GWS), web browsers, and communication site(s) associated with the 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); and 6) hardware and software maintenance and upgrade installation to ensure 24 hours a day, 7 days a week, 365 days a year continuity of C2BMC operations. Operations and Sustainment will support a new EWS, GEM, web browser, planner and/or suite operations fielded in FY 2010.

On-site support provides:

Assistance to the System Administrator of each Combatant Command

Prime contractor support to operational users

On-site 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 network and equipment operations monitoring via the BMDS Network Operation and Security Center (BNOSC)

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT XX01: <i>Command & Control, Battle Management, Communications (C2BMC) Sustainment</i>
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Support to operators and testers during test, exercises, and wargames

Off-site support provides:

The C2BMC Control Center (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

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

Maintenance of software licenses and vendor support agreements

Hardware and software maintenance agreements

Vendor depot support services

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 C2BMC 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 Radar Management Course

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Unit Personnel, Cont System Improvement, Sustaining Support	42.465	46.200	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i></p> <p>Operations and Support procedures are planned for all fielded hardware and software. Maintenance agreements will be established and spare parts will be procured and delivered to each site. At each location an agreement in the form of a site support plan will be drafted and approved to outline the details of support for each site. An overarching system Integrated Logistics Support Plan (ILSP) will be developed to outline the roles and responsibilities for sustaining the C2BMC system.</p> <p>Sustained C2BMC 24 hours a day, 7 days a week, 365 days worldwide Established stand-alone C2BMC Operations and Sustainment (O&S) in support of European Command (EUCOM) theater and AN/TPY-2 operations (Contingency Architecture Activation Team (CAAT)) ;(C2BMC Element funded software capability and project management; Sensors Element funded hardware, installation, and checkout) Provided and maintained C2BMC training suite to EUCOM Provided a Global Engagement Manager (GEM) trainer Developed curriculum for and trained 700 operators, maintenance personnel, and testers Resolved real-time operational issues through the C2BMC Control Center and BMDS Network Operation and Security Center (BNOSC) Provided global BMDS communications via leased Defense Information Systems Agency (DISA) circuit lines 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 Provided support of AN/TPY-2 radar communications nodes Provided operations and sustainment personnel to support test and special operations at AN/TPY-2 site at Pacific Missile Range Facility (PMRF), and for Tobyhanna Army Depot BMDS Communication</p>					

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT XX01: <i>Command & Control, Battle Management, Communications (C2BMC) Sustainment</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Support Complex - Transportable (BCSC-T) development activities (C2BMC Element funded software capability and project management; Sensors Element funded hardware, installation, and checkout) Supported Host Nation operations, demonstrations, and tests Operated BNOSC 24 hours a day, 7 days a week, 365 days</p> <p><i>FY 2010 Plans:</i> Sustain C2BMC 24 hours a day, 7 days a week, 365 days worldwide Maintain C2BMC training suite to European Command (EUCOM) Sustain Global Engagement Manager (GEM) trainer Develop curriculum for and train operators, maintenance personnel, and testers Resolve real-time operational issues through the C2BMC Control Center and 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 Provide support of AN/TPY-2 radar communications nodes Provide operations and sustainment personnel to support test and special operations for AN/TPY-2 at deployed operational test sites Support Host Nation operations, demonstrations, and tests Provide sustainment training/skills proficiency to C2BMC operations Operate BNOSC 24 hours a day, 7 days a week, 365 days Continue operation and support of communications capabilities to Israel for the Contingency Architecture Activation Team (CAAT)</p>					

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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> FY 2011 Plans are in Budget Project MD01</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	42.465	46.200	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
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C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>											
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>											
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

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 ends 1Q FY 2012. A follow-on contracting strategy will be developed in FY 2010. 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

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<p>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.</p> <p>MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.</p> <p><u>E. Performance Metrics</u> NA</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Unit Personnel, Cont System Improvement, Sustaining Support Unit Personnel, Cont System Improvement, Sustaining Support XX01	SS/CPAF	Lockheed Martin Team Arlington, VA	28.968	32.264	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Unit Personnel, Cont System Improvement, Sustaining Support Indirect Support XX01	TBD/TBD	DISA DECC -	3.042	3.271	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Unit Personnel, Cont System Improvement, Sustaining Support Unit Operations - Leased Circuits XX01	TBD/TBD	DISA Arlington, VA	9.955	10.165		0.000		0.000		0.000	Continuing	Continuing	Continuing
Unit Personnel, Cont System Improvement, Sustaining Support DOTMLPF XX01	Various/ Various	SETAC -	0.500	0.500		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			42.465	46.200		0.000		0.000		0.000			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Remarks NA													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			42.465	46.200		0.000		0.000		0.000			

Remarks
NA

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD01: <i>Command & Control, Battle Management, Communications (C2BMC)</i>	0.000	0.000	331.155	0.000	331.155	350.771	280.359	313.766	288.453	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project CX01 and XX01 for FY 2011 - FY 2015 is now captured in Project MD01.

RDT&E Articles are defined as major C2BMC capability increments (identified as a specific Spiral) which are fielded at multiple locations including Combatant Commands and other operational sites. Budget Project MD01 completes RDT&E Article Spiral 6.4D. MD01 also includes the continuation of engineering for future Spiral 8.2.

The key test event for development is start of Cycle 2, Simulation-Based Verification, when software completes internal C2MBC development and begins testing with other BMDS Elements. Completion of Cycle 5, Site Activation Testing, coupled with successful participation in BMDS ground test campaigns, signals delivery of fully functioning operational software.

A. Mission Description and Budget Item Justification

Based on the Missile Defense Agency's defined architectures and system specifications, the Command and Control, Battle Management and Communications (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 any phase, 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 the work initiated in Budget Project BX01 which focused on limited Iranian long-range threats and by enabling a coordinated defense against short-to intermediate- range threats in two regions/theaters.

Specific goals are to deliver the following, which include BMDS planning, situational awareness, sensor management, and engagement coordination functions incorporated in BMDS Integrated Build C and D approved content:

Fully integrated BMD Planner and situational awareness displays with integrated intelligence information and defended asset priority schemes

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<p>Initial interfaces between weapons and sensors compatible with DoD network-centric service-oriented architecture Northern Command (NORTHCOM) and European Command (EUCOM) expansion of Global Engagement Manager (GEM) Incorporate Enhanced C2BMC capability into the C2BMC architecture Incorporation of BMDS Overhead Persistent Infra-Red (OPIR) Architecture (BOA) sensor data for radar cueing Update C2BMC model (BCM), continuously validated by critical engagement conditions (CECs) and Empirical Measurement Events (EMEs)**, for system-level performance assessment to verify models and simulations Improved network monitoring and computer network defense at the BMDS Network Operations and Security Center (BNOSC) Capability to easily and quickly incorporate new sensors and weapon systems into the global C2BMC network Command and Control decision aids to re-direct coordinated engagements BMDS-level discrimination for boost/early ascent and expanded engagement coordination to include intelligence projections Continued BMDS global expansion with additional C2BMC deployed locations Support development of Unifying Missile Defense (UMDF) capabilities Enhanced secure Information Assurance (IA) architecture</p> <p>**CEC/EMEs are the conditions and events where data is obtained from flight and ground tests in order to anchor system models and simulations.</p> <p>C2BMC ELEMENT</p> <p>The Ballistic Missile Defense (BMD) Planner, Situational Awareness, Global Engagement Manager (GEM), and Ballistic Missile Defense (BMD) Network will all be expanded to include additional BMDS sensors and weapons. The BMD Planner and Situational Awareness will continue to be upgraded for ease of use and understanding based upon warfighter feedback and lessons learned from wargames and exercises. The whole of C2BMC will move to a more distributed processing environment to speed decision making and enable a more geographically diverse (and filterable) system.</p> <p>In the near term capability increments the BMD Planner will evolve to a net enabled capability. The system will be designed to interface with the service components and their evolving systems and enable cross planning between the Combatant Commanders. Future BMD Planner improvements include updates to the Global Engagement Manager, North Atlantic Treaty Organization (NATO) interface improvements with bi-directional coalition partner planning, and Offense/Defense integration for planning.</p> <p>Situational Awareness improvements include the migration to network centric command and control which ties in with evolving Department of Defense command and control architectures. Improved display of individual weapon system engagement and information coordination, along with updates of command authority decision information will result in an integrated common operating picture across the Combatant Commands.</p>		

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<p>C2BMC battle management, via the Global Engagement Manager (GEM), will deliver Full X-Band radar sensor control and capabilities for the following Unifying Missile Defense Functions (UMDFs), which are included in BMDS Integrated Build D approved content:</p> <p>Improved threat/object correlation, by accounting for sensor bias and threat features to calculate a common threat track from multiple sensors, incorporation of BMDS Overhead Persistent Infra-Red (OPIR) Architecture (BOA) and Space Based Infra-Red System (SBIRS) sensor data for improved radar cueing, and improved engageable system threat tracks, that has sufficient Quality of Service (QoS) -that is, sufficient data accuracy and low enough latency- for BMDS Element's fire control to enable successful ballistic missile engagements, for regional elements via Link-16 and EHF (e.g., THAAD and Aegis BMD and Ground Based Midcourse Defense Fire Control (GFC))</p> <p>Improved BMDS system discrimination</p> <p>Sensor registration to assess the quality of radar data received in the BMDS</p> <p>System track generation and publishing to BMDS Elements using multiple (geographically filterable) sensors with an ability to create a Target Object Map for use in the GMD interceptor end-game; and enhanced, distributed composite system track with additional discrimination features, and cross-Area of Responsibility (AOR) engagement coordination.</p> <p>Sensor management and weapons engagement coordination aids to direct the BMDS fight and make use of efficient use of limited inventory</p> <p>Enhanced engagement direction with sensor-weapon system target pairing</p> <p>Additionally, GEM will expand engagement coordination to include intelligence projections and BMDS battle management will operate in two regions as well as across regions while providing global situational awareness.</p> <p>The BMD Communications Network portion of C2BMC includes upgrades to the Parallel Staging Network, a dedicated Secret Internet Protocol Router Network (SIPRNET) point-of-presence for greater network service and security, computer network defense, and continued improvement in network monitoring for information assurance via the BMDS Network Operation and Security Center (BNOSC). The BMD Communications Network will feature a more redundant, high availability network with diverse paths and increased communications support to the BMDS elements to include added sensors and weapons to the overall BMDS. Capabilities such as dynamic real-time network management and monitoring will enable the warfighter to monitor the connection to BMDS weapons and anticipate and remedy any issues as they occur, vice having to wait for a human-in-the-loop to report a problem and provide a correction. Additionally, an expanded network centric capability (worldwide connectivity of separately developed sensors and weapon systems) supporting Internet Protocol Version 6 will extend BMDS mission success by providing information management and quality of service to the individual user.</p> <p>The BMD Communications Network ties together sensors (both BMDS radars and space sensors) and weapons systems via the Combatant Commands Command and Control screens and GEM, thereby enabling the National Command Authority and the commanders at the strategic, theater and tactical levels to optimally engage ballistic missile threats at any range, in any phase of flight, at any time including near simultaneous theater, regional and homeland attacks. The BMD Communications Network builds on existing and new global grid data and communications networks to provide a robust, end-to-end, high availability, operational communications</p>		

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<p>network (COMNET) infrastructure that quickly and unambiguously shares information across the global BMDS. This sharing of information is performed securely with special emphasis on preventing cyber attack via a BMDS Network Operations and Security Center (BNOSC). Effective networking management and operations relies on the ability to manage, coordinate, and integrate a wide variety of equipment platforms, interfaces with other DoD communications systems, existing/evolving information standards and capabilities, adherence to DoD Information Assurance Certification and Accreditation Process (DIACAP). Defense Information Systems Agency (DISA) services are also highly leveraged in providing world-wide communications.</p> <p>The Phased Adaptive Approach (PAA) was developed in response to the rapid proliferation of short and medium range ballistic missiles in Iran and the threat they pose to U.S. Allies and partners, as well as to U.S. deployed personnel and their accompanying families in the Middle East and in Europe. By leveraging recent advances in sensor and interceptor technologies, the United States will aggressively counter this growing regional threat with a more powerful and agile system. The United States is pursuing a four phased approach which will provide a more effective missile defense capability for defense of NATO territories and enhance U.S. homeland defense, it will be complementary of and interoperable with those being developed by NATO, be applicable in other theaters around the world, and will be more adaptable and flexible in order to counter threat advances and provide increased defended areas over time. The initial phase includes the deployment of current and proven missile defense, including the sea-based Aegis Weapons System, the SM-3 interceptor (Block IA), and sensors such as the forward-based Army Navy/Transportable Radar Surveillance system (AN/TPY-2). Subsequent phases will be implemented based on technical maturity, appropriate testing, and threat driven requirements.</p> <p>SITE ACTIVATION</p> <p>C2BMC capabilities (hardware and software) will be deployed to NORTHCOM, STRATCOM, PACOM, and EUCOM with existing sites receiving upgrades as needed. Current capabilities will be expanded with numerous BMD Planner, web browser, and Enterprise Workstation installations per warfighter requirements. Planning for future BMDS operations and site installations include Global Engagement Manager (GEM) at European Command (EUCOM), GEM on the Parallel Support Network (PSN) at Northern Command (NORTHCOM), and network enabled capability at various locations. Deployment to these Combatant Commands continues to expand BMDS on a global scale, providing increased protection to the U.S., and its friends and Allies. Preliminary planning for Central Command (CENTCOM) is in process. Site Activation also includes participation in planning for future BMDS operations and site installations.</p> <p>OPERATIONS AND SUSTAINMENT</p> <p>C2BMC Program Operations and Sustainment (O&S) consists of 1) sustaining C2BMC operational capability worldwide 24 hours a day, 7 days a week, 365 days a year with on-site personnel in 17 time zones, supporting all C2BMC operational locations, and over 100 major sub-systems; 2) on-site sub-systems maintenance for all C2BMC including COCOM suites, GEM Suites planners, remote Enterprise Work Stations (EWS), and GEM Work Stations (GWS), web browsers, and communication site(s) associated with the 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</p>		

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<p>(approximately 700 per year); 6) hardware and software maintenance and upgrade installation to ensure 24 hours a day, 7 days a week, 365 days a year continuity of C2BMC operations.</p> <p>On-site support provides:</p> <ul style="list-style-type: none">Assistance to the System Administrator of each Combatant CommandPrime contractor support to operational usersOn-site maintenance of hardware and softwareSecurity support for the C2BMC equipment, hardware and software and auxiliary communication capabilities24 hours a day, 7 days a week, 365 days a year network and equipment operations monitoringSupport to operators and testers during test, exercises, and wargames <p>Off-site support provides:</p> <p>The C2BMC Control Center (help desk) in Colorado Springs, CO provides</p> <ul style="list-style-type: none">Real-time resolution of operational issuesThe schedule for maintenance, systems upgrades, tests, exercises, and wargames, coordinated across all usersCollection of data regarding system/sub-system failures and prioritization of corrective actionsReview of hardware/software problems and coordination of Commercial-Off-the-Shelf (COTS) developer/vendor service callsIntegrated logistics support planning and managementHardware and software maintenance and logistics functions that are beyond the capability of on-site support personnelInventory and spares managementSustaining engineering support from the prime contractor and government activitiesMaintenance of software licenses and vendor support agreementsHardware and software maintenance agreementsVendor depot support services <p>Training support includes:</p> <ul style="list-style-type: none">Developing and maintaining operator, maintenance personnel, and testers training material for C2BMC components/capabilitiesTraining tailored to each deployment and/or test		

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Continue engineering to incorporate Enhanced C2BMC capability into the C2BMC Command and Control (C2) and battle management architecture</p> <p>Participate in and analyze results of ground and flight tests, wargames, and exercises in accordance with the BMDS Integrated Master Test Plan (IMTP)</p> <p>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</p> <p>By the close of FY 2011, with the completion of BMD System tests, the C2BMC Program will collect at least 42% of the planned CEC data collection points to verify models and simulations</p> <p>Upgrade the BMD Communications Network capability (development, integration and test)</p> <p>Upgrade of DoD teleports to enhance satellite communications (SATCOM) connectivity</p> <p>Incorporate Enhanced C2BMC advanced technologies and prototypes into the C2BMC architecture</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Operations and Support</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> FY 2009 Accomplishments are in Budget Project XX01</p> <p><i>FY 2010 Plans:</i> FY 2010 Planned Program are in Budget Project XX01</p>		0.000	0.000	47.507	0.000	47.507

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> 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 and 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 Provide support of AN/TPY-2 radar communications nodes Provide operations and sustainment personnel to support test and special operations for AN/TPY-2 at deployed operational test sites Support Host Nation operations, demonstrations, and tests Provide sustainment training/skills proficiency to C2BMC operations Upgrade and maintain computer network defense and network monitoring in the BNOSC Operate the BNOSC 24/7/365</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
Site Activation and Fielding See Description Below <p><i>FY 2009 Accomplishments:</i> FY 2009 Accomplishments are in Budget Project BX01</p>		0.000	0.000	31.825	0.000	31.825

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Define, develop and start acquisition of C2BMC Deployable Interface Nodes (CDINs) (C2BMC Element funded software capability and project management; Sensors Element funded hardware, installation, and checkout) Establish a Host Nation Situation Awareness (HN SA) liaison presence with the Host Nations government and particularly within their defense structure. <i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	331.155	0.000	331.155

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

<u>Line Item</u>	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

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 ends 1Q FY 2012. A follow-on contracting strategy will be developed during FY 2010. 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.

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<p>MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.</p>		
<u>E. Performance Metrics</u> NA		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development C2BMC Hardware(HW)/ Software(SW) Development, Integration & Test (I&T) MD01	SS/CPAF	Lockheed Martin Team Colorado Springs, CO	0.000	0.000		46.718	Oct 2010	0.000		46.718	Continuing	Continuing	Continuing
Development C2BMC HW/SW Development, I&T MD01	SS/CPAF	Lockheed Martin Team Huntsville, AL	0.000	0.000		7.078	Oct 2010	0.000		7.078	Continuing	Continuing	Continuing
Development C2BMC Product Engineering & Development MD01	SS/CPAF	Lockheed Martin Team Arlington, VA	0.000	0.000		87.772	Oct 2010	0.000		87.772	Continuing	Continuing	Continuing
Development C2BMC Integration MD01	Various/ Various	Services, DISA, Agencies -	0.000	0.000		23.180	Oct 2010	0.000		23.180	Continuing	Continuing	Continuing
Development Contract Support Services MD01	SS/FFP	Cobham Analytic Solutions Arlington, VA	0.000	0.000		19.392	Oct 2010	0.000		19.392	Continuing	Continuing	Continuing
Development Federally Funded Research & Development Centers MD01	SS/CPAF	MITRE, IDA, ORNL, MIT/LL Arlington, VA	0.000	0.000		12.200	Oct 2010	0.000		12.200	Continuing	Continuing	Continuing
Development MDA Civilian, Travel & PCS MD01	Various/ Various	- Arlington, VA/ Huntsville, AL/ Colorado Springs, CO	0.000	0.000		6.885	Oct 2010	0.000		6.885	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT MD01: <i>Command & Control, Battle Management, Communications (C2BMC)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Operations and Support Unit Personnel, Cont System Improvement, Sustaining Support MD01	SS/CPAF	Lockheed Martin Team Arlington, VA	0.000	0.000		31.953	Oct 2010	0.000		31.953	Continuing	Continuing	Continuing
Operations and Support Indirect Support MD01	Various/ Various	DISA DECC -	0.000	0.000		4.816	Oct 2010	0.000		4.816	Continuing	Continuing	Continuing
Operations and Support Communications Leases MD01	Various/ Various	DISA -	0.000	0.000		7.573	Oct 2010	0.000		7.573	Continuing	Continuing	Continuing
Operations and Support DOTMLPF MD01	Various/ Various	SETAC -	0.000	0.000		0.500	Oct 2010	0.000		0.500	Continuing	Continuing	Continuing
Operations and Support Warfighter Training MD01	SS/CPAF	Lockheed Martin Team Arlington, VA	0.000	0.000		2.665	Oct 2010	0.000		2.665	Continuing	Continuing	Continuing
Site Activation and Fielding Suites and Communications Gateways MD01	SS/CPAF	Lockheed Martin Team -	0.000	0.000		31.825	Oct 2010	0.000		31.825	Continuing	Continuing	Continuing
Comms for Aegis Ashore Program Phase 1 (AN/TPY-2) MD01	Various/ Various	Lockheed Martin Team DISA, Various	0.000	0.000		30.600		0.000		30.600	Continuing	Continuing	Continuing
Comms for Aegis Ashore Program Phase 2 (Aegis #1) MD01	Various/ Various	DISA Various	0.000	0.000		4.250		0.000		4.250	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		317.407		0.000		317.407			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT MD01: <i>Command & Control, Battle Management, Communications (C2BMC)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development BMDS Level Testing MD01	SS/CPAF	Lockheed Martin Team -	0.000	0.000		13.748		0.000		13.748	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		13.748		0.000		13.748			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT MD01: <i>Command & Control, Battle Management, Communications (C2BMC)</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	0.000	0.000		331.155		0.000		331.155			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT MD01: <i>Command & Control, Battle Management, Communications (C2BMC)</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 6.4 GEM HW Installation at EUCOM									■																			
Spiral 6.4D Cycle 2 Testing									■	■	■																	

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT MD01: <i>Command & Control, Battle Management, Communications (C2BMC)</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Spiral 6.4 GEM HW Installation at EUCOM	1	2011	1	2011
Spiral 6.4D Cycle 2 Testing	1	2011	3	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
ZX40: <i>Program-Wide Support</i>	10.392	11.988	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	22.380
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> See Section A: Mission Description and Budget Item Justification ; <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA	10.392	11.988	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	10.392	11.988	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT MD40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>MD40: Program-Wide Support</i>	0.000	0.000	11.470	0.000	11.470	13.314	9.419	10.156	10.483	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11.

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> NA <i>FY 2010 Plans:</i> NA	0.000	0.000	11.470	0.000	11.470

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT MD40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> NA					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	11.470	0.000	11.470

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603896C: <i>BMD C2BMC</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
WX02: <i>Hercules Capability Development</i>	51.413	46.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	97.517
ZX40: <i>Program-Wide Support</i>	0.216	1.828	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	2.044

Note

Beginning in FY 2010, Project Hercules will be allocated to five Strategic Technology Portfolios (STPs): persistent sensors; pervasive weapons; global battle management; effective targeting; and effectiveness in adverse environments.

For FY 2010, Additional funding for Enhanced Command and Control, Battle Management, and Communications (C2BMC) is located in Program Element 0603896C, BMDS C2BMC, and in Program Element 0603892C, BMD AEGIS.

Beginning in FY 2011, software and algorithm work will be moved to the BMDS Technology Program Element 0603175C. In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project WX02 for FY 2009-FY 2010 is now captured in Project MD25.

A. Mission Description and Budget Item Justification

A robust advanced missile defense technology development program is part of the MDA strategy to hedge against future threat uncertainties. During FY 2010, the agency will implement a technology development program that emphasized investments in early intercept capability while continuing to pursue technologies to address the more sophisticated threats we expect to address in the far term. Consistent with this approach, the far term Hercules focus was shifted to algorithm and software development necessary to effectively execute early intercepts. The Hercules Program Element develops and demonstrates algorithms and software to execute this strategy. Beginning in FY 2010, Project Hercules efforts were allocated to five Strategic Technology Portfolios: persistent sensors; pervasive weapons; global battle management; effective targeting; and effectiveness in adverse environments. MDA is focusing its Hercules efforts among each strategic portfolio for the development and demonstration of an integrated set of technologies that allows us to intercept early in the battle space and optimize our ability to execute a shoot-look-shoot tactic, to force less effective deployment of counter-measures, minimize the potential impact of debris, and reduce the number of interceptors required to defeat a raid of threat missiles.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>
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Hercules has three major goals:

- Develop, deliver, and support integration of algorithms and software to execute early intercept concepts and demonstrations.
- Develop, deliver, and support integration of algorithms and software to improve the performance of radar and electro-optical sensors.
- Develop, deliver, and support integration of algorithms and software for advanced battle management and decision making concepts.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	55.764	48.186	0.000	0.000	0.000
Current President's Budget	51.629	47.932	0.000	0.000	0.000
Total Adjustments	-4.135	-0.254	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		-0.254			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-3.305	0.000			
• SBIR/STTR Transfer	-0.830	0.000			
• Other Adjustment Detail	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

MDA Programmatic Changes:

FY 2009 decrease is a result of MDA programmatic changes.

No FY 2011 data provided in PB10.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>	PROJECT WX02: <i>Hercules Capability Development</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>WX02: Hercules Capability Development</i>	51.413	46.104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	97.517
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Our submission reflects a greater emphasis on defense of U.S. forces, allies, and friends from regional threats posed by thousands of short- and medium-range ballistic missiles. The most cost-effective missile defense architecture is one that emphasizes early intercepts during a threat missile's early phase of flight. Early intercepts can be observed by the BMDS sensors to determine if a second or third intercept attempt is necessary to achieve a robust degree of protection. Additionally, early intercepts forces the threat to deploy countermeasures early, making them more difficult to be effective. MDA plans to demonstrate the maturity of early intercept concept by conducting a series of live-fire tests in FY 2012 to enable thorough operational assessment and proof of sufficient Quality of Service for this capability. These demonstrations will prove the early intercept concept key functions: Overhead persistent infrared for initial tracking in flight, unmanned aerial vehicle or Space Tracking and Surveillance System demonstration satellites for post-boost tracking, the battle management command and control, and Standard Missile-3 Block IA/B for engagements.

The emphasis of Hercules will be to develop algorithms and software in the context of persistent sensor coverage, pervasive weapons coverage, global battle management, effective targeting, and effectiveness in advance environments for Strategic Technology Portfolios (STP) and early intercept capability demonstration managed by MDA's Advanced Technology Directorate. Hercules develops robust, physics-based detection, tracking, discrimination, and decision making prototype algorithms to improve the performance of command and control, battle management, communications, sensor, and weapon components. These algorithms and software are critical in keeping pace with the evolving threat.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Systems Level R&D See Description Below	8.850	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>	PROJECT WX02: <i>Hercules Capability Development</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> The Systems Team applies advanced decision theory to improve real-time BMDS command and control, battle management, and communications (C2BMC) capability. The Systems Team develops multi-sensor tracking and discrimination algorithms providing robust system level tracking and decision aids. The coordinated sensor and weapon management development effort provides decision aids to the missile defense commander to improve management of different BMDS sensors and weapons. These capabilities will lead to better situational awareness, discrimination, sensor resource allocation, and weapon magazine.</p> <p>Started expansion of target selection capability to include Hercules-developed lethal region identification capability. Continued development of enhanced tracking, correlation, and discrimination algorithms to include volumetric approaches. Continued development of weapon and sensor resource management algorithms.</p> <p><i>FY 2010 Plans:</i> NA</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
Platform Level R&D See Description Below		11.772	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>		PROJECT WX02: <i>Hercules Capability Development</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> The Platform Team develops algorithms for application on individual sensor or weapons to enhance performance of the host mission and/or provide additional levels of information for systems level processing (forward based and midcourse discrimination, tracking, correlation, handover, clutter mitigation, resource management). These algorithms will improve surveillance and fire control sensor performance, provide additional discrimination data, and increase resistance to clutter. Kill vehicle algorithms will improve hand over, tracking, on board discrimination and resistance to clutter.</p> <p>Continued development and testing of future kill vehicle seeker systems engagement management algorithms. Initiated transition project for Standard Missile 3 (SM-3) seeker enhancement algorithms. Conducted Aegis BMD algorithm integration. Initiated development of enhanced algorithms for detection and tracking in advanced radio frequency clutter. Initiated effort to improve initial clutter mitigation capability in response to joint engineering effort and digital test effort.</p> <p><i>FY 2010 Plans:</i> NA</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>								
Evaluation and Testing				18.319	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>	PROJECT WX02: <i>Hercules Capability Development</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> NA</p> <p><i>FY 2010 Plans:</i> The FY 2010 emphasis will be on the technologies within each Strategic Technology Portfolios (STPs) that enable early intercept fire control and command, control, communications, and battle management capabilities. Investment in the next generation and game changing technologies will continue with an emphasis on efforts enabling or improving the early engagement capability.</p> <p>STP 1 - Persistent Sensor Coverage - Electro-optical and infrared and radio frequency technologies for persistent sensor coverage. Hercules is developing advanced algorithms for: sensor-to-sensor correlation to help mitigate the effects of sensor coverage gaps, sensor-to-kill vehicle handover for transition of discrimination data to the kill vehicle, and expanding sensor performance to reduce gaps and measure new features. These algorithms enable and support system level multi-sensor data integration functions for system tracking, discrimination, and battle management. This includes approaches and techniques for system level tracking using data from multiple sensors using different phenomenology that address ambiguity management and global genealogy.</p> <p>Continue development of discrimination algorithms that exploit unique opportunities in Electro-optical and Infrared.</p> <p>STP 2 - Pervasive Weapons Coverage - Directed energy and interceptor technologies to enable early engagements. Hercules is developing forward based sensor discrimination algorithms exploiting unique opportunities existing in boost and early ascent of the threat. These algorithms support and enable early engagements by allowing earlier decisions which helps reduce hardware performance requirements.</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> NA</p> <p><i>FY 2010 Plans:</i> This includes the management of the Strategic Technology Portfolios ;and technology program analysis. This effort is comprised of entirely Program Management costs associated with Advanced Technology development, no article quantities are reported.</p> <p>Funds government personnel salaries for program management, project support, project costs and travel. Support activities for technology development. Conduct individual testing of algorithms across Project Hercules.</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	51.413	46.104	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>											
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221

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C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
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• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>	PROJECT WX02: <i>Hercules Capability Development</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0901598C: <i>Management Headquarters-MDA</i>											

D. Acquisition Strategy

MDA's fiscal year FY 2010 budget submission reflected an emphasis on early intercept research and development. The acquisition strategy to conduct this technology development effort consists of three pillars. First, leverage the technical expertise of Federally Funded Research and Development Centers and University Applied Research Centers. Second, continue to leverage relevant existing contracts within limits of Competition and Contracting Act (CICA) taking into account contractor past performance, scope, ceiling and period of performance. Third, for new technology initiatives, seek industry solutions via the Advanced Technology Broad Agency Announcement and competitive procurements.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>				PROJECT WX02: <i>Hercules Capability Development</i>					

Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Level R&D Algorithm Development WX02	C/CPFF	Various Various	34.610	0.000		0.000		0.000		0.000	0	34.610	34.610
Platform Level R&D Algorithm Development WX02	TBD/TBD	Various Various	57.791	0.000		0.000		0.000		0.000	0	57.791	57.791
Hercules Technology Development Algorithm Development WX02	C/Various	Various See Remarks	0.000	24.962	Jul 2010	0.000		0.000		0.000	0	24.962	25.165
Subtotal			92.401	24.962		0.000		0.000		0.000	0.000	117.363	117.566

Remarks

Performing Activity and/or Vendor: Johns Hopkins University - Applied Physics Laboratory (APL), Boeing, Lockheed Martin (LM), Massachusetts Institute of Technology Lincoln Laboratory (MIT/LL), Northrop Grumman (NG), National Air and Space Intelligence Center (NASIC), Naval Surface Warfare Center Corona (NSWC-Corona), Raytheon, Sandia National Lab (SNL), SEG, Sparta, and other small businesses on a case by case basis.

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Evaluation and Testing Algorithm Development WX02	C/Various	Sparta Huntsville, AL	14.800	0.000		0.000		0.000		0.000	0	14.800	14.800
	C/Various	Various	0.000	3.810	Oct 2009	0.000		0.000		0.000	0	3.810	3.810

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>	PROJECT WX02: <i>Hercules Capability Development</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Hercules Technology Development Algorithm WX02		Various											
Program Office Algorithm Development WX02	C/Various	Sparta Huntsville, AL	0.000	14.292	Oct 2009	0.000		0.000		0.000	0	14.292	14.343
Subtotal			14.800	18.102		0.000		0.000		0.000	0.000	32.902	32.953

Remarks

NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Evaluation and Testing Evaluation and Testing WX02	C/Various	Various (see Remark 1) Various	60.272	0.000		0.000		0.000		0.000	0	60.272	60.272
Phenomenology Testing Phenomenology Testing WX02	C/Various	Various (see Remark 2) Various	41.058	0.000		0.000		0.000		0.000	0	41.058	41.058
Hercules Technology Development Evaluation and Testing WX02	C/Various	Various (see remarks 1&2) Various	0.000	3.040	Oct 2009	0.000		0.000		0.000	0	3.040	3.040

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>	PROJECT WX02: <i>Hercules Capability Development</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			101.330	3.040		0.000		0.000		0.000	0.000	104.370	104.370

Remarks

- U.S. Army Space and Missile Defense Command/Huntsville AL (FY 2008), MDA/Huntsville (FY 2009-FY 2011), Massachusetts Institute of Technology Lincoln Laboratory/Burlington, MA, Air Force Research Laboratory/Eglin AFB
- U.S. Army Space and Missile Defense Command/Huntsville AL (FY 2008), MDA/Huntsville (FY 2009-FY 2011), Massachusetts Institute of Technology Lincoln Laboratory/Burlington, MA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost				
	208.531	46.104		0.000		0.000		0.000	0.000	0.000	254.635	254.889

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency							DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>			R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>			PROJECT WX02: <i>Hercules Capability Development</i>			
	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks NA									

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
ZX40: <i>Program-Wide Support</i>	0.216	1.828	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	2.044
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> See Section A: Mission Description and Budget Item Justification ; <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA	0.216	1.828	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.216	1.828	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603897C: <i>BMD HERCULES</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	Continuing	Continuing
YX03: <i>Joint Warfighter</i>	57.976	52.059	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	110.035
XX03: <i>Joint Warfighter Sustainment</i>	7.984	6.456	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	14.440
MD03: <i>Joint Warfighter Support</i>	0.000	0.000	66.414	0.000	66.414	59.963	61.389	63.115	64.873	Continuing	Continuing
ZX40: <i>Program-Wide Support</i>	0.323	2.583	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	2.906
MD40: <i>Program-Wide Support</i>	0.000	0.000	2.312	0.000	2.312	2.276	2.062	2.043	2.358	Continuing	Continuing

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Projects XX03 and YX03 are now captured in Project MD03 beginning in FY 2011.

The FY 2011 program is balanced reflecting the four focus areas of the current Missile Defense Program: to develop, rigorously test, and field an integrated BMDS architecture to counter existing regional threats, continue a viable Homeland Defense against rouge threats beyond 2030; demonstrate our proven technologies to show Missile Defense works; and develop technologies to hedge against future missile threat growth.

The best way 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 (C2BMC). 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 BMD capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide both the best sensor information on the enemy missile's location and track as well as a more diverse and effective set of weapon options for the Combatant Commander to defeat the attack -- all connected by a unifying C2BMC system. As a result, an effort funded in a Program Element may be critical to the success of efforts in the other Program Elements -- we refer to these connections as ``interdependencies``. Throughout the budget justification materials we have attempted to highlight interdependencies in order to fully explain the relationship between different parts of the proposed program.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>
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A. Mission Description and Budget Item Justification

The Joint Warfighter Support Program is planned and executed by the Directorate for Warfighter Interface--the Missile Defense Agency's principal interface to the Warfighter (i.e., the Combatant Commands and their Functional/Service Components; the Joint Staff; and the Military Services). The Directorate for Warfighter Interface Joint Staff, Service and Combatant Command Interface for the transition and transfer of BMDS capabilities to Lead Services. Development and evolution of BMDS competencies within the Combatant Commands (and their Service Components), Joint Staff and Services Shift Warfighter focus from Strategic Capabilities to Regional Capabilities that directly support the Geographic Combatant Commanders.

The Joint Warfighter Support Program enables the Warfighter and the Developer to work together to coordinate:

- System requirements, capability needs, and the identification of gaps and seams in warfighting capability
- Inputs to BMDS development and product improvements (through Modification and Fielding Requests)
- Timely responses to Warfighter Requests for Information and Requests for Analyses to support contingency and routine BMDS operations
- BMDS objectives incorporated into Combatant Commander and Developer-sponsored wargames and exercises
- System-level training/mission rehearsal for fielded capabilities and familiarization on new capabilities
- System level sustainment, operations support and operational readiness of the fielded BMDS

Bottom Line: the Directorate for Warfighter Interface enables the effective delivery of BMDS capabilities to the Warfighter and ensures Warfighter participation in the identification and development of new capabilities via the Warfighter Involvement Process. The Joint Warfighter Support Program is executed by the Directorate for Warfighter Interface within a single project, Joint Warfighter Support, through the performance of the following major functions/tasks:

- Enable Joint Staff and Service collaboration on BMDS issues by providing strategic level interfaces among MDA, the Military Services, the Joint Staff, and the Office of the Under Secretary of Defense for Policy (OSD (P))
- Focus on cross-Departmental initiative (such as the transition of BMDS Elements to the Services), and cross-Departmental Corporate Boards (such as the Missile Defense Executive Board)
- Develop and maintain up to the minute BMDS situational awareness and provide technical assistance that enables senior leader decisions
- Plan and execute real time BMDS Asset Management, Configuration Management, Operational Readiness and Fielding Integration in support of the Warfighter
- Perform 24 hours a day, 7 days a week, 365 days a year BMDS Operations Support /coordinate BMDS Asset Management, and monitor/ report BMDS status through the MDA Operations Support Center and BMDS Watch Officers
- Develop and maintain system level BMDS Training and Education activities matched to the latest BMDS configurations

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>

Integrate BMDS-Level training and education Into Joint and Service schools and training environments
 Produce Concepts and Plans that examine evolving and predicted BMDS capabilities to ensure the BMDS keeps pace with the evolving technical and strategic environment
 Ensure Warfighter input to the BMDS development effort via the Warfighter Involvement Process in a timely manner
 Update all Exercises and Wargames to reflect current and emerging BMDS capabilities to allow hands on, system exposure and user training and feedback to the Developer
 Conduct annual or semi-annual Exercises and Wargames for current and emerging BMDS capabilities that allow user training and feedback to the developer
 Coordinate BMDS-wide Integrated Operational Support policies and procedures for each new BMDS capability delivery
 Provide direct and timely support to the Geographic Combatant Commanders to ensure Warfighter participation in applicable exercises, wargaming and training activities
 Maintain continuous Joint Staff interface to MDA, monitor Joint Staff initiatives that impact the BMDS, and provide timely and accurate responses to all Joint Staff Requests for Information and Requests for Analyses
 Support Military Services in the efficient and cost-effective transition of BMDS elements by facilitating their involvement in planning and cost estimating in the earliest phases of BMDS elements` development
 Ensure that MDA leadership is effectively prepared to represent the Agency in external venues, such as the Missile Defense Executive Board and Strategic Command-led General Office Steering Committee (a principals` forum of the Combatant Commands Air and Missile Defense Management Structure)
 Provide MDA planning and Requests for Information and Analysis support to COCOMs during contingency periods through the Operations Support Planning Team (OSPT)

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	69.743	60.921	0.000	0.000	0.000
Current President's Budget	66.283	61.098	68.726	0.000	68.726
Total Adjustments	-3.460	0.177	68.726	0.000	68.726
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.177			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-2.422	0.000			
• SBIR/STTR Transfer	-1.038	0.000			
• Other Adjustment Detail	0.000	0.000	68.726	0.000	68.726

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APPROPRIATION/BUDGET ACTIVITY
0400: *Research, Development, Test & Evaluation, Defense-Wide*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE
PE 0603898C: *BMD JOINT WARFIGHTER SUPPORT*

Change Summary Explanation

FY 2009 Program Changes: The decrease of \$3.460 Million includes \$2.422 Million for Congressional program reductions and \$1.038 Million for SBIR/STTR Transfer

FY 2010 Program Changes: The overall increase of \$177 Thousand reflects Congressional Directed program changes; increase of \$500 Thousand for Independent Advisory Group and decrease of \$323 Thousand for Economic Assumptions 801 and FFRDC (\$288 Thousand to YX03 and \$35 Thousand to XX03)

No FY 2011 data provided in PB10.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>YX03: Joint Warfighter</i>	57.976	52.059	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	110.035
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Projects XX03 and YX03 are now captured in Project MD03 beginning in FY 2011.

A. Mission Description and Budget Item Justification

The Joint Warfighter is comprised of six primary functions/responsibilities: 1) Exercises, Wargames and Geographic Combatant Commander Support; 2) Concepts, Plans and Joint Staff/Service/COCOM Integration; 3) BMDS Materiel Readiness Management; 4) BMDS Training and Education; 5) Warfighter Interface Management; 6) BMDS Manager (through FY09):

Exercises, Wargames and Geographic Combatant Commander Support:

Conducting exercises and wargames enables end-user mission training, qualification, certification and rehearsal of mission operations, strengthens user confidence in the current system and shapes development of the future BMDS. This activity enables the Warfighter to build missile defense plans and Tactics, Techniques and Procedures for the near term BMDS, and then tests execution of those plans via high fidelity simulations. It also incorporates system engineering and interoperability test activities, when possible, to leverage MDA materiel development events by providing real-world training to operators. This activity provides analysis support, as required, for each wargame and exercise to conduct data collection and analysis, and prepares and publishes an event After Action Assessment Report. Finally, exercises and wargames create the conditions for continued, in-depth foreign and/or international participation in BMDS operations and development. Geographic Combatant Commander Support enables key Warfighters to participate in selected MDA activities, wargames and exercises to obtain their input and feedback on the BMDS developmental processes. Every year BMDS overlays are incorporated into Combatant Command Tier 1 Exercises to enable end-user mission rehearsal and sustainment training, qualification and certification of BMDS operations. The yearly, or in some cases every other year, exercises are necessary for both familiarization of the user, but also to ensure capability upgrades accomplished in each BMDS Block upgrade are added to the exercise and training scenarios. By involving participating Combatant Commands in building coherent missile defense plans and Tactics, Techniques and Procedures for the near term BMDS, and then testing cohesive execution of those plans via high fidelity simulations, this effort optimizes BMDS operational effectiveness. The project exercises and wargames are :

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
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<p>U. S. Pacific Command Exercise TERMINAL FURY U.S. Forces Japan Exercise KEEN EDGE Combined Joint Functional Component Commander for Integrated Missile Defense and wargame: Allows introduction of U.S. BMDS issues in a combined Regional and Global context U. S. Central Command Exercise EAGLE RESOLVE U. S. Strategic Command GLOBAL SERIES exercises - Provides Global focus on strategic level objectives to include Strategic Deterrence, Global Strike and Space Control Joint Functional Component Commander for Integrated Missile Defense Exercise ASSURED RESPONSE U.S. Northern Command Exercise VIGILANT SHIELD and ARDENT SENTRY Combined-joint U.S. European Command: JUNIPER COBRA and AUSTERE CHALLENGE Wargame NIMBLE TITAN - Examines BMDS capabilities expected in 2018; and further defines policy and integration issues that need to be solved in relation to cross-Combatant Commands and Allied nation actions FUTURE EPOCH Wargame - Addresses Developer and Warfighter objectives related to future BMDS engagements; examines future capabilities and optimal employment, leveraging other agency efforts, events and lessons learned. Smaller, focused Wargames / Demonstrations - Allows evaluation of future architecture configurations though facilitated collaboration between the Warfighter and the Developer allowing robust input from the Warfighter in the Warfighter Involvement Process and Prioritized Capability List processes Support on a non-interface basis, Combined Joint Functional Component Commander for Integrated Missile Defense and NATO missile defense exercise/wargame JOINT PROJECT OPTIC ALLIANCE / OPTIC WINDMILL: Allows introduction of U.S. BMDS issues in a combined Regional and Global context</p> <p>Concepts, Plans and Joint Staff/Service/COCOM Integration:</p> <p>These functions enable effective operation of emerging and future BMDS material capabilities and technologies. These activities result in Warfighter development of new BMDS employment constructs and Concepts of Operation. They also serve MDA as the vehicle for the Warfighter Involvement Process which seeks user feedback and guidance to shape future Block development of the BMDS and serves as the lead for the conduct of operational readiness assessments and Military Utility Assessments for the BMDS and is the integration point for the Warfighter Requests for Information and Requests for Analyses. The continuing efforts include</p> <p>Support to the Joint Functional Component Commander for Integrated Missile Defense BMDS Table Top Exercise(s) to facilitate the Global and to refine the European Capability Concept of Operations through low fidelity demonstration modeling simulations and MDA coordination Developing Table Top evolutions to include future concepts and BMDS assets; conducting System Capability Reviews of new BMDS assets approaching the timeline to be fielded</p>		

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
<p>Providing 24 hours per day, 7 days per week, 365 days a year MDA analysis support to Warfighter Exercises and to the Joint Staff, Services and Combatant Commands in order to document, validate, and prioritize new BMDS capabilities desired by the Warfighters, as well as enhancements to the characteristics of fielded capabilities through the Warfighter Involvement Process</p> <p>Annual update of the BMDS Prioritized Capabilities List reflecting Combatant Command priorities for needed BMDS enhancements</p> <p>Conduct Studies and Analyses, as required, to examine emergent Single Integrated Air Picture issues from a BMDS perspective and assess emerging technologies, studies, and theories for incorporation into future BMDS development</p> <p>Conduct Studies and Analyses to support Joint Staff and Service BMDS Integration efforts required to ensure all aspects of the BMDS successfully transition from development to field use</p> <p>Conduct BMDS Table Top exercises with low fidelity demonstrations for our friends and allies, working with the MDA Deputy for International Programs and the Combatant Commanders</p> <p>Work with the Terminal High-Altitude Area Defense, and other Program Offices and the Warfighter to establish Concepts of Operations that will support future MDA development</p> <p>Provide strategic-level interfaces between MDA and the Military Services, the Joint Staff, and the Office of the Under Secretary of Defense for Policy (OSD (P)), with a focus on cross-Departmental initiatives (such as the transition of BMDS Elements/Components to the Services), and cross-Departmental Corporate Boards (such as the Missile Defense Executive Board)</p> <p>Maintain daily, strategic-level interfaces with the Military Services and Joint Staff, providing them with the critical information they require to plan for the delivery, fielding, and operation of BMDS capabilities</p> <p>Provide direct support to the Director's Action Group for MDA senior leadership projects</p> <p>Support MDA Senior Leadership participation in the MDEB, the Joint Requirements Oversight Council, the Joint Capability Boards and other interdepartmental venues</p> <p>Liaison with OSD Policy on affairs related to missile defense</p> <p>Directly interface with the Services, Joint Staff and Combatant Command on missile defense policy issues</p> <p>Ensure senior leadership is prepared for all external engagements (executive boards, testimony, Combatant Command visits, public engagements, etc) as relates to operational BMDS strategic planning and policy</p> <p>Enable BMDS operational situational awareness and real-world crisis response to the leadership through the MDA/HQ Mission Operations Center</p> <p>Provide MDA's planner level coordination for Combatant Command, Joint Staff, and inter-agency staff actions</p> <p>BMDS Materiel Readiness Management:</p> <p>Performs life cycle Ballistic Missile Defense System (BMDS) readiness policy, planning, analysis and assessment in support of the Materiel function of the Doctrine, Organization, Training, Materiel, Leadership, Personnel and Facilities (DOTMLPF). Execute Logistics Functional Manager duties, including training, mentoring and leading the logistics workforce.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
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<p>BMDS Training and Education:</p> <p>This activity develops and maintains BMDS Training and Education at the system level that is not conducted by the Services. Courses for Joint Warfighters, Department of Defense officials and the Services provide critical knowledge on BMDS capabilities and system operation. A key part of this activity includes developing BMDS educational courses and conducting education and training of select BMDS stakeholders, staffs and organizations on emerging BMDS Block deployment capabilities. As new BMDS capabilities are transitioned to the field, upgrades and improvements will be incorporated to maintain the requisite level of training. Annual service provided by this effort include:</p> <ul style="list-style-type: none">Operating the BMDS Training and Education Center; providing BMDS-Level Training and Education for the Joint Warfighters, Defense Officials and ServicesProviding Training Transition support to the ServicesHosting Integrated Ballistic Missile Defense Training Working Groups/ConferencesReviewing all training curriculum to ensure continuously improved Command and Control, Battle Management, and Communications Training by the BMDS Training & Education CenterProviding 130 courses (~2500 hours of instruction) to approximately 1600 studentsProviding simulated missile injects over the live satellite Theater Event System broadcast <p>Warfighter Interface Management:</p> <p>The Directorate for Warfighter Interface consists of an overall management function and three divisions: the Warfighter Support Center located in Colorado Springs, Colorado, the Materiel Readiness Division, located in Huntsville, Alabama, and the Joint Staff, Service, COCOM Integration Cell in the National Capital Region (NCR). The Warfighter Support Center was created through an intensive reengineering effort from legacy organizations, funding, manpower, and processes. The purpose of this re-engineering was to consolidate BMD System Level exercise, wargame, and training efforts into a single center of excellence in Colorado Springs, Colorado at the Missile Defense Integrated Operations Center (MDIOC).</p> <p>Ballistic Missile Defense System Manager:</p>		

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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The Ballistic Missile Defense System Manager staff (within the U.S. Army's Space and Missile Defense Command) functions to ensure proper integration of BMDS capabilities within the Services. These activities include:

- Centralized integration of Doctrine, Organization, Training, Leader Development, Personnel and Facilities domain products across the BMDS Elements
- Serving as the single user representative for the Ground-based Midcourse Defense and the AN/TPY-2 Forward Based X-Band Radar materiel developers and centralized management and integration of Ground-based Midcourse Defense and AN/TPY-2 Doctrine, Organization, Training, Leader Development, Personnel and Facilities products
- Joint integration and problem resolution as the Army's Lead Service and Executive Agent for Ground-based Midcourse Defense operations and the AN/TPY-2 radar
- Conducting BMDS Combined Element Reviews on behalf of Combatant Commands, Services, and the BMDS materiel developer
- Preparing and updating BMDS Activation Plans and Emergency Activation Plan annexesAs MDA transitions logistics support and Doctrine, Organization, Training, Leader Development, Personnel and Facilities product development responsibilities to the Services (through Hybrid Program Offices and/or Service Transition and Transfer Cells), these responsibilities will transition also.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Exercises, Wargames and Geographic Combatant Commander Support See Description Below <i>FY 2009 Accomplishments:</i> ASSURED RESPONSE Exercise Series 3Q FY 2009 FUTURE EPOCH Wargame Series 1Q FY 2009 Global Lightning Exercise Series 1Q FY 2009 VIGILENT SHIELD Exercise Series 1Q FY 2009 BMDS Training Center Full Operations Capability 2Q FY 2009 KEEN EDGE Exercise Series 2Q FY 2009 ARDENT SENTRY Exercise Series 3Q FY 2009 AUSTERE CHALLENGE Exercise Series 3Q FY 2009 BMDS Joint ILS Mgt Team Conference 3Q FY 2009	25.222	32.951	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>BMDS Logistics Support Contingency Plan Update 3Q FY 2009 EAGLE RESOLVE Exercise Series 3Q FY 2009 TERMINAL FURY Exercise Series 3Q FY 2009 GLOBAL THUNDER Exercise Series 4Q FY 2009 FUTURE EPOCH WARGAME 1Q FY 2009 EUROPEAN CAPABILITY OPERATOR IN THE LOOP WARGAME 1Q FY 2009 NATIONAL MISSILE DEFENSE CONFERENCE WARGAME 3Q FY 2009 Planning conference to prepare to conduct Wargame NIMBLE TITAN 10</p> <p><i>FY 2010 Plans:</i> Global Lightning Exercise Series 1Q FY 2010 NIMBLE TITAN Wargame Series 2Q FY 2010 VIGILENT SHIELD Exercise Series 1Q FY 2010 JUNIPER COBRA ARDENT SENTRY Exercise Series 3Q FY 2010 AUSTERE CHALLENGE Exercise Series 3Q FY 2010 BMDS Joint ILS Mgt Team Conference 3Q FY 2010 BMDS Logistics Support Contingency Plan Update 3Q FY 2010 EAGLE RESOLVE Exercise Series 3Q FY 2010 GLOBAL STORM Exercise Series 3Q FY 2010 TERMINAL FURY Exercise Series 3Q FY 2010 GLOBAL THUNDER Exercise Series 4Q FY 2010 KEEN EDGE Exercise Series 2Q FY 2010 INTERNAL LOOK Exercise Series 1Q FY 2010 AIR AND MISSILE DEFENSE EXERCISE 1Q-4Q FY 2010 ASSURED RESPONSE Exercise Series 4Q FY 2010 NATIONAL MISSILE DEFENSE CONFERENCE WARGAME 2Q FY 2010 MULTINATIONAL MISSILE DEFENSE CONFERENCE WARGAME 3Q FY 2010</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> Plans ;captured in Project MD03</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
<p>Concept, Plans and Joint Staff/Service/COCOM Integration</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Continued to support Joint Functional Component Command for Integrated Missile Defense BMDS Tabletop Exercises to facilitate development of the BMDS Global Concept of Operations Updated the annual BMDS Prioritized Capabilities List to reflect changes in Component Commander priorities for needed BMDS enhancements Continued to assist Strategic Command with the annual BMDS Military Utility Assessment Continued to support the Upgraded Early Warning Radars Integrated Task Force in order to address Warfighter issues and concerns with all sites Continued to work with the Element Program Offices and the Warfighter to establish Concepts of Operation Continued Service coordination to resolve transition and transfer issues via decision-focused Board of Director meetings with each of the Military Services Continued to work with each of the Military Services to produce and coordinate draft transition and transfer documentation, tailored to the needs of each Service Continued to support Weapon System Reviews as required with the Lead Service to inform them on BMDS capabilities and cost estimates in order to facilitate future transition/transfer Coordinated efforts with ;the designated Lead Services to facilitate transition/transfer of BMDS capabilities</p>	2.720	1.990	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Updated the Ballistic Missile Defense System (BMDS) Logistics Career Guide, which incorporates workforce competencies and technical proficiency standards</p> <p>Executed Logistics Functional Manager requirements, including training, mentoring and leading the logistics workforce to maximize materiel readiness</p> <p>Established the Readiness Directorate (DWL) to perform life cycle Ballistic Missile Defense System (BMDS) readiness policy, planning, analysis and assessment in support of the Materiel (M) functionality of the Doctrine Organization, Training, Materiel, Leadership, Personnel and Facilities (DOTMLPF). Executed duties as the Logistics Functional Manager, including training, mentoring and leading the logistics workforce</p> <p>Relocated staff Hired personnel Prepared work space Coordinated information technology requirement Exercised cost avoidance of \$200K, by implementing the Readiness Surge Team (RST) in support of Targets and Countermeasures Program Office versus exercising existing personnel surge contract options Initiated Logistics Functional Manager Meetings (like all other functional areas) to provide direction to the Logistics Functional Leads on policy, personnel issues, and capitalize on successes and help minimize logistics hardships Reviewed program element Requests for Proposal (RFP) to assess Ballistic Missile Defense System (BMDS) life cycle logistics impacts, regulatory compliance and the ability to meet readiness and mission objectives Provided one full-time Missile Defense Agency Engineering Support Services (MiDAESS) integrator, assigned subject matter experts and technical evaluation team members for source selection activities Coordinated personnel issues/requests with MDA Human Resources (DXH) on behalf of the logistics Functional Manager and the logistics workforce</p>					

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B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA								
Ballistic Missile Defense System Manager See Description Below <i>FY 2009 Accomplishments:</i> Continued integration of all Doctrine, Organization, Training, Leadership, Personnel, and Facilities activities required to field an AN/TPY-2 (Forward Base Radar) in Japan Postured the Sea-based X-band radar for successful fielding in the absence of a lead service Maintained Ground Based Midcourse Defense readiness Served as user representative for Command and Control, Battle Management, and Communications/ Global Engagement manager on behalf of Strategic Command's Joint Functional Component Command for integrated Missile Defense <i>FY 2010 Plans:</i> This effort will reside solely in ;the program offices <i>FY 2011 Base Plans:</i> Plans captured in Project MD03 <i>FY 2011 OCO Plans:</i> NA				5.212	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals				57.976	52.059	0.000	0.000	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The Directorate for Warfighter Interface will continue to enable the effective delivery of BMDS capabilities to the Warfighter and to ensure Warfighter participation in the identification and development of new capabilities via the Warfighter Involvement Process.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analysis, and evaluation; and management and professional services.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Exercises, Wargames and Geographic Combatant Commander Support Exercises & Wargames YX03	C/CPAF	Northrop Grumman Colorado Springs, CO	41.241	31.883	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Exercises, Wargames and Geographic Combatant Commander Support Geographic Combatant Commander Support YX03	TBD/TBD	COCOMS Various	0.804	0.068	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Exercises, Wargames and Geographic Combatant Commander Support MDA YX03	Various/ Various	MDA/MDIOC Colorado Springs	0.000	1.000	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Concept, Plans and Joint Staff/Service/COCOM Integration Concepts, Plans and Integration Support YX03	TBD/TBD	MDIOC Colorado Springs, CO	0.587	0.394	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Concept, Plans and Joint Staff/Service/COCOM Integration Concepts, Plans and Integration Studies YX03	C/CPAF	MDIOC Colorado Springs, CO	2.586	0.596	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Concept, Plans and Joint Staff/Service/COCOM Integration Integrated	C/CPFF	MDIOC Colorado Springs, CO/Arlington, VA	0.140	0.000	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air & Missile Defense Future Concepts Studies YX03													
Concept, Plans and Joint Staff/Service/COCOM Integration Joint Staff/Service Integration Cell Studies and Analysis YX03	C/FFP	Arlington, VA	1.779	1.000	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Materiel Readiness Management BMD Logistics Development Studies & Analysis YX03	C/CPAF	MDA Washington, D.C.	0.682	0.361		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Materiel Readiness Management BMD Logistics - Operational Readiness Reporting System YX03	Various/ Various	MDIOC Colorado Springs, CO	0.407	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Training and Education BMDS Training & Education Center YX03	C/CPAF	MDIOC Colorado Springs, CO	10.400	5.813	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Training and Education Missile Defense Space Warning Tool YX03	Various/ Various	MDIOC Colorado Springs, CO	2.149	1.560	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
	C/CPFF	MDIOC/NCR	0.000	0.500		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMDs Training and Education Independent Assessment YX03		Colorado Springs, CO/D.C.											
Subtotal			60.775	43.175		0.000		0.000		0.000			

Remarks

The FY 2010 Missile Defense Space Warning Tool (MDST) budget supports MDA Research Development Test and Evaluation (RDT&E) and Ballistic Missile Defense (BMD) developmental requirements but does not fund recurring service training/missile warning exercise requirements. Director Warfighter Support Center plans to support on a fee for service basis.

FY 2011 captured in Project MD03.

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Warfighter Interface Management Warfighter Support Center & Operations Support Center Facilities YX03	C/CPFF	MDIOC Colorado Springs, CO	0.519	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Warfighter Interface Management Operations Support Center Build-Out YX03	C/FPI	MDIOC Colorado Springs, CO	1.700	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			2.219	0.000		0.000		0.000		0.000			

Remarks
FY 2011 captured in Project MD03

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
FY 2011 captured in Project MD03

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Warfighter Interface Management DW	Various/ Various	-	4.131	2.439	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Civilian Personnel Salaries YX03		Colorado Springs, CO/Arlington, VA/Huntsville, AL											
Warfighter Interface Management DW Technical Support Contractors YX03	C/CPFF	Various Arlington, VA/Huntsville, AL/Colorado	23.588	5.660	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Warfighter Interface Management DW Civilian & Military Staff Travel YX03	Various/ Various	- Arlington, VA/Huntsville, AL/Colorado	1.820	0.675	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Warfighter Interface Management Operations Support Matrix Management YX03	TBD/TBD	MDIOC Colorado Springs, CO	0.104	0.110	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Ballistic Missile Defense System Manager Ft. Bliss Admin & Mgt YX03	TBD/TBD	- Fort Bliss	0.916	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Ballistic Missile Defense System Manager BMD/SM Operations & Integration YX03	TBD/TBD	- Huntsville, AL	1.548	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Ballistic Missile Defense System Manager BMD Element & Capability Deployment YX03	TBD/TBD	- Huntsville, AL	0.423	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
	TBD/TBD	-	0.634	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Ballistic Missile Defense System Manager C2BMC System Mgr Support YX03		Huntsville, AL											
Ballistic Missile Defense System Manager BMDS Readiness Support YX03	TBD/TBD	- Huntsville, AL	0.634	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Ballistic Missile Defense System Manager BMDS Strategic Operations YX03	TBD/TBD	- Huntsville, AL	0.423	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Ballistic Missile Defense System Manager BMD Emerging Systems Support YX03	TBD/TBD	- Huntsville, AL	0.634	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			34.855	8.884		0.000		0.000		0.000			

Remarks
NA

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	97.849	52.059	0.000	0.000	0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency							DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>			R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>			PROJECT YX03: <i>Joint Warfighter</i>			
	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks NA									

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
VIGILANT SHIELD Exercise Series-1Q 2009	■																											
VIGILANT SHIELD Exercise Series-1Q 2010					■																							
Global Lightning Exercise Series-1Q 2009	■																											
Global Lightning Exercise Series-1Q 2010					■																							
ASSURED RESPONSE Exercise Series-2Q 2010							■																					
ASSURED RESPONSE Exercise Series-3Q 2009			■																									
ASSURED RESPONSE Exercise Series-4Q 2010											■																	
TERMINAL FURY Exercise Series-3Q 2009			■																									
TERMINAL FURY Exercise Series-3Q 2010								■																				
BMDS Joint Integrated Logistics Support Mgt Team Conference-3Q 2009			■																									
BMDS Joint Integrated Logistics Support Mgt Team Conference-3Q 2010								■																				
ARDENT SENTRY Exercise Series-3Q 2009			■																									
ARDENT SENTRY Exercise Series-3Q 2010								■																				
AUSTERE CHALLENGE Exercise Series-3Q 2009			■																									
AUSTERE CHALLENGE Exercise Series-3Q 2010								■																				

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 Exercise Series-3Q 2009			■																									
EAGLE RESOLVE Exercise Series-3Q 2010								■																				
KEEN EDGE Exercise Series-2Q 2009		■																										
KEEN EDGE Exercise Series-2Q 2010								■																				
NIMBLE TITAN Wargame Series								■																				
GLOBAL STORM Exercise Series								■																				
GLOBAL THUNDER Exercise Series-3Q 2009			■																									
GLOBAL THUNDER Exercise Series-3Q 2010								■																				
BMDS Logistics Support Contingency Plan Update-3Q 2009			■																									
BMDS Logistics Support Contingency Plan Update-3Q 2010								■																				
FUTURE EPOCH Wargame Series	■																											
BMDS Training Center Full Operations Capability		■																										
Foreign Exercises - 2Q FY2009 - 1Q 2010		■	■	■	■																							
Foreign Exercises - 2Q 2010								■																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
VIGILANT SHIELD Exercise Series-1Q 2009	1	2009	1	2009
VIGILANT SHIELD Exercise Series-1Q 2010	1	2010	1	2010
Global Lightning Exercise Series-1Q 2009	1	2009	1	2009
Global Lightning Exercise Series-1Q 2010	1	2010	1	2010
ASSURED RESPONSE Exercise Series-2Q 2010	2	2010	2	2010
ASSURED RESPONSE Exercise Series-3Q 2009	3	2009	3	2009
ASSURED RESPONSE Exercise Series-4Q 2010	4	2010	4	2010
TERMINAL FURY Exercise Series-3Q 2009	3	2009	3	2009
TERMINAL FURY Exercise Series-3Q 2010	3	2010	3	2010
BMDS Joint Integrated Logistics Support Mgt Team Conference-3Q 2009	3	2009	3	2009
BMDS Joint Integrated Logistics Support Mgt Team Conference-3Q 2010	3	2010	3	2010
ARDENT SENTRY Exercise Series-3Q 2009	3	2009	3	2009
ARDENT SENTRY Exercise Series-3Q 2010	3	2010	3	2010
AUSTERE CHALLENGE Exercise Series-3Q 2009	3	2009	3	2009
AUSTERE CHALLENGE Exercise Series-3Q 2010	3	2010	3	2010
EAGLE RESOLVE Exercise Series-3Q 2009	3	2009	3	2009
EAGLE RESOLVE Exercise Series-3Q 2010	3	2010	3	2010
KEEN EDGE Exercise Series-2Q 2009	2	2009	2	2009

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT YX03: <i>Joint Warfighter</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
KEEN EDGE Exercise Series-2Q 2010	2	2010	2	2010
NIMBLE TITAN Wargame Series	3	2010	3	2010
GLOBAL STORM Exercise Series	3	2010	3	2010
GLOBAL THUNDER Exercise Series-3Q 2009	3	2009	3	2009
GLOBAL THUNDER Exercise Series-3Q 2010	3	2010	3	2010
BMDS Logistics Support Contingency Plan Update-3Q 2009	3	2009	3	2009
BMDS Logistics Support Contingency Plan Update-3Q 2010	3	2010	3	2010
FUTURE EPOCH Wargame Series	1	2009	1	2009
BMDS Training Center Full Operations Capability	2	2009	2	2009
Foreign Exercises - 2Q FY2009 - 1Q 2010	2	2009	1	2010
Foreign Exercises - 2Q 2010	2	2010	2	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT XX03: <i>Joint Warfighter Sustainment</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
XX03: <i>Joint Warfighter Sustainment</i>	7.984	6.456	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	14.440
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project XX03 is now captured in Project MD03.

A. Mission Description and Budget Item Justification

The Directorate of Warfighter Interface's Operations Support Center serves as the MDA focal point for maintaining situational awareness of the BMDS. To that end, it coordinates asset management and operational reporting. Specific Operations Support Division responsibilities include:

- Man and operate the MDA's Operations Support Center 24 hours a day, 7 days a week, 365 days a year to gather, develop, maintain, communicate and correlate all BMDS situational awareness data concerning the current Health and Status of the BMDS, maintaining operational and exercise configuration control of the BMDS architecture, reporting operational readiness, conducting pre-fielding and fielding asset coordination responsibilities, providing real time BMDS information to all BMDS stakeholders and providing crisis action planning and support during exercises and real world contingencies
- Maintain approved BMDS operational configuration and enable on-site developmental operations, sustainment, and operational activities in a Concurrent Test, Training and Operations environment
- Precisely align BMDS components in accordance with the currently approved Operational or Test Configuration
- Serve as the MDA BMDS Asset Management office of primary responsibility for coordinating and providing integrated MDA development, maintenance and training inputs into the Asset Management Process
- Conduct pre-fielding and fielding actions that enable emerging BMDS capabilities to rapidly achieve Partial and Full Mission Capability. Extensive coordination with MDA Elements and the Warfighting community is required to ensure rapid and effective fielding
- Support MDA Warfighter/Service efforts to monitor, collect, and analyze BMDS operational readiness data to communicate past and present BMDS operational readiness and improve future performance
- Maintain BMDS Operational Baseline documentation and associated Operational Configuration documentation to include the BMDS Handbook and technical library
- Maintain applicable configuration documents for BMDS Elements and the Warfighter Support Center

B. Accomplishments/Planned Program (\$ in Millions)

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT XX03: <i>Joint Warfighter Sustainment</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Continue improvements in overseeing the BDMS operational configuration and increase fidelity and technical detail in configuration specifications</p> <p>Continue to coordinate and align BMDS scheduled maintenance to maximize availability</p> <p>Continue integration of Capability Demonstration-like objectives into the Ground Test Campaign.</p> <p>Continue to update the BMDS Handbook and create and publish the BMDS Handbook for BMDS Block 4 and 5</p> <p>Continue quarterly BMDS System Operability Check continuity tests</p> <p>Update BMDS-wide Integrated Logistics Support Plans and Sustainment Directive</p> <p>Develop and Beta-test the BMDS Operational Readiness Reporting System as part of the operational readiness automated tool development process</p> <p>Chair and sponsor periodic (planned monthly) BMDS Integrated Logistics Support Team meetings for Action Officer-level interface and exchange</p> <p>Execute the annual Joint Integrated Logistics Support Management Team Conference for Senior Mentor and Action Officer-level interface</p> <p><i>FY 2011 Base Plans:</i> Plans captured in Project MD03</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	7.984	6.456	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT XX03: <i>Joint Warfighter Sustainment</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>											
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT XX03: <i>Joint Warfighter Sustainment</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>											
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT XX03: <i>Joint Warfighter Sustainment</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0901598C: <i>Management Headquarters-MDA</i>											

D. Acquisition Strategy

This project, within the Joint Warfighter Support Program, will continue to follow the MDA`s capability-based acquisition strategy that emphasizes assessment, spiral-development testing and evolutionary acquisition--in collaboration with the Combatant Commanders and their Service Components, the Joint Staff, and the Military Services.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses and evaluation; and management and professional services. All future procurement actions will be competed to the practical extent possible.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT XX03: <i>Joint Warfighter Sustainment</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Sustainment and Operations - Operations Support Center Operations Support Center Operations XX03	C/CPFF	MDIOC Colorado Springs, CO	1.035	0.725	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Sustainment and Operations - Operations Support Center BMDS Operational Readiness Reporting System (BORRS) XX03	TBD/TBD	MDIOC Colorado Springs, CO	0.000	0.361	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Sustainment and Operations - Operations Support Center BMDS XX03	Various/ Various	MDA NCR & Huntsville, AL	2.253	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT XX03: <i>Joint Warfighter Sustainment</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			3.288	1.086		0.000		0.000		0.000			

Remarks
NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Sustainment and Operations - Operations Support Center	Various/ Various	MDIOC Colorado Springs, CO	2.509	1.529	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT XX03: <i>Joint Warfighter Sustainment</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Operations Support Center Government Salaries XX03													
Sustainment and Operations - Operations Support Center Operations Support Center Contractor Technical Support XX03	C/CPFF	Sparta Colorado Springs, CO	6.696	3.745	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Sustainment and Operations - Operations Support Center Government Staff Travel XX03	Various/ Various	MDIOC Colorado Springs, CO	0.176	0.096	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			9.381	5.370		0.000		0.000		0.000			

Remarks
NA

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	12.669	6.456	0.000	0.000	0.000			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT XX03: <i>Joint Warfighter Sustainment</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
BMD Asset Management Tool Development/ Upgrade-1Q 2010					■																							
BMD Asset Management Tool Development/ Upgrade-3Q 2009			■																									
BMD Asset Management Tool Development/ Upgrade-3Q 2010								■																				
BMD Handbook On-line Tool Development/ Upgrade-2Q 2009		■																										
BMD Handbook On-line Tool Development/ Upgrade-2Q 2010							■																					
BMD Handbook On-line Tool Development/ Upgrade-4Q 2009				■																								
BMD Handbook On-line Tool Development/ Upgrade-4Q 2010								■																				
BMD System Operability Check (BSOC)	■	■																										
BMD System Operability Check (BSOC)-1Q 2010							■																					
BMD System Operability Check (BSOC)-2Q 2010							■																					
BMD System Operability Check (BSOC)-3Q 2009			■																									
BMD System Operability Check (BSOC)-3Q 2010								■																				

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT XX03: <i>Joint Warfighter Sustainment</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
BMD System Operability Check (BSOC)-4Q 2009				■																								
BMD System Operability Check (BSOC)-4Q 2010								■																				
Develop Automated Configuration Management Tool								■																				
Operational Readiness Automated Tool Development-1Q 2010						■																						
Operational Readiness Automated Tool Development-2Q 2010							■																					
Operational Readiness Automated Tool Development-3Q 2010								■																				
Operational Readiness Automated Tool Development-4Q 2010								■																				
Operations Support Center Continuity of Operations-2Q 2010						■																						
Operations Support Center Continuity of Operations-4Q 2009			■																									

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT XX03: <i>Joint Warfighter Sustainment</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
BMDs Asset Management Tool Development/Upgrade-1Q 2010	1	2010	1	2010
BMDs Asset Management Tool Development/Upgrade-3Q 2009	3	2009	3	2009
BMDs Asset Management Tool Development/Upgrade-3Q 2010	3	2010	3	2010
BMDs Handbook On-line Tool Development/Upgrade-2Q 2009	2	2009	2	2009
BMDs Handbook On-line Tool Development/Upgrade-2Q 2010	2	2010	2	2010
BMDs Handbook On-line Tool Development/Upgrade-4Q 2009	4	2009	4	2009
BMDs Handbook On-line Tool Development/Upgrade-4Q 2010	4	2010	4	2010
BMD System Operability Check (BSOC)	1	2009	2	2009
BMD System Operability Check (BSOC)-1Q 2010	1	2010	1	2010
BMD System Operability Check (BSOC)-2Q 2010	2	2010	2	2010
BMD System Operability Check (BSOC)-3Q 2009	3	2009	3	2009
BMD System Operability Check (BSOC)-3Q 2010	3	2010	3	2010
BMD System Operability Check (BSOC)-4Q 2009	4	2009	4	2009
BMD System Operability Check (BSOC)-4Q 2010	4	2010	4	2010
Develop Automated Configuration Management Tool	4	2010	4	2010
Operational Readiness Automated Tool Development-1Q 2010	1	2010	1	2010
Operational Readiness Automated Tool Development-2Q 2010	2	2010	2	2010
Operational Readiness Automated Tool Development-3Q 2010	3	2010	3	2010

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT XX03: <i>Joint Warfighter Sustainment</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Operational Readiness Automated Tool Development-4Q 2010	4	2010	4	2010
Operations Support Center Continuity of Operations-2Q 2010	2	2010	2	2010
Operations Support Center Continuity of Operations-4Q 2009	4	2009	4	2009

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD03: <i>Joint Warfighter Support</i>	0.000	0.000	66.414	0.000	66.414	59.963	61.389	63.115	64.873	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project XX03 and YX03 are now captured in Project MD03 beginning in FY11.

A. Mission Description and Budget Item Justification

The Joint Warfighter Support Program is planned and executed by the Directorate for Warfighter Interface--the Missile Defense Agency's principal interface to the Warfighter (i.e., the Combatant Commands and their Functional/Service Components; the Joint Staff; and the Military Services). The Directorate for Warfighter Interface transitions MDA developed capabilities to the Military Services for employment in support of Combatant Commander priorities in order to achieve effective ballistic missile defense of the homeland, deployed regional forces and allies. In addition, the Directorate serves as the principal MDA interface to the Joint Staff, the Combatant Commands and Services on BMD capabilities development and operational issues.

Joint Warfighter Support is comprised of seven primary functions/responsibilities/tasks: 1) Warfighter Interface Management and Combatant Commander (COCOM) Support; 2) Joint Staff, Service and COCOM Integration; 3) BMDS Materiel Readiness; 4) Operations Support; 5) Exercises and Wargames; 6) BMDS Training and Education; 7) Plans and Capability Delivery.

Warfighter Interface Management and Combatant Commander (COCOM) Support

The Directorate for Warfighter Interface consists of an overall management function and accomplishes its mission through three Divisions: the Warfighter Support Center; the Joint Staff, Service, COCOM Integration Division; and the Materiel Readiness Division. The Warfighter Support Center (located in Colorado Springs, Colorado at the Missile Defense Integration and Operations Center (MDIOC)), the Joint Staff, Service and COCOM Integration Division (located in the National Capital Region (NCR)), and the Materiel Readiness Division (located in Huntsville, Alabama) were created through an intensive reengineering effort from legacy organizations, funding, manpower, and processes. The Joint Warfighter Support Program enables the Warfighter to: define, test, deploy and employ new missile defense capabilities; train to maintain proficiency with current capabilities; and provide feedback and support involvement in MDA's BMDS development process. As MDA transitions/transfers programs to the Lead Services (through Hybrid Program Offices and/or Service Transition and Transfer Cells), many of the Joint Warfighter Support responsibilities will move as well.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
<p>Joint Staff, Service and COCOM Integration</p> <p>The Developer-Warfighter Interface is critically important to the effective and efficient fielding of BMDS capabilities worldwide. To this end, the Directorate for Warfighter Interface maintains a Joint Staff, Service and COCOM Integration Division.</p> <p>BMDS Materiel Readiness</p> <p>The Materiel Readiness Division performs life cycle Ballistic Missile Defense System (BMDS) readiness policy, planning, analysis and assessment in support of the Materiel function of the Doctrine, Organization, Training, Materiel, Leadership, Personnel and Facilities (DOTMLPF). This division develops Materiel Readiness Policies for the BMDS, provides readiness Surge Team support to the elements, oversight to ensure elements adhere with Acquisition, Technology and Logistics` Item Unique Identifier policy, provides training, mentoring, and leadership of the logistics workforce.</p> <p>Exercises and Wargames</p> <p>Conducting exercises and wargames enables end-user mission training, qualification, certification and rehearsal of mission operations, strengthens user confidence in the current system and shapes development of the future BMDS. This activity enables the Warfighter to build missile defense plans and Tactics, Techniques and Procedures for the near term BMDS, and then tests execution of those plans via high fidelity simulations. It also incorporates system engineering and interoperability test activities, when possible, to leverage MDA materiel development events by providing real-world training to operators. This activity provides analysis support, as required, for each wargame and exercise to conduct data collection and analysis, and prepares and publishes an event After Action Assessment Report. Finally, exercises and wargames create the conditions for continued, in-depth foreign and/or international participation in BMDS operations and development. Geographic Combatant Commander Support enables key Warfighters to participate in selected MDA activities, wargames and exercises to obtain their input and feedback on the BMDS developmental processes. Every year BMDS overlays are incorporated into Combatant Command Tier 1 Exercises to enable end-user mission rehearsal and sustainment training, qualification and certification of BMDS operations. The yearly, or in some cases every other year, exercises are necessary for both familiarization of the user, but also to ensure capability upgrades accomplished in each BMDS capability upgrade are added to the exercise and training scenarios. By involving participating Combatant Commands in building coherent missile defense plans and Tactics, Techniques and Procedures for the near term BMDS, and then testing cohesive execution of those plans via high fidelity simulations, this effort optimizes BMDS operational effectiveness.</p> <p>BMDS Training and Education</p> <p>This activity develops and maintains BMDS Training and Education at the system level that is not conducted by the Services. Courses for Joint Warfighters, Department of Defense officials and the Services provide critical knowledge on BMDS capabilities and system operation. A key part of this activity includes developing</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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BMDS educational courses and conducting education and training of select BMDS stakeholders, staffs and organizations on emerging BMDS capabilities development. As new BMDS capabilities are transitioned to the field, upgrades and improvements will be incorporated to maintain the requisite level of training.

Plans and Capability Delivery

These functions enable effective operation of emerging and future BMDS material capabilities and technologies. These activities result in Warfighter development of new BMDS employment constructs and Concepts of Operation. They also serve MDA as the vehicle for the Warfighter Involvement Process which seeks user feedback and guidance to shape future capability development of the BMDS and serves as the lead for the conduct of operational readiness assessments and Military Utility Assessments for the BMDS and is the integration point for the Warfighter Requests for Information and Requests for Analyses.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Operations Support See Description Below <i>FY 2009 Accomplishments:</i> Accomplishments are captured in Project XX03 <i>FY 2010 Plans:</i> Plans ;captured in Project XX03 <i>FY 2011 Base Plans:</i> Man and operate MDA`s OSC 24 hours per day, 7 days per week, 365 days per year ;to gather, develop, maintain, communicate and fuse all BMDS situational awareness data concerning the current Health and Status of the BMDS, maintaining operational and exercise configuration control of the BMDS architecture, reporting operational readiness, conducting pre-fielding and fielding asset coordination responsibilities, providing real time BMDS information to all BMDS stakeholders and providing crisis action planning and support during exercises and real world contingencies Plan, organize, resource and manage BMD operations support functions to optimize mission performance	0.000	0.000	6.903	0.000	6.903

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>U. S. Central Command Exercise EAGLE RESOLVE and INTERNAL LOOK exercises as well as component Air and Missile Defense Exercises</p> <p>U. S. Strategic Command GLOBAL LIGHTNING and GLOBAL THUNDER exercises - Provides Global focus on strategic level objectives to include Strategic Deterrence, Global Strike and Space Control Joint Functional Component Commander for Integrated Missile Defense Exercise ASSURED RESPONSE</p> <p>U.S. Northern Command Exercise VIGILANT SHIELD</p> <p>Combined-joint U.S. European Command: JUNIPER COBRA and AUSTERE CHALLENGE</p> <p>Wargame NIMBLE TITAN - Examines BMDS capabilities expected in 2018; and further defines policy and integration issues that need to be solved in relation to cross-Combatant Commands and Allied nation actions</p> <p>FUTURE EPOCH Wargame - Addresses Developer and Warfighter objectives related to future BMDS engagements; examines future capabilities and optimal employment, leveraging other agency efforts, events and lessons learned</p> <p>Smaller, focused Wargames / Demonstrations - Allows evaluation of future architecture configurations though facilitated collaboration between the Warfighter and the Developer allowing robust input from the Warfighter in the Warfighter Involvement Process and Prioritized Capability List processes</p> <p>Support on a non-interface basis, Combined Joint Functional Component Commander for Integrated Missile Defense and NATO missile defense exercise/wargame JOINT PROJECT OPTIC ALLIANCE / OPTIC WINDMILL: Allows introduction of U.S. BMDS issues in a combined Regional and Global context</p> <p>GLOGAL THUNDER Exercise Series 1Q FY 2011</p> <p>VIGILENT SHIELD Exercise Series 3Q FY 2011</p> <p>AUSTERE CHALLENGE Exercise Series 3Q FY 2011</p> <p>BMDS Joint ILS Mgt Team Conference 3Q FY 2011</p> <p>BMDS Logistics Support Contingency Plan Update 3Q FY 2011</p> <p>EAGLE RESOLVE Exercise Series 3Q FY 2011</p> <p>TERMINAL FURY Exercise Series 3Q FY 2011</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
BMDS Materiel Readiness See Description Below <i>FY 2009 Accomplishments:</i> Accomplishments are captured in Project YX03 <i>FY 2010 Plans:</i> Plans are captured in Project YX03 <i>FY 2011 Base Plans:</i> Perform life cycle Ballistic Missile Defense System (BMDS) readiness policy, planning, analysis and assessment in support of the Materiel (M) function of the Doctrine, Organization, Training, Materiel, Leadership, Personnel and Facilities (DOTMLPF) Execute Logistics Functional Manager duties, including training, mentoring and leading the logistics workforce Execute Functional Manager requirements, including training, mentoring and, leading Execute personnel actions on behalf of the Logistics Functional Leads, to include updating the manpower database, recruit new hires, conduct personnel reviews and pay pools Provide one full time MDA Engineering Support Services (MiADESS) Integrator Conduct Quarterly Readiness Integrated Product Team (IPT) meeting Establish Item Unique Identification (IUID) Policy and establish IUID IPT to monitor compliance Execute Overarching MOA governing Logistics Personnel Implement BMDS Readiness Directive and monitor compliance Refine the Readiness Surge Team Support process <i>FY 2011 OCO Plans:</i> NA		0.000	0.000	0.378	0.000	0.378
Ballistic Missile Defense Training & Education		0.000	0.000	7.124	0.000	7.124

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> Accomplishments are captured in Project YX03</p> <p><i>FY 2010 Plans:</i> Plans ;captured in Project YX03</p> <p><i>FY 2011 Base Plans:</i> Provide support for Component Command participants to attend numerous missile defense exercises and wargames Support travel requirements of the Directorate for Warfighter Interface Civilian and Military staff, to attend various exercises, wargames, planning conferences and technology conferences Provide Contractor Technical Services Support to the Directorate for Warfighter Interface Enables the Warfighter to define, test, deploy and employ new missile defense capabilities</p> <p>Train to maintain proficiency with current capabilities Provide feedback and support involvement in MDA`s BMDS development process</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Plans & Capability Delivery See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Accomplishments are captured in Project YX03</p> <p><i>FY 2010 Plans:</i> Plans captured in Project YX03</p>		0.000	0.000	1.095	0.000	1.095

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	66.414	0.000	66.414

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>											
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The Directorate for Warfighter Interface will continue to enable the effective delivery of BMDS capabilities to the Warfighter and to ensure Warfighter participation in the identification and development of new capabilities via the Warfighter Involvement Process.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analysis, and evaluation; and management and professional services. All future procurement actions will be cometed to the practical extent possible.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Exercises and Wargames Exercises & Wargames MD03	C/CPAF	Northrup Grumman Colorado Springs	0.000	0.000		36.174	Jul 2011	0.000		36.174	Continuing	Continuing	Continuing
Ballistic Missile Defense Training & Education Ballistic Missile Defense Training & Education Center MD03	C/CPAF	SPARTA Colorado Springs	0.000	0.000		7.124	Oct 2010	0.000		7.124	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		43.298		0.000		43.298			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Operations Support DWOO CSS Support MD03	C/CPAF	Various Colorado Springs/ NCR	0.000	0.000		3.633	Jul 2011	0.000		3.633	Continuing	Continuing	Continuing
Operations Support DWOO Operations Support MD03	Various/ Various	Various Various	0.000	0.000		3.270	Jul 2011	0.000		3.270	Continuing	Continuing	Continuing
	C/CPAF	SPARTA	0.000	0.000		2.353	Jul 2011	0.000		2.353	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Joint Staff/Service/COCOM Integration Operations Support MD03		Various											
Joint Staff/Service/COCOM Integration Operations Support MD03	Various/ Various	MDA NCR	0.000	0.000		0.249 Jul 2011		0.000		0.249	Continuing	Continuing	Continuing
BMDS Materiel Readiness BMDS Logistics Development Studies & Analysis MD03	C/CPAF	MDA NCR	0.000	0.000		0.378 Jul 2011		0.000		0.378	Continuing	Continuing	Continuing
Warfighter Interface Management and Combatant Commander (COCOM) Support Warfighter Interface Management and Combatant Commander (COCOM) Support MD03	C/Various	Various Colorado Springs/ Huntsville/NCR	0.000	0.000		1.160 Jul 2011		0.000		1.160	Continuing	Continuing	Continuing
Warfighter Interface Management and Combatant Commander (COCOM) Support Warfighter Management-CSS MD03	C/CPFF	SPARTA Various	0.000	0.000		7.766 Jul 2011		0.000		7.766	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Warfighter Interface Management and Combatant Commander (COCOM) Support Warfighter Management MD03	Various/ Various	Various Various	0.000	0.000		3.212	Jul 2011	0.000		3.212	Continuing	Continuing	Continuing
Plans & Capability Delivery Concepts, Plans and Integration Support MD03	C/Various	MDIOC Colorado Springs	0.000	0.000		1.095	Jul 2011	0.000		1.095	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		23.116		0.000		23.116			

Remarks

NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	0.000		66.414		0.000		66.414			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015							
	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				
ASSURED RESPONSE Exercise Series-2Q 2012														█																		
ASSURED RESPONSE Exercise Series-2Q 2013																		█														
ASSURED RESPONSE Exercise Series-2Q 2014																						█										
ASSURED RESPONSE Exercise Series-2Q 2015																														█		
ASSURED RESPONSE Exercise Series-3Q 2009			█																													
ASSURED RESPONSE Exercise Series-3Q 2010							█																									
ASSURED RESPONSE Exercise Series-3Q 2011											█																					
AUSTERE CHALLENGE Exercise Series-3Q 2009			█																													
AUSTERE CHALLENGE Exercise Series-3Q 2010							█																									
AUSTERE CHALLENGE Exercise Series-3Q 2011											█																					
AUSTERE CHALLENGE Exercise Series-3Q 2012															█																	

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
AUSTERE CHALLENGE Exercise Series-3Q 2013																												
AUSTERE CHALLENGE Exercise Series-3Q 2014																												
AUSTERE CHALLENGE Exercise Series-3Q 2015																												
Air and Missile Defense-1Q 2010																												
Air and Missile Defense-1Q 2011																												
Air and Missile Defense-2Q 2010																												
Air and Missile Defense-2Q 2011																												
Air and Missile Defense-3Q 2010																												
Air and Missile Defense-3Q 2011																												
Air and Missile Defense-4Q 2010																												
Air and Missile Defense-4Q 2011																												
BMD System Operability Check (BSOC)-1Q 2009																												
BMD System Operability Check (BSOC)-1Q 2010																												
BMD System Operability Check (BSOC)-1Q 2011																												
BMD System Operability Check (BSOC)-2Q 2009																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
BMD System Operability Check (BSOC)-2Q 2010						■																						
BMD System Operability Check (BSOC)-2Q 2011											■																	
BMD System Operability Check (BSOC)-3Q 2009			■																									
BMD System Operability Check (BSOC)-3Q 2010							■																					
BMD System Operability Check (BSOC)-3Q 2011												■																
BMD System Operability Check (BSOC)-4Q 2009				■																								
BMD System Operability Check (BSOC)-4Q 2010								■																				
BMD System Operability Check (BSOC)-4Q 2011																■												
BMDS Asset Management Tool Development/ Upgrade-1Q 2010							■																					
BMDS Asset Management Tool Development/ Upgrade-3Q 2009			■																									
BMDS Asset Management Tool Development/ Upgrade-3Q 2010								■																				
																■												

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 Asset Management Tool Development/ Upgrade-4Q 2011																												
BMDS Handbook On-line Tool Development/ Upgrade-2Q 2009		■																										
BMDS Handbook On-line Tool Development/ Upgrade-2Q 2010						■																						
BMDS Handbook On-line Tool Development/ Upgrade-2Q 2011											■																	
BMDS Handbook On-line Tool Development/ Upgrade-4Q 2009				■																								
BMDS Handbook On-line Tool Development/ Upgrade-4Q 2010											■																	
BMDS Handbook On-line Tool Development/ Upgrade-4Q 2011																												
CONGRESSIONAL WARGAME-2Q 2012																												
CONGRESSIONAL WARGAME-2Q 2013																												
CONGRESSIONAL WARGAME-2Q 2014																												
CONGRESSIONAL WARGAME-2Q 2015																												
Develop Automated Configuration Management Tool-4Q 2010																												
Develop Automated Configuration Management Tool-4Q 2011																												
EAGLE RESOLVE Exercise Series-3Q 2009				■																								

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 Exercise Series-3Q 2010							■																					
EAGLE RESOLVE Exercise Series-3Q 2011											■																	
EAGLE RESOLVE Exercise Series-3Q 2012														■														
EAGLE RESOLVE Exercise Series-3Q 2013																												
EAGLE RESOLVE Exercise Series-3Q 2014																												
EAGLE RESOLVE Exercise Series-3Q 2015																											■	
FUTURE EPOCH Wargame Series-1Q 2009	■																											
FUTURE EPOCH Wargame Series-1Q 2011												■																
FUTURE EPOCH Wargame Series-1Q 2013																												
FUTURE EPOCH Wargame Series-1Q 2015																											■	
Foreign Exercise-1Q 2010							■																					
Foreign Exercise-1Q 2012																												
Foreign Exercise-1Q 2014																												
Foreign Exercise-2Q 2009																												
Foreign Exercise-2Q 2010																												
Foreign Exercise-2Q 2012																												
Foreign Exercise-2Q 2014																												
Foreign Exercise-3Q 2009																												
Foreign Exercise-3Q 2010																												
Foreign Exercise-3Q 2012																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Foreign Exercise-3Q 2014																												
Foreign Exercise-4Q 2009				█																								
Foreign Exercise-4Q 2010								█																				
Foreign Exercise-4Q 2012															█													
Foreign Exercise-4Q 2014																												█
GLOBAL THUNDER Exercise Series-1Q 2011												█																
GLOBAL THUNDER Exercise Series-1Q 2012																												
GLOBAL THUNDER Exercise Series-1Q 2013																												
GLOBAL THUNDER Exercise Series-1Q 2014																												
GLOBAL THUNDER Exercise Series-1Q 2015																												█
GLOBAL THUNDER Exercise Series-3Q 2009				█																								
GLOBAL THUNDER Exercise Series-3Q 2010																												
Global Lightning Exercise Series-1Q 2009	█																											
Global Lightning Exercise Series-1Q 2010																												
Global Lightning Exercise Series-3Q 2011																												
Global Lightning Exercise Series-3Q 2012																												
Global Lightning Exercise Series-3Q 2013																												
Global Lightning Exercise Series-3Q 2014																												
Global Lightning Exercise Series-3Q 2015																												
Internal Look-1Q 2010																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Internal Look-1Q 2011									■																			
Internal Look-1Q 2012													■															
Internal Look-1Q 2013																■												
Internal Look-1Q 2014																			■									
Internal Look-1Q 2015																										■		
JOINT PROJECT OPTIC WINDMILL-4Q 2012															■													
JOINT PROJECT OPTIC WINDMILL-4Q 2014																										■		
KEEN EDGE Exercise Series-2Q 2009		■																										
KEEN EDGE Exercise Series-2Q 2010						■																						
KEEN EDGE Exercise Series-2Q 2011										■																		
KEEN EDGE Exercise Series-2Q 2012													■															
KEEN EDGE Exercise Series-2Q 2014																										■		
KEY RESOLVE Exercise Series-2Q 2012														■														
KEY RESOLVE Exercise Series-2Q 2013																	■											
KEY RESOLVE Exercise Series-2Q 2014																										■		
KEY RESOLVE Exercise Series-2Q 2015																											■	
MISSILE DEFENSE CONFERENCE-2Q 2012														■														
MISSILE DEFENSE CONFERENCE-2Q 2013																											■	
MISSILE DEFENSE CONFERENCE-2Q 2014																										■		
MISSILE DEFENSE CONFERENCE-2Q 2015																											■	

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Multi-National Missile Defense Conference Wargame-4Q 2010								■																				
Multi-National Missile Defense Conference Wargame-4Q 2011												■																
Multi-National Missile Defense Conference Wargame-4Q 2012																■												
Multi-National Missile Defense Conference Wargame-4Q 2013																												
Multi-National Missile Defense Conference Wargame-4Q 2014																												■
Multi-National Missile Defense Conference Wargame-4Q 2015																												■
NIMBLE TITAN Wargame Series-3Q 2010								■																				
NIMBLE TITAN Wargame Series-3Q 2012																■												
NIMBLE TITAN Wargame Series-3Q 2014																												■
National Missile Defense Conference Wargame-2Q 2010								■																				
National Missile Defense Conference Wargame-2Q 2011												■																
Operational Readiness Automated Tool Development-1Q 2010								■																				
Operational Readiness Automated Tool Development-2Q 2010								■																				

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Operational Readiness Automated Tool Development-3Q 2010							■																					
Operational Readiness Automated Tool Development-4Q 2010								■																				
Operational Readiness Automated Tool Development-4Q 2011												■																
Operations Support Center Continuity of Operations-2Q 2010						■																						
Operations Support Center Continuity of Operations-3Q 2011											■																	
Operations Support Center Continuity of Operations-4Q 2009				■																								
TERMINAL FURY Exercise Series-3Q 2009			■																									
TERMINAL FURY Exercise Series-3Q 2010							■																					
TERMINAL FURY Exercise Series-3Q 2011											■																	
TERMINAL FURY Exercise Series-3Q 2012												■																
TERMINAL FURY Exercise Series-3Q 2013																							■					
TERMINAL FURY Exercise Series-3Q 2014																								■				
TERMINAL FURY Exercise Series-3Q 2015																										■		
VIGILANT SHIELD Exercise Series-1Q 2009	■																											
VIGILANT SHIELD Exercise Series-1Q 2010						■																						
VIGILANT SHIELD Exercise Series-1Q 2011											■																	

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015							
	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				
VIGILANT SHIELD Exercise Series-1Q 2012													■																			
VIGILANT SHIELD Exercise Series-1Q 2013																	■															
VIGILANT SHIELD Exercise Series-1Q 2014																					■											
VIGILANT SHIELD Exercise Series-1Q 2015																									■							

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
ASSURED RESPONSE Exercise Series-2Q 2012	2	2012	2	2012
ASSURED RESPONSE Exercise Series-2Q 2013	2	2013	2	2013
ASSURED RESPONSE Exercise Series-2Q 2014	2	2014	2	2014
ASSURED RESPONSE Exercise Series-2Q 2015	2	2015	2	2015
ASSURED RESPONSE Exercise Series-3Q 2009	3	2009	3	2009
ASSURED RESPONSE Exercise Series-3Q 2010	3	2010	3	2010
ASSURED RESPONSE Exercise Series-3Q 2011	3	2011	3	2011
AUSTERE CHALLENGE Exercise Series-3Q 2009	3	2009	3	2009
AUSTERE CHALLENGE Exercise Series-3Q 2010	3	2010	3	2010
AUSTERE CHALLENGE Exercise Series-3Q 2011	3	2011	3	2011
AUSTERE CHALLENGE Exercise Series-3Q 2012	3	2012	3	2012
AUSTERE CHALLENGE Exercise Series-3Q 2013	3	2013	3	2013
AUSTERE CHALLENGE Exercise Series-3Q 2014	3	2014	3	2014
AUSTERE CHALLENGE Exercise Series-3Q 2015	3	2015	3	2015
Air and Missile Defense-1Q 2010	1	2010	1	2010
Air and Missile Defense-1Q 2011	1	2011	1	2011
Air and Missile Defense-2Q 2010	2	2010	2	2010
Air and Missile Defense-2Q 2011	2	2011	2	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Air and Missile Defense-3Q 2010	3	2010	3	2010
Air and Missile Defense-3Q 2011	3	2011	3	2011
Air and Missile Defense-4Q 2010	4	2010	4	2010
Air and Missile Defense-4Q 2011	4	2011	4	2011
BMD System Operability Check (BSOC)-1Q 2009	1	2009	1	2009
BMD System Operability Check (BSOC)-1Q 2010	1	2010	1	2010
BMD System Operability Check (BSOC)-1Q 2011	1	2011	1	2011
BMD System Operability Check (BSOC)-2Q 2009	2	2009	2	2009
BMD System Operability Check (BSOC)-2Q 2010	2	2010	2	2010
BMD System Operability Check (BSOC)-2Q 2011	2	2011	2	2011
BMD System Operability Check (BSOC)-3Q 2009	3	2009	3	2009
BMD System Operability Check (BSOC)-3Q 2010	3	2010	3	2010
BMD System Operability Check (BSOC)-3Q 2011	3	2011	3	2011
BMD System Operability Check (BSOC)-4Q 2009	4	2009	4	2009
BMD System Operability Check (BSOC)-4Q 2010	4	2010	4	2010
BMD System Operability Check (BSOC)-4Q 2011	4	2011	4	2011
BMDS Asset Management Tool Development/Upgrade-1Q 2010	1	2010	1	2010
BMDS Asset Management Tool Development/Upgrade-3Q 2009	3	2009	3	2009
BMDS Asset Management Tool Development/Upgrade-3Q 2010	3	2010	3	2010
BMDS Asset Management Tool Development/Upgrade-4Q 2011	4	2011	4	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
BMDS Handbook On-line Tool Development/Upgrade-2Q 2009	2	2009	2	2009
BMDS Handbook On-line Tool Development/Upgrade-2Q 2010	2	2010	2	2010
BMDS Handbook On-line Tool Development/Upgrade-2Q 2011	2	2011	2	2011
BMDS Handbook On-line Tool Development/Upgrade-4Q 2009	4	2009	4	2009
BMDS Handbook On-line Tool Development/Upgrade-4Q 2010	4	2010	4	2010
BMDS Handbook On-line Tool Development/Upgrade-4Q 2011	4	2011	4	2011
CONGRESSIONAL WARGAME-2Q 2012	2	2012	2	2012
CONGRESSIONAL WARGAME-2Q 2013	2	2013	2	2013
CONGRESSIONAL WARGAME-2Q 2014	2	2014	2	2014
CONGRESSIONAL WARGAME-2Q 2015	2	2015	2	2015
Develop Automated Configuration Management Tool-4Q 2010	4	2010	4	2010
Develop Automated Configuration Management Tool-4Q 2011	4	2011	4	2011
EAGLE RESOLVE Exercise Series-3Q 2009	3	2009	3	2009
EAGLE RESOLVE Exercise Series-3Q 2010	3	2010	3	2010
EAGLE RESOLVE Exercise Series-3Q 2011	3	2011	3	2011
EAGLE RESOLVE Exercise Series-3Q 2012	3	2012	3	2012
EAGLE RESOLVE Exercise Series-3Q 2013	3	2013	3	2013
EAGLE RESOLVE Exercise Series-3Q 2014	3	2014	3	2014
EAGLE RESOLVE Exercise Series-3Q 2015	3	2015	3	2015
FUTURE EPOCH Wargame Series-1Q 2009	1	2009	1	2009

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
FUTURE EPOCH Wargame Series-1Q 2011	1	2011	1	2011
FUTURE EPOCH Wargame Series-1Q 2013	1	2013	1	2013
FUTURE EPOCH Wargame Series-1Q 2015	1	2015	1	2015
Foreign Exercise-1Q 2010	1	2010	1	2010
Foreign Exercise-1Q 2012	1	2012	1	2012
Foreign Exercise-1Q 2014	1	2014	1	2014
Foreign Exercise-2Q 2009	2	2009	2	2009
Foreign Exercise-2Q 2010	2	2010	2	2010
Foreign Exercise-2Q 2012	2	2012	2	2012
Foreign Exercise-2Q 2014	2	2014	2	2014
Foreign Exercise-3Q 2009	3	2009	3	2009
Foreign Exercise-3Q 2010	3	2010	3	2010
Foreign Exercise-3Q 2012	3	2012	3	2012
Foreign Exercise-3Q 2014	3	2014	3	2014
Foreign Exercise-4Q 2009	4	2009	4	2009
Foreign Exercise-4Q 2010	4	2010	4	2010
Foreign Exercise-4Q 2012	4	2012	4	2012
Foreign Exercise-4Q 2014	4	2014	4	2014
GLOBAL THUNDER Exercise Series-1Q 2011	1	2011	1	2011
GLOBAL THUNDER Exercise Series-1Q 2012	1	2012	1	2012

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
GLOBAL THUNDER Exercise Series-1Q 2013	1	2013	1	2013
GLOBAL THUNDER Exercise Series-1Q 2014	1	2014	1	2014
GLOBAL THUNDER Exercise Series-1Q 2015	1	2015	1	2015
GLOBAL THUNDER Exercise Series-3Q 2009	3	2009	3	2009
GLOBAL THUNDER Exercise Series-3Q 2010	3	2010	3	2010
Global Lightning Exercise Series-1Q 2009	1	2009	1	2009
Global Lightning Exercise Series-1Q 2010	1	2010	1	2010
Global Lightning Exercise Series-3Q 2011	3	2011	3	2011
Global Lightning Exercise Series-3Q 2012	3	2012	3	2012
Global Lightning Exercise Series-3Q 2013	3	2013	3	2013
Global Lightning Exercise Series-3Q 2014	3	2014	3	2014
Global Lightning Exercise Series-3Q 2015	3	2015	3	2015
Internal Look-1Q 2010	1	2010	1	2010
Internal Look-1Q 2011	1	2011	1	2011
Internal Look-1Q 2012	1	2012	1	2012
Internal Look-1Q 2013	1	2013	1	2013
Internal Look-1Q 2014	1	2014	1	2014
Internal Look-1Q 2015	1	2015	1	2015
JOINT PROJECT OPTIC WINDMILL-4Q 2012	4	2012	4	2012
JOINT PROJECT OPTIC WINDMILL-4Q 2014	4	2014	4	2014

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
KEEN EDGE Exercise Series-2Q 2009	2	2009	2	2009
KEEN EDGE Exercise Series-2Q 2010	2	2010	2	2010
KEEN EDGE Exercise Series-2Q 2011	2	2011	2	2011
KEEN EDGE Exercise Series-2Q 2012	2	2012	2	2012
KEEN EDGE Exercise Series-2Q 2014	2	2014	2	2014
KEY RESOLVE Exercise Series-2Q 2012	2	2012	2	2012
KEY RESOLVE Exercise Series-2Q 2013	2	2013	2	2013
KEY RESOLVE Exercise Series-2Q 2014	2	2014	2	2014
KEY RESOLVE Exercise Series-2Q 2015	2	2015	2	2015
MISSILE DEFENSE CONFERENCE-2Q 2012	2	2012	2	2012
MISSILE DEFENSE CONFERENCE-2Q 2013	2	2013	2	2013
MISSILE DEFENSE CONFERENCE-2Q 2014	2	2014	2	2014
MISSILE DEFENSE CONFERENCE-2Q 2015	2	2015	2	2015
Multi-National Missile Defense Conference Wargame-4Q 2010	4	2010	4	2010
Multi-National Missile Defense Conference Wargame-4Q 2011	4	2011	4	2011
Multi-National Missile Defense Conference Wargame-4Q 2012	4	2012	4	2012
Multi-National Missile Defense Conference Wargame-4Q 2013	4	2013	4	2013
Multi-National Missile Defense Conference Wargame-4Q 2014	4	2014	4	2014
Multi-National Missile Defense Conference Wargame-4Q 2015	4	2015	4	2015
NIMBLE TITAN Wargame Series-3Q 2010	3	2010	3	2010

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
NIMBLE TITAN Wargame Series-3Q 2012	3	2012	3	2012
NIMBLE TITAN Wargame Series-3Q 2014	3	2014	3	2014
National Missile Defense Conference Wargame-2Q 2010	2	2010	2	2010
National Missile Defense Conference Wargame-2Q 2011	2	2011	2	2011
Operational Readiness Automated Tool Development-1Q 2010	1	2010	1	2010
Operational Readiness Automated Tool Development-2Q 2010	2	2010	2	2010
Operational Readiness Automated Tool Development-3Q 2010	3	2010	3	2010
Operational Readiness Automated Tool Development-4Q 2010	4	2010	4	2010
Operational Readiness Automated Tool Development-4Q 2011	4	2011	4	2011
Operations Support Center Continuity of Operations-2Q 2010	2	2010	2	2010
Operations Support Center Continuity of Operations-3Q 2011	3	2011	3	2011
Operations Support Center Continuity of Operations-4Q 2009	4	2009	4	2009
TERMINAL FURY Exercise Series-3Q 2009	3	2009	3	2009
TERMINAL FURY Exercise Series-3Q 2010	3	2010	3	2010
TERMINAL FURY Exercise Series-3Q 2011	3	2011	3	2011
TERMINAL FURY Exercise Series-3Q 2012	3	2012	3	2012
TERMINAL FURY Exercise Series-3Q 2013	3	2013	3	2013
TERMINAL FURY Exercise Series-3Q 2014	3	2014	3	2014
TERMINAL FURY Exercise Series-3Q 2015	3	2015	3	2015
VIGILANT SHIELD Exercise Series-1Q 2009	1	2009	1	2009

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD03: <i>Joint Warfighter Support</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
VIGILANT SHIELD Exercise Series-1Q 2010	1	2010	1	2010
VIGILANT SHIELD Exercise Series-1Q 2011	1	2011	1	2011
VIGILANT SHIELD Exercise Series-1Q 2012	1	2012	1	2012
VIGILANT SHIELD Exercise Series-1Q 2013	1	2013	1	2013
VIGILANT SHIELD Exercise Series-1Q 2014	1	2014	1	2014
VIGILANT SHIELD Exercise Series-1Q 2015	1	2015	1	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
ZX40: <i>Program-Wide Support</i>	0.323	2.583	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	2.906
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11.

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> See Section A: Mission Description and Budget Item Justification ; <i>FY 2010 Plans:</i> NA	0.323	2.583	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> NA					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.323	2.583	0.000	0.000	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603913C: <i>ISRAELI COOPERATIVE</i>											
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>MD40: Program-Wide Support</i>	0.000	0.000	2.312	0.000	2.312	2.276	2.062	2.043	2.358	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Unknown	0.000	0.000	2.312	0.000	2.312
See Description Below					
<i>FY 2009 Accomplishments:</i>					
NA					
<i>FY 2010 Plans:</i>					
NA					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> NA					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	2.312	0.000	2.312

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603913C: <i>ISRAELI COOPERATIVE</i>											
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
<i>CX22: Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>	22.795	23.215	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	46.010
<i>YX22: Missile Defense Integration & Operations Center (MDIOC) Core</i>	77.249	61.201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	138.450
<i>MD22: Missile Defense Integration and Operations Center (MDIOC)</i>	0.000	0.000	83.298	0.000	83.298	84.956	75.965	77.889	80.173	Continuing	Continuing
<i>ZX40: Program-Wide Support</i>	2.779	2.067	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	4.846
<i>MD40: Program-Wide Support</i>	0.000	0.000	2.900	0.000	2.900	3.225	2.552	2.521	2.914	Continuing	Continuing

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project(s) CX22, YX22, and ZX40 is captured in Project MD22 and MD40 beginning FY11.

The FY11 program is balanced reflecting the four focus areas of the current Missile Defense Program: to develop, rigorously test, and field an integrated BMDS architecture to counter existing regional threats, continue a viable Homeland Defense against rouge threats beyond 2030: demonstrate our proven technologies to show Missile Defense works: and develop technologies to hedge against future missile threat growth.

The best way 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 (C2BMC). 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 BMD capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide both the best sensor information on the enemy missile's location and track as well as a more diverse and effective set of weapon options for the Combatant Commander to defeat the attack -- all connected by a unifying C2BMC system. As a result, an effort funded in a Program Element may be critical to the success of efforts in the other Program Elements -- we refer to these connections as ``interdependencies.`` Throughout the budget justification materials we have attempted to highlight interdependencies in order to fully explain the relationship between different parts of the proposed program.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>
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MDA has a set of Unifying Missile Defense Functions (UMDFs), which increase the effectiveness of the BMD System (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. For C2BMC these UMDF efforts are Sensor Registration (reporting of sensor errors / biases), Correlation (ensuring the information from multiple sensors seeing a threat relates to the same object), 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). UMDFs are 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 all ranges of ballistic threats.

A. Mission Description and Budget Item Justification

The Missile Defense Integration and Operations Center (MDIOC) is MDA's field operating activity in Colorado Springs, CO. It provides the necessary infrastructure and support services through a mission execution platform for nine 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 MDA Functional's to manage this mission execution platform. The MDIOC mission execution platform consists of a highly secure research and development complex and a mission support facility located within a military installation (Schriever AFB) that is adjacent to and North American Aerospace Defense Command (NORAD) and United States Northern Command (USNORTHCOM). As a mission execution platform supporting MDA efforts, the MDIOC hosts and supports the Ground-based Midcourse Defense (GMD)'s Mission Control Center Facility (MCCF) that is utilized for both flight and distributed ground tests; the C2BMC's Integration and Test Centers (ITCs) and Experimentation Laboratories (X-Labs); the Space Tracking and Surveillance System (STSS)'s Missile Defense Space Experimentation Center (MDSEC); the Targets & Countermeasure's Joint Target Operations Center (JTOC); and the Enterprise Network Operations and Support Center for the Agency's Chief Information Officer (CIO). For the COCOMs, the MDIOC provides infrastructure support for USNORTHCOM's C2BMC Command and Control Center; United States Strategic Command (USSTRATCOM's) Joint Functional Component Command-Integrated Missile Defense (JFCC-IMD); and the Missile Defense Element (MDE) manned by the Army 100th Missile Defense Brigade. The MDA Integration Center organization directly supports the missions of the Warfighter Support Center, the BMDS Ground Test, and MDA's BMDS Digital Modeling and Simulation effort to develop applications vital to BMDS wargaming and system testing. 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 quickly deliver the capabilities required for layered missile defense execution and homeland defense. The MDIOC interfaces with the Information Technology/Information Assurance Enterprise to provide high availability access to worldwide secure communications connectivity, network health and status monitoring, mission critical restoral capability, and technical expertise for all MDA directed activities and events performed on-site. Additionally, the MDIOC 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 Commanders.

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>
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The MDIOC mission execution platform contributes 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 integration by: implementing the technical event architectures for the models and simulations used to support missile defense planning seminars, wargames, exercises, tests, and analyses; supporting the planning and execution of the only end-to-end operator-in-the-loop/element-in-the-loop missile defense wargames accomplished by the Warfighter Support Center; supporting BMDS Critical Engagement Conditions (CEC) testing and analysis by operating the Test Execution Control (TEC) for distributed BMDS ground tests; and, providing network operations and information assurance for all on-site integration activities. The MDIOC mission execution platform provides BMDS-level operational support by: integrating and sustaining the enabling infrastructure, services, and processes that support the operation of designated elements of the BMDS and resident Combatant Command (COCOM) operations and/or support centers; providing technical support for the BMDS Watch Officers (BWO`s), BMDS Safety Officers (BSO`s), 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 (JEWL) for anomaly resolution; and supporting the Intelligence Support Center (ISC) 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, configuration management, and implementation development support of on-site activities
- Ensure around the clock support and restoral of designated on-site operational activities
- Improve physical interface with designated COCOM missile defense activities; host/support the headquarters and operations center for USSTRATCOM`s Joint Functional Component Command - Integrated Missile Defense (JFCC-IMD)
- Continue to achieve cost effectiveness and efficiencies through the leveraging of existing MDIOC infrastructure, services, processes, and expertise to support assigned missions
- Maintain and improve as designated the reliability, availability, and maintainability of mission critical systems

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	106.040	86.949	0.000	0.000	0.000
Current President's Budget	102.823	86.483	86.198	0.000	86.198
Total Adjustments	-3.217	-0.466	86.198	0.000	86.198
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		-0.466			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-1.633	0.000			
• SBIR/STTR Transfer	-1.584	0.000			
• Other Adjustment Detail	0.000	0.000	86.198	0.000	86.198

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: YX22: *Missile Defense Integration & Operations Center (MDIOC) Core*

Congressional Add: *Modeling and Simulation*

	<u>FY 2009</u>	<u>FY 2010</u>
	9.600	0.000
Congressional Add Subtotals for Project: YX22	9.600	0.000
Congressional Add Totals for all Projects	9.600	0.000

Change Summary Explanation

FY 2009 Program Changes: The decrease of \$3.217 million reflects \$1.633 million for MDA programmatic changes to support BMDS priorities and \$1.584 million in SBIR/STTR transfers

FY 2010 Program Changes: The decrease of \$466 thousand reflects Congressional Directed Reductions for Economic Assumptions 801 and FFRDC (\$338 thousand for YX22 and \$128 thousand CX22)

No FY 2011 data provided in PB10.

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>				PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>CX22: Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>	22.795	23.215	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	46.010
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project CX22 is captured in Project MD22 beginning FY11.

A. Mission Description and Budget Item Justification

The C2BMC Testbed located at the Missile Defense Integration and Operations Center (MDIOC) supports the program office by providing the test articles, test environment, analysis tools, and communications interfaces to conduct Element Verification, Hardware-in-the-Loop Tests, and Systems Test programs. The testbed provides systems and support to recurring warfighter training, exercises, and war-game events. In addition, the C2BMC Testbed maintains the Experimentation Laboratory (X-Lab) where advanced concepts, new technology, and risk reduction prototypes are developed and tested. The C2BMC Testbed also provides infrastructure support to the warfighter by managing the requirements and facilities for the C2BMC Control Center (CCC) and the Distributed Multi-echelon Training System (DMETS). The Joint Early Warning Laboratory (JEWL) is a computing and analysis resource located at the Missile Defense Integration and Operations Center (MDIOC). The JEWL is used by several tasks to support analysis and studies to assess and improve theater Early Warning (EW) and Ballistic Missile Defense (BMD) performance. The different Technical Requirement Document (TRD) tasks using the JEWL support Missile Defense Agency (MDA), United States Strategic Command (USSTRATCOM) and Joint Integrated Air and Missile Defense Organization (JIAMDO) with resources and Subject Matter Expertise (SME)s in a wide variety of disciplines including early warning, tactical communications, data links, tactical data processors and theater EW architectures and radar Infrared (IR) integration efforts. The JEWL is the USSTRATCOM designated facility for testing all changes or additions to the Theater Event System (TES) architecture. JEWL replicates all known theater EW architecture and maintains a replay capability for fault isolation, anomaly identification, and can modify data to isolate anomalies. JEWL supports BMD system by providing timely analysis and comparisons of BMD and legacy EW data. Quick Reports and Comparison Reports provide C2BMC Directorate timely insight into the Overhead Persistent Infrared (OPIR) data provided to C2BMC by ground processors and C2BMC reporting. The JEWL brings together the technical and operational EW communities.

B. Accomplishments/Planned Program (\$ in Millions)

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>C2BMC Test Beds</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> The C2BMC Testbed located at the Missile Defense Integration and Operations Center (MDIOC) supports the program office by providing the test articles, test environment, analysis tools, and communications interfaces to conduct Element Verification, Hardware-in-the-Loop Tests, and Systems Test programs. The Testbed provides systems and support to recurring warfighter training, exercises, and war-game events. In addition, the C2BMC Testbed maintains the Experimentation Laboratory (X-Lab) where advanced concepts, new technology, and risk reduction prototypes are developed and tested. The C2BMC Testbed also provides infrastructure support to the warfighter by managing the requirements and facilities for the C2BMC Control Center (CCC), the USNORTHCOM C2BMC Help Desk, the BMDS Network Operations and Security Center (BNOSC), and the Distributed Multi-echelon Training System (DMETS).</p> <p>C2BMC Testbed: The following efforts include the requirements, design, implementation, and sustainment of the C2BMC Test Articles, Test Environment, Communications Interfaces, Test Set-Up, Execution, and Recovery.</p> <p>Conducted C2BMC software loads, test environment configuration, physical audits, network configuration, and configuration management of all C2BMC Test assets at the MDIOC Conducted sustainment testing of C2BMC Spiral 6.2 (Operationally Deployed) Built and upgraded the C2BMC Test Environment to support integration and testing of C2BMC Spiral 6.4 functionality and architecture, improve Testbed Information Security, and to increase the reliability of the Testbed Conducted planning, execution, data collection, assessment, and reporting of the C2BMC Spiral 6.4 (COCOM and GEM) Verification Testing</p>	20.691	21.066	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Sustained and improved the C2BMC Components of the Distributed Multi-Echelon Distributed Training System (DMETS)</p> <p>Installed DMETS Spiral 6.4 Global Engagement Manager (GEM) #1 for Warfighter TTP development, Training Materials Development, Subject Matter Expert Training System Test, Training, and Exercises: The C2BMC Testbed executed the following events. Each event included planning, test preparation, execution, and data collection and reporting</p> <p>Caravan-2 Space Based Infrared System (SBIRS); Software, Qualification, Integration and ;Checkout (SQINC); SBIRS 08-1b; SBIRS 09-1 GTD-03, GTX-03e FTG-05, FCE-B Hardware In The Loop (HWIL), FTG-06 Assured Response (AR)-09a, Vigilant Shield (VS)-09, Keen Edge (KE)-09, Terminal Fury (TF)-09, KE-10</p> <p>Designed and installed an International Point of Presence (IPOP) conducted US-NATO interoperability tests, Interface Control Specification development, and initial interface development and test.</p> <p>Integrated Patriot, Aegis, C2BMC Situational Awareness, C2BMC-ACCS into the IPOP Architecture Participated in International Exercises and Wargames: Nimble Fire 09-3, Defense of the Homeland Against Asymmetric Missile Attacks (DOHMA)-08, DOHMA-09, Joint Distributed Test Network (JDTN) Defense of Israel Evaluation (JDIE) -08 C2BMC Control Center (CCC) accomplishments include the facilities, infrastructure, and sustainment activities to support the Program Office Operational Missions CCC Spiral 6.4 Facilities Upgrades BMDS Network Operations and Security Center (BNOSC) Operations floor build out Spiral 6.4 Parallel Staging Network (PSN) Coordination Center Upgrades</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Conducted warfighter training and pre-mission testing for real-world events</p> <p>Fast Shield II, Dynamic Spring, Dynamic Summer Conducted C2BMC X-Lab Events and Experimentation:</p> <p>Network Enabled Command and Control (NECC) Integration, Test, and Operational Pilot with USSTRATCOM Global Sensor Integrated Network (GSIN) - Missile Warning and Missile Defense Integration Discrimination Fusion Engine Test and Evaluation BMD Overhead Persistent Infrared (OPIR) Architecture (BOA) Development, Test, and Integration BOA Precision Boost Phase Cue Testing: GT-195 Refined C2BMC interfaces to BMDS Elements and Space-based Sensors</p> <p><i>FY 2010 Plans:</i> Sustain and upgrade MDIOC C2BMC Testbed to support integration, test, training, and experimentation</p> <p>Build out and upgrade MDIOC C2BMC Testbed to support testing of C2BMC Spiral 6.4</p> <p>Spiral 6.4 BOA Test Capability X-Lab Spiral 6.4 GEM C2BMC Net Centric Architecture Support FY10 BMDS tests, wargames, and exercises as planned in the IMTP Continue to support the integration of missile defense elements into the BMDS command and control structure Support interoperability and integration of the BMDS program elements Improve the operational realism of the system test architectures</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Upgrade the International Point of Presence (iPOP) for interoperability tests, experiments, exercises, and wargames Conduct C2BMC X-Lab Events and Experimentation</p> <p>Refine C2BMC interfaces to BMDS Elements and Space-based Sensors: Space Tracking and Surveillance System (STSS), External Sensors Laboratory (ESL), Airborne Laser (ABL), Terminal High Altitude Area Defense (THAAD), MDSEC Refine BMDS technologies and transitioning them to development and operations such as BMDS Overhead Non-Imaging Infrared (OPIR) Architecture (BOA), Missile Defense / Missile Warning Integration, Combined Test, Training, and Operations Prototypes Sustain the C2BMC Components of the Distributed Multi-Echelon Distributed Training system (DMETS) in the conduct of BMDS-level wargames, exercises, and training</p> <p>Install DMETS Spiral 6.4 COCOM #1 Install DMETS GEM #2 Start Warfighter familiarization, training, and exercises with Spiral 6.4 Provide infrastructure, network, and troubleshooting support to:</p> <p>C2BMC Control Center (CCC) BMDS Communications Network (BCN) Parallel Staging Network (PSN) BMDS Network Operations and Security Center (BNOSC) Perform BMDS / Joint Early Warning Laboratory test, operational assessments, integration and fielding support (JEWL)</p> <p><i>FY 2011 Base Plans:</i> Plans captured in Project MD22</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 OCO Plans:</i> NA</p>					
<p>Joint Early Warning Laboratory (JEWL) See Description Below</p> <p><i>FY 2009 Accomplishments:</i> The Joint Early Warning Laboratory (JEWL) is a computing and analysis resource located at the Missile Defense Integration and Operations Center (MD IOC) used to support analysis and studies to assess and improve theater Early Warning (EW) and Ballistic Missile Defense (BMD) performance. It supports MDA, United States Strategic Command (USSTRATCOM) and Joint Integrated Air and Missile Defense Organization (JIAMDO) with resources and Subject Matter Expertise (SME) in a wide variety of disciplines including early warning, tactical communications, data links, tactical data processors and theater EW architectures and radar IR integration efforts.</p> <p>Performed BMDS Early Warning test, integration and fielding support Maintained database on all missile events recorded since Jan 2003 Performed United State Strategic Command (USSTRATCOM) Configuration Control Board (CCB) assessments of new systems for inclusion in Theater Missile Warning(TMW) Theater Event System (TES) Architecture Supported testing and integration of TMW producer improvement initiatives testing Performed Early Warning communications integration Supported integration and testing of the C2BMC Net Centric Architecture Provided BMDS C2BMC Test support Performed Operational Early Warning Anomaly Tracking and Analysis</p>	2.104	2.149	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i></p> <ul style="list-style-type: none"> Perform BMDS Early Warning test, integration and fielding support Perform Joint Early Warning operational assessments and support Record data on all missile events broadcast over Theater Event System (TES) Maintain database on all missile events recorded since Jan 2003 Perform USSTRATCOM Configuration Control Board (CCB) assessments of new systems for inclusion in Theater Missile Warning (TMW) TES Architecture Support testing and integration of TMW producer improvement initiatives testing Perform Early Warning communications integration Perform testing on new systems for inclusion into the TMW architecture Perform Early Warning Target of Opportunity (TOO) initial quick reports and comparative analysis Support integration and testing of the C2BMC Net Centric Architecture Provide BMDS C2BMC Test support Perform Operational Early Warning Anomaly Tracking and Analysis Provide BMDS C2BMC Early Warning Integration support Perform Operator/Warfighter TMW Exercise Data Analysis Provide and chair USSTRATCOM CCB Engineering Subgroup Establish the Early Warning Incident / Anomaly tracking database in support of the TMW CCB and BMDS EW SPT reporting and metrics tracking Upgrade JEWL hardware/software/communications Perform C2BMC display analysis Perform in-theater Health checks in support of the warfighter Perform Joint Early Warning Laboratory support for BMDS Early Warning Special Product Team (EW SPT) <p><i>FY 2011 Base Plans:</i></p> <ul style="list-style-type: none"> Plans captured in Project MD22 					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	22.795	23.215	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The strategy for the Missile Defense Integration and Operation Center (MDIOC) mission execution is to employ an integration contract to simultaneously perform all of the Ballistic Missile Defense System (BMDS) Research, Development, Test and Evaluation (RDT&E) tasks with integrated operation and sustainment. 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 Technical Advisory and Assistance Services, and major defense contractors.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services. All future procurement actions will be competed to the practical extent possible.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C2BMC Test Beds C2BMC Testbed-1 CX22	C/CPFF	MDIOC/Northrop Grumman Mission Systems Colorado Springs, CO	17.801	5.559	Jan 2010	0.000		0.000		0.000	0	23.360	0
C2BMC Test Beds C2BMC Testbed-2 CX22	C/FFP	MDIOC/SRS/Mantech Colorado Springs, CO	1.091	1.135	Apr 2010	0.000		0.000		0.000	0	2.226	0
C2BMC Test Beds C2BMC Testbed-3 CX22	TBD/TBD	IDA Colorado Springs, CO	0.830	0.830	Oct 2009	0.000		0.000		0.000	0	1.660	0
C2BMC Test Beds BMDS Level Testing CX22	C/CPFF	MDIOC/Northrop Grumman Mission Systems Colorado Springs, CO	13.542	13.542	Jan 2010	0.000		0.000		0.000	0	27.084	0
Joint Early Warning Laboratory (JEWL) JEWL CX22	TBD/TBD	MULTIPLE Colorado Springs, CO	2.104	2.149	Apr 2010	0.000		0.000		0.000	0	4.253	0
Subtotal			35.368	23.215		0.000		0.000		0.000	0.000	58.583	0.000

Remarks
NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract		
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost	Cost	Cost		
Project Cost Totals		35.368		23.215		0.000		0.000		0.000	0.000	58.583	0.000

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
CCC Facility Upgrade Event																												
CCC Facility Upgrade 4Q FY09				■																								
CCC Facility Upgrade 1Q FY10				■																								
CCC Facility Upgrade 2Q FY10							■																					
CCC Spiral 6.4 Upgrades Q1 FY09	■																											
CCC Spiral 6.4 Upgrades Q2 FY09		■																										
X-Lab Global Engagement Manager (GEM) Q3 FY10											■																	
X-Lab Global Engagement Manager (GEM) Q4 FY10												■																
X-Lab Facility Modernization Q2 FY09		■																										
X-Lab Facility Modernization Q3 FY09			■																									
X-Lab Facility Modernization Q4 FY09				■																								
X-Lab Facility Modernization Q1 FY10					■																							
IPOP Lab Build Out Q4 FY10																												
IPOP Lab Build Out Q1 FY11																												
DMETS Training Event Upgrades Q2 FY10							■																					
DMETS Training Event Upgrades Q3 FY10								■																				
DMETS Spiral 6.4 COCOM Q4 FY10																												
DMETS Spiral 6.4 COCOM Q1 FY11																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
DMETS Spiral 6.4 Global Engagement Manager (GEM) #2 Q4 FY10								■																				
DMETS Spiral 6.4 Global Engagement Manager (GEM) #2 Q1 FY11											■																	
C2BMC Regional Testbed 4Q FY10								■																				
C2BMC Regional Testbed 1Q FY11											■																	
Spiral 6.4 BMD Overhead Persistent IR March (BOA) Capability Q4 FY09				■																								
Spiral 6.4 BMD Overhead Persistent IR March (BOA) Capability Q1 FY10							■																					
Spiral 6.4 BMD Overhead Persistent IR March (BOA) Capability Q2 FY10								■																				
BMDS Network Operations Support Buildout							■																					
BMDS Network Operations Support Build 2Q FY09		■																										
BMDS Network Operations Support Build 3Q FY09			■																									
BMDS Network Operations Support Build 4Q FY09				■																								
BMDS Network Operations Support Build 1Q FY10							■																					
System Test Control Room Q1	■																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE</i> <i>INTEGRATION & OPERATIONS CENTER</i> <i>(MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 Test Control Room Q2		█																										

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
CCC Facility Upgrade Event	4	2010	4	2010
CCC Facility Upgrade 4Q FY09	4	2009	4	2009
CCC Facility Upgrade 1Q FY10	4	2009	4	2009
CCC Facility Upgrade 2Q FY10	2	2010	2	2010
CCC Spiral 6.4 Upgrades Q1 FY09	1	2009	1	2009
CCC Spiral 6.4 Upgrades Q2 FY09	2	2009	2	2009
X-Lab Global Engagement Manager (GEM) Q3 FY10	3	2010	3	2010
X-Lab Global Engagement Manager (GEM) Q4 FY10	4	2010	4	2010
X-Lab Facility Modernization Q2 FY09	2	2009	2	2009
X-Lab Facility Modernization Q3 FY09	3	2009	3	2009
X-Lab Facility Modernization Q4 FY09	4	2009	4	2009
X-Lab Facility Modernization Q1 FY10	1	2010	1	2010
IPOP Lab Build Out Q4 FY10	4	2010	4	2010
IPOP Lab Build Out Q1 FY11	1	2011	1	2011
DMETS Training Event Upgrades Q2 FY10	2	2010	2	2010
DMETS Training Event Upgrades Q3 FY10	3	2010	3	2010
DMETS Spiral 6.4 COCOM Q4 FY10	4	2010	4	2010
DMETS Spiral 6.4 COCOM Q1 FY11	1	2011	1	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT CX22: <i>Missile Defense Integration & Operations Center (MDIOC) - Block 3.0</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
DMETS Spiral 6.4 Global Engagement Manager (GEM) #2 Q4 FY10	4	2010	4	2010
DMETS Spiral 6.4 Global Engagement Manager (GEM) #2 Q1 FY11	1	2011	1	2011
C2BMC Regional Testbed 4Q FY10	4	2010	4	2010
C2BMC Regional Testbed 1Q FY11	1	2011	1	2011
Spiral 6.4 BMD Overhead Persistent IR March (BOA) Capability Q4 FY09	4	2009	4	2009
Spiral 6.4 BMD Overhead Persistent IR March (BOA) Capability Q1 FY10	1	2010	1	2010
Spiral 6.4 BMD Overhead Persistent IR March (BOA) Capability Q2 FY10	2	2010	2	2010
BMDS Network Operations Support Buildout	1	2010	1	2010
BMDS Network Operations Support Build 2Q FY09	2	2009	2	2009
BMDS Network Operations Support Build 3Q FY09	3	2009	3	2009
BMDS Network Operations Support Build 4Q FY09	4	2009	4	2009
BMDS Network Operations Support Build 1Q FY10	1	2010	1	2010
System Test Control Room Q1	1	2009	1	2009
System Test Control Room Q2	2	2009	2	2009

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>				PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>	77.249	61.201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	138.450
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project(s) CX22, YX22, and ZX40 is captured in Project MD22 and MD40 beginning FY11.

A. Mission Description and Budget Item Justification

The Missile Defense Integration and Operations Center (MDIOC) supports the technical development integral to the mission execution platform for several critical Agency activities at the MDIOC. The MDIOC mission execution platform 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 Missile Defense Space Experimentation Center; the Targets and Countermeasures Joint Target Operations Center; and the developmental support to the External Sensors Laboratory (ESL) as directed, of a common satellite ground station and sensor netting test bed for designated Ballistic Missile Defense System (BMDS) elements. It also supports BMDS Critical Engagement Conditions testing and analysis through the operation of the Test Execution Control node for distributed BMDS ground tests. The MDIOC provides the mission execution platform that supports operations of the Missile Defense Element, manned by the Army 100th Missile Defense Brigade, the United States Northern Command (USNORTHCOM) C2BMC Command and Control Center, and 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 mission execution platform 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 mission execution platform enables BMDS wargames and exercises in support of the warfighter. Funds Modeling and Simulation to provide and integrate digital modeling and simulation assets to the Digital Simulation Architecture to 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 execute their assigned duties. The MDIOC also

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>				
supports the operations of the Joint Early Warning Laboratory, which provides USSTRATCOM with quick response analyses of real-world launches, and rapid anomaly identification and resolution.						
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Infrastructure Systems and Support See Description Below <i>FY 2009 Accomplishments:</i> 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 supports MDA RDT&E efforts at the MDIOC for the MDA elements/components, and Combatant Command and warfighter operational elements Provided file, print, and messaging services; manage and maintain 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 ensure data recovery capability through proper data backup scheduling and execution Provided computer hosting of specified threat models and support the integration of other threat tools as required MDIOC Communication Services Acquired and distributed mission critical unclassified and secure communications capability to ten resident MDA elements/components and BMDS and warfighter operational elements		20.957	19.185	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Provided telephony services to include: Telephone/Fax Service; Provided local, long distance and Defense Switch Network telephone systems. Telephone Switch Operations: Operate, maintain, and upgrade (per government direction) telephone switches, nodes, and Private Branch Exchanges to include 911 support</p> <p>Network Management Transport Services</p> <p>Installed communications and networking infrastructure (hardware/software) in support of changing and expanding mission requirements of resident MDA development, testing, training, and operational activities</p> <p>Provided management of network capabilities by monitoring and controlling the network infrastructure, available bandwidth, hardware, and distributed software resources.</p> <p>Maintained the optimum condition of the hardware and software that comprises the technical infrastructure. This equipment included, but was not limited to: Routers, and switches, Core Cryptographic Devices; Edge Encryption Devices; Global Engagement Manager (GEM); base and long-haul communications</p> <p>Information Assurance Systems</p> <p>Provided information assurance to MDA elements/components, BMDS elements, COCOM and warfighter operational elements resident at the MDIOC</p> <p>Developed and maintained DoD Information Assurance Certification and Accreditation Process (DIACAP) accreditation packages as required; managed the Information Assurance Vulnerability Assessment Program and provided technical assistance to Controls Validation Tests as directed</p> <p>Provided DIACAP package management, ensure timely submissions to Information Assurance Manager/Designated Accreditation Authority (IAM/DAA) for MDA Administration/ General Services (GENSER) and Event Packages.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Performed architecture design, engineering, and configuration management reviews for over all assigned projects</p> <p>Managed the Information Assurance Vulnerability Assessment and Communications Tasking Order remediation and implementation efforts to ensure Defense Information Systems Agency (DISA)/JTF-GNO directed compliance</p> <p>Infrastructure Implementation Engineering</p> <p>Improved Information Technology change and configuration management capabilities in support of the MDA Chief Information Officer and MDA test events</p> <p>Provided 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</p> <p>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, fire wall configurations, application configurations, band width allocations for sub networks and eventual post event return to base line.</p> <p>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</p> <p>Implemented intelligence hardware/software updates as required to support the Operations Support Center (OSC)</p> <p>Planned/Initiated, when directed, the installation of any additional intelligence data feeds required to support the OSC</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Software Licenses, Services and Applications</p> <p>Maintain must-fund software licensing and maintenance agreements to meet essential customer and legal requirements that enable continued software support necessary to maintain the directed computer network defense posture and ensure continued system operational availability</p> <p>Critical Infrastructure Systems Repair and Sustainment</p> <p>Improve audio-visual distribution capability in the MDIOC for MDA elements/components and warfighter operational elements</p> <p>Upgrade the MDIOC Local Area Network backbone capability in support of voice, video, and data transport requirements</p> <p>Continue to refresh Automated Data Processing Equipment for all designated customers</p> <p><i>FY 2010 Plans:</i></p> <p>Computing Center (Operating Systems, Print/Storage Services, Audio/Visual, Operations and Maintenance)</p> <p>Continue to maintain a mission execution platform to provide an enabling infrastructure (to include hardware, software maintenance, licenses, and upgrades) that supports MDA RDT&E efforts at the MDIOC for the MDA elements/components, and Combatant Command and warfighter operational elements</p> <p>Provide computer hosting of specified threat models and support the integration of other threat tools as required</p> <p>Plan/Initiate, when directed, the installation of any additional intelligence data feeds required to support the OSC</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Provide file, print, and messaging services; manage and maintain automated patching software, and virus protection servers. 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</p> <p>MDIOC Communication Services</p> <p>Provide telephony services to include: Telephone/Fax Service: Provide local, long distance and Defense Switch Network telephone systems. Telephone Switch Operations: Operate, maintain, and upgrade (per government direction) telephone switches, nodes, and Private Branch Exchanges to include 911 support Install communications and networking infrastructure (hardware/software) in support of changing and expanding mission requirements of resident MDA development, testing, training, and operational activities</p> <p>Network Management Transport Services</p> <p>Acquire and distribute mission critical unclassified and secure communications capability to ten resident MDA elements/components and BMDS and warfighter operational elements Provide management of network capabilities by monitoring and controlling the network infrastructure, available bandwidth, hardware, and distributed software resources. Maintain the optimum condition of the hardware and software that comprises the technical infrastructure. This equipment includes, but is not limited to: Routers and switches, Core Cryptographic Devices; Edge Encryption Devices; GEM; base and long-haul communications</p> <p>Information Assurance Systems</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Provide information assurance to MDA elements/components, BMDS elements, and COCOM and warfighter operational elements resident at the MDIOC</p> <p>Maintain DIACAP accreditation packages; manage the Information Assurance Vulnerability Assessment Program and provide technical assistance to Controls Validation Tests</p> <p>Provide DIACAP package management; ensure timely submissions to IAM/DAA for MDA Admin/ GENSER and Event Packages</p> <p>Perform architecture design, engineering, and configuration management reviews for all assigned projects</p> <p>Manage the Information Assurance Vulnerability Assessment and Communications Tasking Order remediation and implementation efforts to ensure DISA/JTF-GNO directed compliance</p> <p>Infrastructure Implementation Engineering</p> <p>Implement intelligence hardware/software updates as required to support the Operations Support Center</p> <p>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</p> <p>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.</p> <p>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</p>					

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Software Licenses, Services and Applications</p> <p>Maintain must-fund 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</p> <p><i>FY 2011 Base Plans:</i> Plans are captured in Project MD22</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Facilities and Maintenance</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Utilities (Electrical, Gas, Sewer, Water, Steam, & Chilled Water)</p> <p>Procured utility services through 50th AF Space Wing (Host Base) Sustained utility infrastructure and delivery systems Facility Operations and Sustainment</p> <p>Provided 24 hours a day, 7 days a week, 365 days a year, facility maintenance break/fix response for all facility systems (electrical; Heating, Ventilating Air Conditioning; plumbing; locksmith) Conducted over 320 preventative maintenance inspections (PMIs) a month for all building systems Environmental, Safety & Occupational Health (ESOH)</p>		20.831	20.781	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Continued maintenance and update 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 Protection Agency (NEPA) programs Conducted recurring safety and environmental audits Facilities Repair & Sustainment</p> <p>Corrected Facility Installation Standards (FIS) and Safety deficiencies identified in the previous fiscal year Replaced two 2250 KVA Uninterrupted Power Supply (UPS) Systems to include system modules and batteries Removed and redistributed critical loads to the upgraded uninterruptible power supply and power distribution system Renovated chilled water system, Phase I (installation of isolation valves and replace aging evaporative coolers coils) Repaired elevators (Building 720) Planned the reconfiguration of the 1201 sector of the Research Building and Consolidated Support Facility Second Floor for operations support, Phase I Facilities Engineering</p> <p>Conducted Management Process/Facility Installation Standard Audits Provided risk management analysis and mitigation plans Maintained infrastructure drawings/configuration management databases Developed and documented facility long range planning/programming Provided consulting services, preliminary designs and engineering/rough order of magnitude estimates for required infrastructure builds/changes</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MDIOC Operating Expenses</p> <p>Leased GSA Vehicles and two commercial warehouses Schriever AFB Support Costs to the MDA/MDIOC (DRSN Support, Local Dial Tone, Long Distance, Cable TV, & Grounds Maintenance) Facility Services</p> <p>Provided custodial services for over 675,000 s of floor space in Buildings 720/730 Provided Copy Center and Shuttle Services for over 2,000 personnel Provided In/Out Processing & Personnel Moves Cable Plant/Cubicle/Workstation</p> <p>Installed facility connectivity cabling; provided trouble shooting and repair Installed and reconfigured furniture and workstations MDIOC Operational Security</p> <p>Provided maintenance and trouble shooting of the electronic security system Installed upgrades, replacements, and modifications to the electronic security system Independent Assessments</p> <p>Provided UPS Installation Oversight Reviewed root cause analysis and procured consulting services Updated database single line drawings, both electrical and Heating, Ventilation, and Air Conditioning Established a robust Reliability Centered Maintenance program</p> <p><i>FY 2010 Plans:</i> Utilities (Electrical, Gas, Sewer, Water, Steam, & Chilled Water)</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Procure utility services through 50th AF Space Wing (Host Base) Sustain utility infrastructure and delivery systems Facility Operations and Sustainment</p> <p>Provide 24 hours a day, 7 days a week, 365 days a year, facility maintenance break/fix response for all facility systems (electrical; Heating, Ventilating, Air-conditioning; plumbing; locksmith) Conduct over 320 preventative maintenance inspections (PMIs) a month for all building systems Environmental, Safety & Occupational Health (ESOH)</p> <p>Continue maintenance and update 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 NEPA programs Conduct recurring safety and environmental audits Facilities Repair & Sustainment</p> <p>Upgrade facility electrical distribution system for dual redundancy (Phase I) Upgrade Power Plant Switchboard Replace roof on Building 730 Plan and build-out the 1207 and 2304 Sectors of Building 720 Retrofit fire detection and suppression system Replace obsolete 12,470 kVa switchgear components ;with new automated technology Facilities Engineering</p> <p>Conduct Management Process/Facility Installation Standard Audits Provide risk management analysis and mitigation plans</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Maintain infrastructure drawings/configuration management databases Develop and document facility long range planning/programming Provide consulting services, preliminary designs and engineering/rough order of magnitude estimates for required infrastructure builds/changes MDIOC Operating Expenses</p> <p>Lease GSA Vehicles and two commercial warehouses Schriever AFB Support Costs to MDA/MDIOC (DRSN Support, Local Dial Tone, Long Distance, Cable TV, & Grounds Maintenance) Facility Services</p> <p>Provide custodial services for over 675,000 s of floor space in Buildings 720/730 Provide Copy Center and Shuttle Services for over 2,000 personnel Provide In/Out Processing & Personnel Moves Cable Plant/Cubicle/Workstation</p> <p>Install facility connectivity cabling; provide trouble shooting and repair Install and reconfigure furniture and workstations Independent Assessments</p> <p>Conduct root cause analysis and consulting services as required Conduct an electrical coordination study of technical and non-technical services Provide Quality Assurance Assessments</p> <p><i>FY 2011 Base Plans:</i> Plans are captured in Project MD22</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Engineering and Event Services See Description Below <i>FY 2009 Accomplishments:</i> Mission Assurance and Event Execution Support Implemented baseline technical control for all 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 circuit protection Heating, Ventilation and Air Conditioning, chilled water and steam systems Secure and non-secure voice communications for 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 and maintenance economic 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, Wargaming, exercise, training and general/administrative services Executed comprehensive configuration baseline integrity freezes, periods of interest and work screening for all major tests and real world contingencies	13.514	12.803	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>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:</p> <p>C2MBC incremental development and integration across the Integration Laboratory, X-Lab, and the International Point of Presence BMDS focused, system and distributed ground testing and Hardware-in-the-Loop execution Modeling and Simulation program management; Digital Simulation Architecture Development; Validation, Verification & Accreditation BMDS flight tests including FTG execution; FTM and FTT planning, coordination and situational awareness 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 Experimentation Center (MDSEC) Satellite Operations, Ground System and experiment support operations External Sensor Laboratory experimental, networking and facility support and coordination 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 USNORTHCOM C2BMC Control Center, Army 100th Missile Defense Brigade, and USSTRATCOM's Joint Functional Component Command-Integrated Missile Defense</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>MDA General Services Network and Operational Support Center and Network Communications Center MDA Computer Emergency Response Team</p> <p>24 Hours a Day, 7 Days a Week, 365 Days a Year, Technical Watch Support</p> <p>Provided on-site technical environment for 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 Implemented recall procedures to augment subject matter expertise availability during contingencies and major events Executed tabletop exercises to assess readiness for COCOM Operational contingencies and major BMDS tests Provided state change management and asset management technical support for the BMDS Coordinated, report and escalate critical information and BMDS test and operational event information to all MDIOC technical and management staff to ensure rapid break/fix actions are executed</p> <p>JNIC Research and Development Contract (JRDC) Business & Finance Operations</p> <p>Provided overarching contract and financial management support for all JRDC integrated programs/projects Provided engineering coordination, resource management, and event integration across all 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</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Executed integrated resource forecasting and economic Performed project management for discrete enterprise enhancements</p> <p>Event Architecture & Engineering Design</p> <p>Coordinated design and implementation of technical architectures for all major MDIOC hosted BMDS tests, training, operations, and RDT&E activities Delivered technical documentation packages for all major BMDS flight tests, ground tests, training and 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</p> <p>Event and Personnel Support</p> <p>Provided quality event planning, coordination, logistics, security access and host support for all MDIOC events and visitors Delivered integrated service coordination for all MDIOC event and protocol support including:</p> <p>Event Registration Web site Offsite event registration Security processing, including clearance verification and badging Coordination of group lodging Arrangement/Coordination/Scheduling of Bus Transportation</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Liaison between event POC and catering POC</p> <p>Reserved, setup and coordinated access for all primary shared MDIOC conference rooms Operated Audio Visual equipment during events Prepared and conducted official ceremonies; coordinated and hosted Distinguished Visitor itineraries; obtained information disclosure approval; coordinated offsite dinners and socials</p> <p>Special Program Support</p> <p>Developed and integrated Cross-Domain Solution implementations for BMDS ground testing and contingency deployments Integrated experimental application and networking environments for multi-mission integration with external agencies and customers Provided mission unique automation and IT integration for Intelligence Support Center and Threat Modeling Center critical applications</p> <p>Local Video Product Information Center Services</p> <p>Delivered multi-media products and services for wide spectrum of customer demands including test, training and operation support Designed and delivered integrated graphics support for DVs, foreign dignitaries, Congressional inquiries and MDIOC information briefings Provided wide spectrum of graphics products and services including:</p> <p>Event Posters and signage Visual Enhancements Historical and Special Event Posters</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>		PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Facility Design and Standardization Ceremonial Programs Certificates and awards Informational Brochure Design</p> <p>Provided photographic services and products Provided integrated audio-visual Motion Media products and services including:</p> <p>Three-dimensional animated modeling Departmental overview videos Training videos Facility Engineering and Design Classified mission and support videos Audio Recording Scripts and story boards Web-based training module development Historical video production</p> <p><i>FY 2010 Plans:</i> Mission Assurance and Event Execution Support</p> <p>Implement baseline technical control for all MDIOC mission critical subsystems and services Execute MDIOC engineering management, quality assurance, configuration management and integration of all mission critical systems including:</p> <p>Technical power distribution, Uninterruptable Power Supply Systems, major transformer substations, and circuit protection</p>								

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Heating, Ventilation and Air Conditioning (HVAC), chilled water and steam systems Secure and non-secure voice communications for BMDS Operations, major tests, and general constituencies Local and wide area secure data networking environments 24 hours a day, 7 days a week, 365 days a year and network health and status tools</p> <p>Ensure high availability and maintenance economic of integrated MDIOC systems 24 hours a day, 7 days a week, 365 days a year for BMDS Operations support Implement `last mile` integration for BMDS Operations, BMDS test, Wargaming, exercise, training and general/administrative 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</p> <p>Execute aggressive, proactive and tailored risk management to ensure integrity and persistent connectivity for all MDIOC missions including:</p> <p>C2MBC incremental development and integration across the Integration Laboratory, X-Lab, and the International Point of Presence BMDS focused, system and distributed ground testing and Hardware-in-the-Loop execution Modeling and Simulation program management; Digital Simulation Architecture Development; Validation, Verification & Accreditation BMDS flight tests including FTG execution; FTM and FTT planning, coordination and situational awareness Joint Target Operations Center (JTOC) Target of Opportunity (TOO) and target tracking, coordination and visualization</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>BMDS Operational Support Center 24 hours a day, 7 days a week, 365 days a year for technical integration and implementation services</p> <p>MDA Intelligence Support Cell and Threat Modeling Center services</p> <p>BMDS Wargame, exercise and DMETS training execution; Warfighter Support Center program integration</p> <p>Missile Defense Space Experimentation Center (MDSEC) Satellite Operations, Ground System and experiment support operations</p> <p>External Sensor Laboratory experimental, networking and facility support and coordination</p> <p>GMD Fire Control component-level operations, integration, testing, and training</p> <p>Joint Early Warning Laboratory mission services and connectivity</p> <p>Combatant Command (COCOM) operations work centers including the USNORTHCOM C2BMC Control Center, Army 100th Missile Defense Brigade, and USSTRATCOM's Joint Functional Component Command-Integrated Missile Defense</p> <p>MDA General Services Network and Operational Support Center and Network Communications Center</p> <p>MDA Computer Emergency Response Team</p> <p>24 Hours a Day, 7 Days a Week, 365 Days a Year Technical Watch Support</p> <p>Provide on-site technical environment for 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</p> <p>Implement recall procedures to augment subject matter expertise availability during contingencies and major events</p> <p>Execute tabletop exercises to assess readiness for COCOM Operational contingencies and major BMDS tests</p> <p>Provide state change management and asset management technical support for the BMDS</p>					

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Coordinate, report and escalate critical information and BMDS test and operational event information to all MDIOC technical and management staff to ensure rapid break/fix actions are executed</p> <p>JNIC Research and Development Contract (JRDC) Business & Finance Operations</p> <p>Provide overarching contract and financial management support for all JRDC integrated programs/projects</p> <p>Provide engineering coordination, resource management, and event integration across all MDIOC mission areas</p> <p>Conduct continuous process improvement and implementation across all JRDC execution and MDIOC missions</p> <p>Deliver integrated skill mix planning, coordination and workforce deployment across the dynamic spectrum of MDIOC events</p> <p>Execute integrated resource forecasting and economic</p> <p>Perform project management for discrete enterprise enhancements</p> <p>Event Architecture & Engineering Design</p> <p>Coordinate design and implementation of technical architectures for all major MDIOC hosted BMDS tests, training and operations</p> <p>Deliver technical documentation packages for all major BMDS flight tests, ground tests, training and COCOM exercise support</p> <p>Lead requirements coordination and technical architecture enhancements for BMDS wargame, exercise and training networks</p> <p>Update BMDS end-to-end COCOM deployed architecture as-built documentation reflecting new incremental content and deployments</p>					

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Maintain a technical repository of BMDS Implementation Architectures for real-time operations and configuration management</p> <p>Event and Personnel Support</p> <p>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:</p> <p>Event Registration Web site Offsite event registration Security processing, including clearance verification and badging Coordination of group lodging Arrangement/Coordination/Scheduling of Bus Transportation Liaison between event Point of Contact (POC) and catering POC</p> <p>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</p> <p>Special Program Support</p> <p>Develop and coordinate Cross-Domain Solution architectures for high priority BMDS testing and contingency deployments Coordinate MDA leveraged involvement in multi-mission integration opportunities sponsored by external agencies and customers</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> Plans are captured in Project MD22</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
<p>Operations and Sustainment</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Government Civilian, Contract Support Services (CSS), Training, Travel, Federally Funded Research and Development Contract (FFRDC)</p> <p>Funded Civilian, CSS, FFRDC positions supporting operations and sustainment of Infrastructure Systems, and Support; Facility Maintenance; Engineering and Event Services Funded Training and Travel for Infrastructure Systems, and Support; Facility Maintenance; Engineering and Event Services</p> <p><i>FY 2010 Plans:</i> Government Civilian, Contract Support Services (CSS), Training, Travel, Federally Funded Research and Development Contract (FFRDC)</p> <p>Fund Civilian, CSS, FFRDC positions supporting operations and sustainment of Infrastructure Systems, and Support; Facility Maintenance; Engineering and Event Services Fund Training and Travel for Infrastructure Systems, and Support; Facility Maintenance; Engineering and Event Services</p>	9.889	8.432	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> Plans are captured in Project MD22</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
<p>MDIOC BMDS Security</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Provided program protection, force protection, and an anti-terrorism posture in compliance with Missile Defense Agency (MDA) and Department of Defense (DOD) requirements, capable of supporting various events scheduled at the MDIOC Provided an integrated security approach for all new mission areas assigned to the MDIOC Provided ongoing industrial and physical security, including foreign disclosure, counterintelligence analysis and threat assessment, and guard/response force management Developed and managed secure emergency preparedness procedures</p> <p><i>FY 2010 Plans:</i> BMDS Security transferred to PE 0603890C</p> <p><i>FY 2011 Base Plans:</i> BMDS Security transferred to PE 0603890C</p> <p><i>FY 2011 OCO Plans:</i> NA</p>	2.458	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	67.649	61.201	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
Congressional Add: Modeling and Simulation <i>FY 2009 Accomplishments:</i> Congressional Add executed in full during the 2009 fiscal year <i>FY 2010 Plans:</i> Integrated Element-provided high fidelity models and testing of the resultant Ballistic Missile Defense System (BMDS) digital simulation for the Performance Assessment 2009 Built-out dedicated laboratory space for Performance Assessment 2009 event execution Threat Modeling Center software engineering of enhanced six-degree-of-freedom (6DoF) models of ballistic missile threats. Modeling based on Defense Intelligence Agency information (capabilities and engineering estimates) and used for MDA-wide common threat need	9.600	0.000
Congressional Adds Subtotals	9.600	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>											
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The strategy for the Missile Defense Integration and Operation Center (MDIOC) mission execution is to employ an integration contract to simultaneously perform all of the Ballistic Missile Defense System (BMDS) Research, Development, Test and Evaluation (RDT&E) tasks with integrated operation and sustainment. The MDIOC

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
<p>is operated by missile defense subject matter experts (SME) composed of Government military and civilian personnel, Federally Funded Research and Development Center (FFRDC), MDIOC Technical Advisory and Assistance Services, and major defense contractors.</p> <p>MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services. All future procurement actions will be competed to the practical extent possible.</p> <p>E. Performance Metrics NA</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Infrastructure Systems and Support MDIOC YX22	C/CPAF	MDIOC/Northrop Grumman Mission Systems CO Springs	20.957	19.185	Jan 2010	0.000		0.000		0.000	0	40.142	0
Facilities and Maintenance MDIOC-1 YX22	TBD/TBD	50th Space Wing Schriever AFB, CO	1.800	2.100	Oct 2009	0.000		0.000		0.000	0	3.900	0
Facilities and Maintenance MDIOC-2 YX22	C/CPAF	Northrop Grumman Mission Systems CO Springs	14.891	17.178	Jan 2010	0.000		0.000		0.000	0	32.069	0
Facilities and Maintenance MDIOC-3 YX22	C/CPAF	Northrop Grumman Mission Systems	2.733	0.000	Jan 2010	0.000		0.000		0.000	0	2.733	0

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		Colorado Springs, CO											
Facilities and Maintenance MDIOC-4 YX22	Various/ Various	Various(GSA,50th SW, Warehouses) CO Springs, CO	1.407	1.503	Apr 2010	0.000		0.000		0.000	0	2.910	0
Engineering and Event Services MDIOC YX22	C/CPAF	MDIOC/Northrop Grumman Mission Systems CO Springs	13.514	12.803	Apr 2010	0.000		0.000		0.000	0	26.317	0
Operations and Sustainment MDIOC-1 YX22	Various/ Various	MDIOC Colorado Springs, CO	4.631	4.270	Apr 2010	0.000		0.000		0.000	0	8.901	0
Operations and Sustainment MDIOC-2 YX22	C/FFP	MDIOC/SRS Colorado Springs, CO	3.381	2.840	Jan 2010	0.000		0.000		0.000	0	6.221	0
Operations and Sustainment MDIOC-3 YX22	TBD/TBD	MDIOC Colorado Springs, CO	1.704	1.027	Oct 2009	0.000		0.000		0.000	0	2.731	0
Operations and Sustainment MDIOC-4 YX22	Various/ Various	MDIOC Colorado Springs, CO	0.173	0.295	Jul 2010	0.000		0.000		0.000	0	0.468	0
MDIOC BMDS Security MDIOC YX22	C/CPAF	Qinetiq Colorado Springs, CO	2.458	0.000		0.000		0.000		0.000	0	2.458	0
Subtotal			67.649	61.201		0.000		0.000		0.000	0.000	128.850	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
 These funds are for utilities and base communications as specified in the Inter-service Support Agreement with the 50th Space Wing and government salaries. In addition, funds are executed by the Missile Defense Integration and Operations Center (MDIOC) and provide Federally Funded Research and Development Center (FFRDC) and Technical Advisory and Assistance 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.

BMDS Security transfers to PE 0603890C beginning FY 2010

FY 2011 funds are captured in Project MD22

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
 NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	67.649	61.201		0.000		0.000		0.000	0.000	128.850	0.000

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Assured Response 09A			■																									
JFTM-02 E1 (Japanese Cooperative Aegis Track Ex/US Sim Engagement)	■																											
FTG-05 (GMD Intercept Flight Test)	■																											
Recapitalization AF Tenant Space 1201 Ph 1 & 2 - 3Q2009			■																									
Recapitalization AF Tenant Space 1201 Ph 1 & 2-1Q2009-2Q2009	■	■																										
GTX-03c (Full BMDS Distributed Test)	■																											
Uninterruptible Power Supply Replacement Install - 3Q2009			■																									
Uninterruptible Power Supply Replacement Install-1Q2010-2Q2010					■	■																						
Vigilant Shield 09	■																											
GT-198 Target of Opportunity (TOO)	■																											
Keen Edge 09		■																										
Recapitalization AF Tenant Space 1201 Ph 1 & 2-3Q2010-4Q2010							■	■																				
GTD-03 (Full BMDS Distributed Test)		■																										
Terminal Fury 09			■																									
Eagle Resolve			■																									

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Patriot 7-2 (Patriot Intercept Flight Test)		■																										
FTM-15 (Aegis Intercept Flight Test)							■																					
ATM-48 (Patriot Intercept Flight Test)							■																					
FTG-06 (GMD Intercept Flight Test)				■																								
FTT-11 (THAAD Intercept Flight Test)				■																								
GT-195 (TOO) (Ground Test)			■																									
FTX-06 E1 (Aegis Track Ex)				■																								
AEP Test Campaign-1Q2009-2Q2009	■	■																										
AEP Test Campaign-3Q2009			■																									
AEP Test Campaign 4Q2009				■																								
Assured Response 04A							■																					
BVT-01 (EC 2-Stage Booster Interceptor Flight Test)											■																	
Caravan 2 USFT-3 (Israeli Program Intercept Flight Test)				■																								
Caravan 2 USFT-4 (Israeli Program Intercept Flight Test)				■																								
Contingency Ops											■																	
EC OITL 09							■																					
F-10b-Non-C-TOO												■																

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
FCE-C Distributed (Regional Distributed Contingency Test)				■																								
FCE-C HWIL (Regional HWIL Contingency Test)				■																								
FTG-05 SPRF (GMD System Post Flight Reconstruction)			■																									
FTL-01 E1, E2 (ABL Intercept Flight Test)			■																									
FTL-02 (ABL Intercept Flight Test)				■																								
FTL-03 (ABL Intercept Flight Test)							■																					
FTL-04 (ABL Intercept Flight Test)							■																					
FTM-17 (Aegis Track Ex Risk Reduction for JFTM-03)			■																									
FTS-01 (STSS Demonstrator Flight Test)							■																					
FTT-10a (THAAD Operational Intercept Flight Test)		■																										
FTT-12 (THAAD Intercept Flight Test)							■																					
FTX-06 E2 (Aegis Simulated Intercept Flight Test)				■																								
FTX-06 E3 (Aegis Simulated Intercept Flight Test)				■																								
FTX-06 E4 (Aegis Simulated Intercept Flight Test)				■																								

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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-07 (GT-200) (Aegis Glory Trip TOO)				■																								
FTX-08 (GT-201) (ABL Glory Trip TOO)					■																							
FTX-09 (GT-202) (ABL Glory Trip TOO)					■																							
FTX-10 (Cobra Dane Tracking Test)									■																			
FTX-11 (GT-203) (Aegis Glory Trip TOO)									■																			
Fast Shield II (Warfighter Contingency Ground Test)			■																									
Foreign Exercise - 1Q2010					■																							
Foreign Exercise - 2Q2010						■																						
Foreign Exercise - 3Q2010							■																					
Foreign Exercise - 4Q2010								■																				
G-04a-L (High Altitude Test Chamber)					■																							
G-17-L (TEC HWIL)					■																							
GMD 3 Stg Int (Ground Base Missile Defense)							■																					
GT-200 (Ground Test)					■																							
GTX-03e (BMDS Strategic Focused HWIL Test)			■																									
GTX-04a (Regional Focused HWIL Test)					■																							
GTX-04b (Full BMDS HWIL Test)						■																						
Global Lightning 10					■																							

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE</i> <i>INTEGRATION & OPERATIONS CENTER</i> <i>(MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 09			■																									
JFTM-03 E1 (Japanese Cooperative Aegis Track Ex/US Sim Engagement)				■																								
JFTM-03 E2 (Japanese Cooperative Aegis Track Ex/US Sim Engagement)				■																								
Keen Edge 10 -3Q 2010							■																					
Keen Edge 10 - 2Q 2010						■																						
Keen Edge 10 - 4Q 2010								■																				
Keen Edge 10 -1Q 2010				■																								
Nimble Titan 10							■																					
P2RF-23-T				■																								
P2RF-24-T								■																				
P2RF-25-I (FTM-16)								■																				
P2RF-39-T							■																					
PA09-2Q2009-3Q2009		■	■																									
PA09-4Q2009-1Q2010				■	■																							
PA10								■																				
Recapitalization AF Tenant Space 1201 Ph 1 & 2 - 4Q2009				■																								
Uninterruptible Power Supply Replacement Design/Demo/Site Prep - 4Q2009				■																								

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Uninterruptible Power Supply Replacement Design/Demo/Site Prep-1Q2009-2Q2009	■	■																										
Uninterruptible Power Supply Replacement Design/Demo/Site Prep-3Q2009			■																									
Uninterruptible Power Supply Replacement Install - 4Q2009				■																								
Vigilant Shield 10					■																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Assured Response 09A	3	2009	3	2009
JFTM-02 E1 (Japanese Cooperative Aegis Track Ex/US Sim Engagement)	1	2009	1	2009
FTG-05 (GMD Intercept Flight Test)	1	2009	1	2009
Recapitalization AF Tenant Space 1201 Ph 1 & 2 - 3Q2009	3	2009	3	2009
Recapitalization AF Tenant Space 1201 Ph 1 & 2-1Q2009-2Q2009	1	2009	2	2009
GTX-03c (Full BMDS Distributed Test)	1	2009	1	2009
Uninterruptible Power Supply Replacement Install - 3Q2009	3	2009	3	2009
Uninterruptible Power Supply Replacement Install-1Q2010-2Q2010	1	2010	2	2010
Vigilant Shield 09	1	2009	1	2009
GT-198 Target of Opportunity (TOO)	1	2009	1	2009
Keen Edge 09	2	2009	2	2009
Recapitalization AF Tenant Space 1201 Ph 1 & 2-3Q2010-4Q2010	3	2010	4	2010
GTD-03 (Full BMDS Distributed Test)	2	2009	2	2009
Terminal Fury 09	3	2009	3	2009
Eagle Resolve	3	2009	3	2009
Patriot 7-2 (Patriot Intercept Flight Test)	2	2009	2	2009
FTM-15 (Aegis Intercept Flight Test)	2	2010	2	2010
ATM-48 (Patriot Intercept Flight Test)	1	2010	1	2010

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
FTG-06 (GMD Intercept Flight Test)	4	2009	4	2009
FTT-11 (THAAD Intercept Flight Test)	1	2010	1	2010
GT-195 (TOO) (Ground Test)	3	2009	3	2009
FTX-06 E1 (Aegis Track Ex)	4	2009	4	2009
AEP Test Campaign-1Q2009-2Q2009	1	2009	2	2009
AEP Test Campaign-3Q2009	3	2009	3	2009
AEP Test Campaign 4Q2009	4	2009	4	2009
Assured Response 04A	2	2010	2	2010
BVT-01 (EC 2-Stage Booster Interceptor Flight Test)	3	2010	3	2010
Caravan 2 USFT-3 (Israeli Program Intercept Flight Test)	4	2009	4	2009
Caravan 2 USFT-4 (Israeli Program Intercept Flight Test)	4	2009	4	2009
Contingency Ops	3	2010	3	2010
EC OITL 09	2	2010	2	2010
F-10b-Non-C-TOO	4	2010	4	2010
FCE-C Distributed (Regional Distributed Contingency Test)	1	2010	1	2010
FCE-C HWIL (Regional HWIL Contingency Test)	1	2010	1	2010
FTG-05 SPRF (GMD System Post Flight Reconstruction)	4	2009	4	2009
FTL-01 E1, E2 (ABL Intercept Flight Test)	4	2009	4	2009
FTL-02 (ABL Intercept Flight Test)	1	2010	1	2010
FTL-03 (ABL Intercept Flight Test)	2	2010	2	2010

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT YX22: <i>Missile Defense Integration & Operations Center (MDIOC) Core</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
FTL-04 (ABL Intercept Flight Test)	2	2010	2	2010
FTM-17 (Aegis Track Ex Risk Reduction for JFTM-03)	4	2009	4	2009
FTS-01 (STSS Demonstrator Flight Test)	3	2010	3	2010
FTT-10a (THAAD Operational Intercept Flight Test)	2	2009	2	2009
FTT-12 (THAAD Intercept Flight Test)	2	2010	2	2010
FTX-06 E2 (Aegis Simulated Intercept Flight Test)	1	2010	1	2010
FTX-06 E3 (Aegis Simulated Intercept Flight Test)	1	2010	1	2010
FTX-06 E4 (Aegis Simulated Intercept Flight Test)	1	2010	1	2010
FTX-07 (GT-200) (Aegis Glory Trip TOO)	1	2010	1	2010
FTX-08 (GT-201) (ABL Glory Trip TOO)	2	2010	2	2010
FTX-09 (GT-202) (ABL Glory Trip TOO)	2	2010	2	2010
FTX-10 (Cobra Dane Tracking Test)	4	2010	4	2010
FTX-11 (GT-203) (Aegis Glory Trip TOO)	4	2010	4	2010
Fast Shield II (Warfighter Contingency Ground Test)	3	2009	3	2009
Foreign Exercise - 1Q2010	1	2010	1	2010
Foreign Exercise - 2Q2010	2	2010	2	2010
Foreign Exercise - 3Q2010	3	2010	3	2010
Foreign Exercise - 4Q2010	4	2010	4	2010
G-04a-L (High Altitude Test Chamber)	1	2010	1	2010
G-17-L (TEC HWIL)	1	2010	1	2010

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Event	Start		End	
	Quarter	Year	Quarter	Year
GMD 3 Stg Int (Ground Base Missile Defense)	3	2010	3	2010
GT-200 (Ground Test)	1	2010	1	2010
GTX-03e (BMDS Strategic Focused HWIL Test)	4	2009	4	2009
GTX-04a (Regional Focused HWIL Test)	1	2010	1	2010
GTX-04b (Full BMDS HWIL Test)	2	2010	2	2010
Global Lightning 10	1	2010	1	2010
Global Thunder 09	3	2009	3	2009
JFTM-03 E1 (Japanese Cooperative Aegis Track Ex/US Sim Engagement)	1	2010	1	2010
JFTM-03 E2 (Japanese Cooperative Aegis Track Ex/US Sim Engagement)	1	2010	1	2010
Keen Edge 10 -3Q 2010	3	2010	3	2010
Keen Edge 10 - 2Q 2010	2	2010	2	2010
Keen Edge 10 - 4Q 2010	4	2010	4	2010
Keen Edge 10 -1Q 2010	1	2010	1	2010
Nimble Titan 10	3	2010	3	2010
P2RF-23-T	1	2010	1	2010
P2RF-24-T	4	2010	4	2010
P2RF-25-I (FTM-16)	4	2010	4	2010
P2RF-39-T	3	2010	3	2010
PA09-2Q2009-3Q2009	2	2009	3	2009
PA09-4Q2009-1Q2010	4	2009	1	2010

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Event	Start		End	
	Quarter	Year	Quarter	Year
PA10	4	2010	4	2010
Recapitalization AF Tenant Space 1201 Ph 1 & 2 - 4Q2009	4	2009	4	2009
Uninterruptible Power Supply Replacement Design/Demo/Site Prep - 4Q2009	4	2009	4	2009
Uninterruptible Power Supply Replacement Design/Demo/Site Prep-1Q2009-2Q2009	1	2009	2	2009
Uninterruptible Power Supply Replacement Design/Demo/Site Prep-3Q2009	3	2009	3	2009
Uninterruptible Power Supply Replacement Install - 4Q2009	4	2009	4	2009
Vigilant Shield 10	1	2010	1	2010

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>	0.000	0.000	83.298	0.000	83.298	84.956	75.965	77.889	80.173	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project(s) CX22, YX22, and ZX40 is captured in Project MD22 and MD40 beginning FY11.

A. Mission Description and Budget Item Justification

The Missile Defense Integration and Operations Center (MDIOC) supports the technical development integral to the mission execution platform for several critical Agency activities at the MDIOC. The MDIOC mission execution platform 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 Missile Defense Space Experimentation Center; the Targets and Countermeasures Joint Target Operations Center; and the developmental support to the External Sensors Laboratory (ESL) as directed, of a common satellite ground station and sensor netting test bed for designated Ballistic Missile Defense System (BMDS) elements. It also supports BMDS Critical Engagement Conditions testing and analysis through the operation of the Test Execution Control node for distributed BMDS ground tests. The MDIOC provides the mission execution platform that supports operations of the Missile Defense Element, manned by the Army 100th Missile Defense Brigade, the United States Northern Command (USNORTHCOM) C2BMC Command and Control Center, and 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 mission execution platform 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. Funds BMDS wargames and exercises in support of the warfighter. Funds Modeling and Simulation to provide and integrate digital modeling and simulation assets to the Digital Simulation Architecture to 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 execute their assigned duties. The MDIOC also supports the operations of the Joint Early Warning Laboratory, which provides USSTRATCOM with quick response analyses of real-world launches, and rapid anomaly identification and resolution.

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Infrastructure Systems and Support</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Accomplishments captured under Project YX22</p> <p><i>FY 2010 Plans:</i> Plans ;captured under Project YX22</p> <p><i>FY 2011 Base Plans:</i> Computing Center (Operating Systems, Print/Storage Services, Audio/Visual, Operations and Maintenance)</p> <p>Continue to maintain a mission execution platform to provide an enabling infrastructure (to include hardware, software maintenance, licenses, and upgrades) that supports MDA RDT&E efforts at the MDIOC for the MDA elements/components, and Combatant Command and warfighter operational elements</p> <p>Provide computer hosting of specified threat models and support the integration of other threat tools as required</p> <p>Plan/Initiate, when directed, the installation of any additional intelligence data feeds required to support the OSC</p> <p>Provide file, print, and messaging services; manage and maintain automated patching software, and virus protection servers. 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</p> <p>MDIOC Communication Services</p>	0.000	0.000	19.246	0.000	19.246

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Provide telephony services to include: Telephone/Fax Service: Provide local, long distance and Defense Switch Network telephone systems. Telephone Switch Operations: Operate, maintain, and upgrade (per government direction) telephone switches, nodes, and Private Branch Exchanges to include 911 support</p> <p>Install communications and networking infrastructure (hardware/software) in support of changing and expanding mission requirements of resident MDA development, testing, training, and operational activities</p> <p>Network Management Transport Services</p> <p>Acquire and distribute mission critical unclassified and secure communications capability to ten resident MDA elements/components and BMDS and warfighter operational elements</p> <p>Provide management of network capabilities by monitoring and controlling the network infrastructure, available bandwidth, hardware, and distributed software resources.</p> <p>Maintain the optimum condition of the hardware and software that comprises the technical infrastructure. This equipment includes, but is not limited to: Routers and switches, Core Cryptographic Devices; Edge Encryption Devices; GEM; base and long-haul communications</p> <p>Information Assurance Systems</p> <p>Provide information assurance to MDA elements/components, BMDS elements, and COCOM and warfighter operational elements resident at the MDIOC</p> <p>Maintain DIACAP accreditation packages; manage the Information Assurance Vulnerability Assessment Program and provide technical assistance to Controls Validation Tests</p> <p>Provide DIACAP package management; ensure timely submissions to IAM/DAA for MDA Admin/ GENSER and Event Packages</p> <p>Perform architecture design, engineering, and configuration management reviews for all assigned projects</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Manage the Information Assurance Vulnerability Assessment and Communications Tasking Order remediation and implementation efforts to ensure DISA/JTF-GNO directed compliance Infrastructure Implementation Engineering</p> <p>Implement intelligence hardware/software updates as required to support the Operations Support Center</p> <p>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</p> <p>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</p> <p>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</p> <p>Software Licenses, Services and Applications</p> <p>Maintain must-fund 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</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Facilities and Maintenance	0.000	0.000	18.743	0.000	18.743

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Accomplished ;captured under Project YX22</p> <p><i>FY 2010 Plans:</i> Plans ;captured under Project YX22</p> <p><i>FY 2011 Base Plans:</i> Utilities (Electrical, Gas, Sewer, Water, Steam, & Chilled Water)</p> <p>Procure utility services through 50th AF Space Wing (Host Base) Sustain utility infrastructure and delivery systems Facility Operations and Sustainment</p> <p>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) Conduct over 320 preventative maintenance inspections (PMIs) a month for all building systems Environmental, Safety & Occupational Health (ESOH)</p> <p>Continue maintenance and update 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 NEPA programs Conduct recurring safety and environmental audits Facilities Repair & Sustainment</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Independent Assessments</p> <p>Conduct root cause analysis and consulting services as required Conduct an electrical coordination study of technical and non-technical services</p> <p>Provide Quality Assurance Assessments</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
<p>Engineering and Event Services</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Accomplishments ;captured under Project YX22</p> <p><i>FY 2010 Plans:</i> Plans ;captured under Project YX22</p> <p><i>FY 2011 Base Plans:</i> Mission Assurance and Event Execution Support</p> <p>Implement baseline technical control for all MDIOC mission critical subsystems and services Execute MDIOC engineering management, quality assurance, configuration management and integration of all mission critical systems including:</p>	0.000	0.000	11.531	0.000	11.531

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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Technical power distribution, Uninterruptable Power Supply Systems, major transformer substations, and circuit protection</p> <p>Heating, Ventilation and Air Conditioning, chilled water and steam systems</p> <p>Secure and non-secure voice communications for BMDS Operations, major tests, and general constituencies</p> <p>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</p> <p>Ensure high availability and maintenance de-confliction of integrated MDIOC systems and BMDS Operations support 24 hours a day, 7 days a week, 365 days a year</p> <p>Implement `last mile` integration for BMDS Operations, BMDS test, Wargaming, exercise, training and general/admin services</p> <p>Execute comprehensive configuration baseline integrity freezes, periods of interest and work screening for all major tests and real world contingencies</p> <p>Coordinate process improvement investments across all mission areas</p> <p>Execute aggressive, proactive and tailored risk management to ensure integrity and persistent connectivity for all MDIOC missions including:</p> <p>C2MBC incremental development and integration across the Integration Laboratory, X-Lab, and the International Point of Presence</p> <p>BMDS focused, system and distributed ground testing and Hardware-in-the-Loop execution</p> <p>Modeling and Simulation program management; Digital Simulation Architecture Development; Validation, Verification & Accreditation</p> <p>BMDS flight tests including FTG execution; FTM and FTT planning, coordination and situational awareness</p> <p>Joint Target Operations Center (JTOC) Target of Opportunity (TOO) and target tracking, coordination and visualization</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>BMDS Operational Support Center and technical integration and implementation services 24 hours a day, 7 days a week, 365 days a year</p> <p>MDA Intelligence Support Cell and Threat Modeling Center services</p> <p>BMDS Wargame, exercise and DMETS training execution; Warfighter Support Center program integration</p> <p>Missile Defense Space Experimentation Center (MDSEC) Satellite Operations, Ground System and experiment support operations</p> <p>External Sensor Laboratory experimental, networking and facility support and coordination</p> <p>GMD Fire Control component-level operations, integration, testing, and training</p> <p>Joint Early Warning Laboratory mission services and connectivity</p> <p>Combatant Command (COCOM) operations work centers including the USNORTHCOM C2BMC Control Center, Army 100th Missile Defense Brigade, and USSTRATCOM's Joint Functional Component Command-Integrated Missile Defense</p> <p>MDA General Services Network and Operational Support Center and Network Communications Center</p> <p>MDA Computer Emergency Response Team</p> <p>24 Hours a Day, 7 Days a Week, 365 Days a Year, Technical Watch Support</p> <p>Provide on-site technical environment for 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</p> <p>Implement recall procedures to augment subject matter expertise availability during contingencies and major events</p> <p>Execute tabletop exercises to assess readiness for COCOM Operational contingencies and major BMDS tests</p> <p>Provide state change management and asset management technical support for the BMDS</p> <p>Coordinate, report and escalate critical information and BMDS test and operational event information to all MDIOC technical and management staff to ensure rapid break/fix actions are executed</p>					

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>JNIC Research and Development Contract (JRDC) Business & Finance Operations</p> <p>Provide overarching contract and financial management support for all 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</p> <p>Execute integrated resource forecasting and de-confliction Perform project management for discrete enterprise enhancements Event Architecture & Engineering Design</p> <p>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 BMDS wargame, exercise and training networks Update BMDS end-to-end 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 Event and Personnel Support</p>					

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>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:</p> <p>Event Registration Website Offsite event registration Security processing, including clearance verification and badging Coordination of group lodging Arrangement/Coordination/Scheduling of Bus Transportation Liaison between event POC and catering POC 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 Special Program Support</p> <p>Develop and coordinate Cross-Domain Solution architectures for high priority BMDS testing and contingency deployments</p> <p>Coordinate MDA leveraged involvement in multi-mission integration opportunities sponsored by external agencies and customers</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
Operations and Sustainment See Description Below		0.000	0.000	8.231	0.000	8.231

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> Accomplishments ;captured under Project YX22</p> <p><i>FY 2010 Plans:</i> Plans ;captured under Project YX22</p> <p><i>FY 2011 Base Plans:</i> Government Civilian, Contract Support Services (CSS), Training, Travel, Federally Funded Research and Development Contract (FFRDC)</p> <p>Fund Civilian, CSS and FFRDC ;positions supporting operations and sustainment of Infrastructure Systems, and Support; Facility Maintenance; Engineering and Event Services</p> <p>Fund Training and Travel for Infrastructure Systems, and Support; Facility Maintenance; Engineering and Event Services</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
<p>C2BMC Test Beds</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Accomplishments ;captured under Project CX22</p> <p><i>FY 2010 Plans:</i> Plans ;captured under Project CX22</p>	0.000	0.000	21.613	0.000	21.613

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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i></p> <p>The BMDS performance evaluation strategy is to develop models and simulations of the BMDS and compare their predictions to empirical data collected through comprehensive flight and ground testing to validate their accuracy, rather than physically testing all possible combinations of BMDS configurations, engagement conditions, and target phenomena. The BMDS test review determined how to validate our models and simulations so that our war fighting commanders consider employing the BMDS in ways other than originally planned or against threats unknown at this time.</p> <p>Transition the MDIOC C2BMC Testbed to support sustainment testing of C2BMC Spiral 6.4 Build out and upgrade MDIOC C2BMC Testbed to support early integration and test C2BMC Spiral 8.2 functionality and architecture Plan, collect data, assess, examine, and report on MDA directed C2BMC spiral integration testing Continue to support the integration of missile defense elements into the BMDS command and control structure Support interoperability and integration of the BMDS program elements Improve the operational realism of the system test architectures Conduct a system test campaign across the architecture based on the Integrated Master Plan Test (IMPT) Schedule Support the field testing of the European Deployment Sustain the C2BMC Components of the Distributed Multi-Echelon Distributed Training system (DMETS) in the conduct of BMDS-level wargames, exercises, and training Provide infrastructure, network, and troubleshooting support to:</p> <p>C2BMC Control Center (CCC) BMDS Communications Network (BCN) Parallel Staging Network (PSN)</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>BMDS Network Operations and Security Center (BNOSC) Conduct C2BMC X-Lab Events and Experimentation</p> <p>Refine C2BMC interfaces to BMDS Elements and Sensors Conduct concept development for highly adaptive, highly secure, highly reliable CTTO Network Architectures</p> <p>Extend the BMD OPIR Architecture (BOA), interfaces, testing, integration, and fielding Perform BMDS / Joint Early Warning test, operational assessments, integration and fielding support (JEWL)</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
<p>Joint Early Warning Laboratory (JEWL) See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Accomplishments ;captured under Project CX22</p> <p><i>FY 2010 Plans:</i> Plans ;captured under Project CX22</p> <p><i>FY 2011 Base Plans:</i> Perform BMDS Early Warning test, integration and fielding support Perform Joint Early Warning operational assessments and support Record data on all missile events broadcast over Theater Event System (TES)</p>	0.000	0.000	2.190	0.000	2.190

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Maintain database on all missile events recorded since January 2003</p> <p>Perform analysis pertaining to live events</p> <p>Support testing and integration of Theater Missile Warning (TMW) and Integrated Air Missile Defense (IAMD) architecture improvements</p> <p>Perform USSTRATCOM Configuration Control Board (CCB) assessments and technical evaluations of new systems for inclusion in Theater Missile Warning (TMW) Architecture</p> <p>Conduct Theater Missile Warning (TMW) Health Checks to assist COCOMs in evaluating their missile warning architecture, and optimize their early warning coverage in conjunction with USSTRATCOM</p> <p>Support the Global Command and Control System (GCCS) Theater Air and Missile Defense (TAMD) workgroup and sustainment of TMW capabilities in GCCS</p> <p>Maintain web-based documentation of COCOM Tier-1 sites TMW equipment configuration</p> <p>Provide subject-matter expertise in support of BMDS and TMW architecture convergence</p> <p>Perform testing on new systems for inclusion into the TMW architecture</p> <p>Perform Early Warning Target of Opportunity (TOO) initial quick reports and comparative analysis</p> <p>Perform Operational Early Warning Anomaly Tracking and Analysis</p> <p>Provide BMDS C2BMC Early Warning Integration support</p> <p>Perform Operator/Warfighter TMW Exercise Data Analysis</p> <p>Provide and chair USSTRATCOM CCB Engineering Subgroup</p> <p>Establish the Early Warning Incident / Anomaly tracking database in support of the TMW CCB and BMDS EW SPT reporting and metrics tracking</p> <p>Upgrade JEWL hardware/software/communications</p> <p>Perform C2BMC display analysis</p> <p>Perform Joint Early Warning support for BMDS Early Warning Special Product Team (EW SPT)</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
BMDS Engineering Implementation and Integration	0.000	0.000	1.744	0.000	1.744

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
See Description Below					
<i>FY 2009 Accomplishments:</i> Activity did not exist in the MDIOC PE FY 2009					
<i>FY 2010 Plans:</i> Activity did not exist in the MDIOC PE FY 2010					
<i>FY 2011 Base Plans:</i> Development and maintenance of system level configuration management capabilities for the BMDS system					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	83.298	0.000	83.298

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>											
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>											
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The strategy for the Missile Defense Integration and Operation Center (MDIOC) mission execution is to employ an integration contract to simultaneously perform all of the Ballistic Missile Defense System (BMDS) Research, Development, Test and Evaluation (RDT&E) tasks with integrated operation and sustainment. The MDIOC

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
<p>is operated by missile defense subject matter experts (SME) composed of Government military and civilian personnel, Federally Funded Research and Development Center (FFRDC), MDIOC Technical Advisory and Assistance Services, and major defense contractors.</p> <p>MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services. All future procurement actions will be competed to the practical extent possible.</p> <p><u>E. Performance Metrics</u> NA</p>		

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Infrastructure Systems and Support MD22	C/CPAF	MDIOC/Northrop Grumman Mission Systems Colorado Springs, CO	0.000	0.000		19.246	Jan 2011	0.000		19.246	Continuing	Continuing	Continuing
Facilities and Maintenance MD22	C/CPAF	MDIOC/Northrop Grumman Mission Systems Colorado Springs, CO	0.000	0.000		14.997	Jan 2011	0.000		14.997	Continuing	Continuing	Continuing
Facilities and Maintenance MD22	TBD/TBD	Various (GSA, 50th Space Wing, Warehouses)	0.000	0.000		1.572	Apr 2011	0.000		1.572	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		Colorado Springs, CO											
Facilities and Maintenance MDIOC Utilities MD22	TBD/TBD	50th Space Wing Schriever AFB, CO	0.000	0.000		2.174	Oct 2010	0.000		2.174	Continuing	Continuing	Continuing
Engineering and Event Services MDIOC NG MD22	C/CPAF	MDIOC/Northrop Grumman Mission Systems Colorado Springs, CO	0.000	0.000		11.531	Apr 2011	0.000		11.531	Continuing	Continuing	Continuing
Operations and Sustainment MDIOC Ops & Sustainment MD22	Various/ Various	MDIOC Colorado Springs, CO	0.000	0.000		4.370	Apr 2011	0.000		4.370	Continuing	Continuing	Continuing
Operations and Sustainment MDIOC ManTech MD22	C/FFP	MDIOC/SRS/ ManTech Colorado Springs, CO	0.000	0.000		2.939	Jan 2011	0.000		2.939	Continuing	Continuing	Continuing
Operations and Sustainment MDIOC FFRDC MD22	TBD/TBD	MDIOC Colorado Springs, CO	0.000	0.000		0.727	Oct 2010	0.000		0.727	Continuing	Continuing	Continuing
Operations and Sustainment MDIOC Various MD22	Various/ Various	MDIOC Colorado Springs, CO	0.000	0.000		0.195	Jul 2011	0.000		0.195	Continuing	Continuing	Continuing
BMDS Engineering Implementation and	C/CPAF		0.000	0.000		1.744	Jan 2011	0.000		1.744	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integration BMDS Engineering MD22		Northrop Grumman Mission System Colorado Springs, CO											
Subtotal			0.000	0.000		59.495		0.000		59.495			

Remarks

FY2009 and FY2010 data is captured under Project YX22

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C2BMC Test Beds C2BMC Testbed - 1 MD22	C/FFP	Mantech Colorado Springs, CO	0.000	0.000		1.664	Apr 2011	0.000		1.664	Continuing	Continuing	Continuing
C2BMC Test Beds C2BMC Testbed - 2 MD22	TBD/TBD	IDA Colorado Springs, CO	0.000	0.000		0.900	Oct 2010	0.000		0.900	Continuing	Continuing	Continuing
C2BMC Test Beds BMDS Level Testing MD22	C/CPFF	Northrop Grumman Mission Systems	0.000	0.000		19.049	Oct 2010	0.000		19.049	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		Colorado Springs, CO											
Joint Early Warning Laboratory (JEWL) JEWL MD22	Various/ Various	MULTI Colorado Springs, CO	0.000	0.000		2.190	Jan 2011	0.000		2.190	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		23.803		0.000		23.803			

Remarks

NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000		0.000			0.000		0.000			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	83.298	0.000	83.298			

Remarks
 NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Recapitalization AF Tenant Space 1201 Ph 2 Q1									■																			
Electrical Power Distribution Upgrade PhII Q1,Q2									■	■																		
Recapitalization AF Tenant Space 1201 Ph 2 Q2										■																		
Electrical Power Distribution Upgrade PhII Q3,Q4											■	■																
Electrical Power Distribution Upgrade PhIII Q1,Q2													■	■														
Design, procure, and implement additional data storage capacity														■														
Electrical Power Distribution Upgrade PhIII Q3,Q4															■	■												
Replace Roof, Bldg 730															■													
Emergency Lighting System Replacement															■													
Electrical Power Distribution Upgrade PhIV Q1,Q2																			■	■								
Modify Cafeteria for Multi-use Facility Q1,Q2																			■	■								
Electrical Power Distribution Upgrade PhIV Q3,Q4																							■	■				
																							■					

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE</i> <i>INTEGRATION & OPERATIONS CENTER</i> <i>(MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and</i> <i>Operations Center (MDIOC)</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Network Operations Center Expansion and Command Center																												
Install Restricted Area Access Telephone System																												
Modify Cafeteria for Multi-use Facility Q3																												
Electrical Power Distribution Upgrade PhV Q1,Q2																												
Electrical Power Distribution Upgrade PhV Q3,Q4																												
Replace Elevators																												
Spiral 6.4D Testing Q1 FY11																												
Spiral 6.4D Testing Q2 FY11																												
Spiral 6.4D Testing Q3 FY11																												
System Test (ST) (C2BMC Suite for Ground Test) - 1 Spiral 6.4 Upgrade Q1																												
System Test (ST) (C2BMC Suite for Ground Test) -1 Spiral 6.4 Upgrade Q2																												
System Test (ST) (C2BMC Suite for Ground Test) -1 Spiral 6.4 Upgrade Q3																												
System Test (ST) (C2BMC Suite for Ground Test) -1 Spiral 6.4 Upgrade Q4																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
ST-2 Spiral 6.4 BMD Overhead Persistent IR (BOA) Upgrade Q1																												
ST-2 Spiral 6.4 BMD Overhead Persistent IR (BOA) Upgrade Q2																												
ST-2 Spiral 6.4 BMD Overhead Persistent IR (BOA) Upgrade Q3																												
ST-2 Spiral 6.4 BMD Overhead Persistent IR (BOA) Upgrade Q4																												
Spiral 8.2 Testing Q4 FY11																												
Spiral 8.2 Testing Q1 FY12																												
Spiral 8.2 Testing Q2 FY12																												
Spiral 8.2 Testing Q3 FY12																												
Spiral 8.4 Testing Q2 FY13																												
Spiral 8.4 Testing Q3 FY13																												
Spiral 8.4 Testing Q4 FY13																												
Spiral 8.4 Testing Q1 FY14																												
Spiral 10.2 Testing Q4 FY14																												
Spiral 10.2 Testing Q1 FY15																												
Spiral 10.2 Testing Q2 FY15																												
Spiral 10.2 Testing Q3 FY15																												
Vigilant Shield 11																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

0400: *Research, Development, Test & Evaluation, Defense-Wide*
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE

PE 0603904C: *MISSILE DEFENSE
 INTEGRATION & OPERATIONS CENTER
 (MDIOC)*

PROJECT

MD22: *Missile Defense Integration and
 Operations Center (MDIOC)*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Vigilant Shield 12													■															
Vigilant Shield 13																	■											
Vigilant Shield 14																					■							
Vigilant Shield 15																									■			
Key Resolve 12													■															
Key Resolve Q2 FY13																	■											
Key Resolve Q2 FY14																					■							
Key Resolve Q2 FY15																									■			
Global Lightening 12													■															
Global Lightening 13																	■											
Keen Edge																	■											
Keen Edge Q2																					■							
Nimble Titan																									■			
Nimble Titan Q3																										■		
Terminal Fury 11																									■			
Terminal Fury 12																										■		
Terminal Fury 13																											■	
Terminal Fury 14																											■	
Terminal Fury 15																												■

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 12																												
Eagle Resolve																												
Future Epoch Wargame																												
Assured Response 04X Q1 FY11																												
Assured Response 04A																												
Assured Response 04X Q1 FY12																												
Assured Response 05a																												
Assured Response 06a																												
Air and Missile Defense Exercise Q3 FY13																												
Air and Missile Defense Exercise Q3 FY15																												
Austere Challenge																												
Eagle Resolve Q1																												
Foreign Exercise Q1																												
Foreign Exercise Q2																												
Foreign Exercise Q3,Q4																												
Congressional Wargame Q4 FY12																												
Congressional Wargame Q2 FY13																												
Congressional Wargame Q2 FY14																												
Congressional Wargame Q2 FY15																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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 11											■																	
Global Thunder 12														■														
Global Thunder 13																												
Global Thunder 14																												
Global Thunder 15																												
Future Epoch Wargame Q1																												
Global Engagement Manager (GEM) Spiral 8.2 Test Environment #1 Q2																												
Global Engagement Manager (GEM) Spiral 8.2 Test Environment #1 Q3																												
Global Engagement Manager (GEM) Spiral 8.2 Test Environment #1 Q4																												
Global Engagement Manager (GEM) Spiral 8.2 Test Environment #2																												
C2BMC Regional Testbed																												
Ground Test Environment																												
Performance Assessment (PA)-11 Q2																												
Performance Assessment (PA)-11 Q3																												
Performance Assessment (PA)-11 Q4																												
Global Lightening 11																												
Global Lightening 14																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
G-19-H (TPY-2 FBM HWIL)												■																
FTM-16 E1 (Aegis Simulated Intercept Flight Test)									■																			
FTM-16 E2 (Aegis Intercept Flight Test)									■																			
GTX-04c (Full BMDS Distributed Test)									■																			
GTX-04d (Full BMDS HWIL Test)									■																			
JFTM-04 E1 (Japanese Cooperative Aegis Track Ex/US Sim Engagement)									■																			
JFTM-04 E2 (Japanese Cooperative Aegis Track Ex/US Sim Engagement)									■																			
Patriot 7-3 (Patriot Multiple Simultaneous Engagement)									■																			
AST-14 (Israeli Cooperative Intercept Flight Test)										■																		
FTG-07 (EC Intercept Flight Test)										■																		
FTL-05 (ABL Intercept Flight Test)										■																		
FTT-13 (THAAD Intercept Flight Test)										■																		
GTI-04 (INT) (Full BMDS HWIL Test)										■																		
FTS-02 (STSS Demonstrator Flight Test)											■																	
GTX-04e (Regional Focused HWIL Test)											■																	
GTI-04 (EXE) (Full BMDS HWIL Test)											■																	

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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-1 (Aegis/THAAD/Patriot Multiple Engagement Flight Test)												■																
FTL-06 (ABL Intercept Flight Test)												■																
FTG-08 (GMD Intercept Flight Test)													■															
FTM-19 E1 (Aegis Simulated Intercept Flight Test)													■															
FTM-19 E2 (Aegis Intercept Flight Test)													■															
FTM-18 (Aegis Intercept Flight Test)														■														
FTT-14 (THAAD Intercept Flight Test)														■														
PTV-1 (Aegis Interceptor Only Test)														■														
FTL-07 (ABL Intercept Flight Test)															■													
FTL-08 (ABL Intercept Flight Test)															■													
GTX-05a (Regional Focused HWIL Test)															■													
CTV-1 (Aegis Interceptor Only Test)																■												
FTG-09 (GMD Salvo Flight Test)																■												
FTT-15 (THAAD Intercept Flight Test)																■												
GTX-05b (Strategic Focused HWIL Test)																■												
AST-15 (Israeli Cooperative Intercept Flight Test)																	■											
FTM-20 E1 (Aegis Simulated Intercept Flight Test)																	■											

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
AST-16 (Israeli Cooperative Intercept Flight Test)																												
GTX-06c (BMDS Focused HWIL Test)																												
SFTM-2 E1 (Aegis Simulated Intercept Flight Test)																												
SFTM-2 E2 (Aegis Non Intercept Flight Test)																												
FTG-11 (GMD Intercept Flight Test)																												
FTM-21 (Aegis Intercept Flight Test)																												
FTM-22 (Aegis Intercept Flight Test)																												
FTT-18 (THAAD Intercept Flight Test)																												
FTL-11 (ABL Intercept Flight Test)																												
FTL-12 (ABL Intercept Flight Test)																												
SFTM-3 E1 (Aegis Simulated Intercept Flight Test)																												
SFTM-3 E2 (Aegis Intercept Flight Test)																												
GTI-06 (INT) (Full BMDS HWIL Test)																												
FTT-19 (THAAD Intercept Flight Test)																												
FTX-15 (ECM Test Flight)																												
GTI-06 (EXE) (Full BMDS HWIL Test)																												
SFTM-4 (Aegis Intercept Flight Test)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Recapitalization AF Tenant Space 1201 Ph 2 Q1	1	2011	1	2011
Electrical Power Distribution Upgrade PhII Q1,Q2	1	2011	2	2011
Recapitalization AF Tenant Space 1201 Ph 2 Q2	2	2011	2	2011
Electrical Power Distribution Upgrade PhII Q3,Q4	3	2011	4	2011
Electrical Power Distribution Upgrade PhIII Q1,Q2	1	2012	2	2012
Design, procure, and implement additional data storage capacity	2	2012	2	2012
Electrical Power Distribution Upgrade PhIII Q3,Q4	3	2012	4	2012
Replace Roof, Bldg 730	3	2012	3	2012
Emergency Lighting System Replacement	3	2012	3	2012
Electrical Power Distribution Upgrade PhIV Q1,Q2	1	2013	2	2013
Modify Cafeteria for Multi-use Facility Q1,Q2	1	2013	2	2013
Electrical Power Distribution Upgrade PhIV Q3,Q4	3	2013	4	2013
Network Operations Center Expansion and Command Center	3	2013	3	2013
Install Restricted Area Access Telephone System	3	2013	3	2013
Modify Cafeteria for Multi-use Facility Q3	3	2013	3	2013
Electrical Power Distribution Upgrade PhV Q1,Q2	1	2014	2	2014
Electrical Power Distribution Upgrade PhV Q3,Q4	3	2014	4	2014
Replace Elevators	2	2015	3	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Spiral 6.4D Testing Q1 FY11	1	2011	1	2011
Spiral 6.4D Testing Q2 FY11	2	2011	2	2011
Spiral 6.4D Testing Q3 FY11	3	2011	3	2011
System Test (ST) (C2BMC Suite for Ground Test) - 1 Spiral 6.4 Upgrade Q1	1	2011	1	2011
System Test (ST) (C2BMC Suite for Ground Test) -1 Spiral 6.4 Upgrade Q2	2	2011	2	2011
System Test (ST) (C2BMC Suite for Ground Test) -1 Spiral 6.4 Upgrade Q3	3	2011	3	2011
System Test (ST) (C2BMC Suite for Ground Test) -1 Spiral 6.4 Upgrade Q4	4	2011	4	2011
ST-2 Spiral 6.4 BMD Overhead Persistent IR (BOA) Upgrade Q1	1	2011	1	2011
ST-2 Spiral 6.4 BMD Overhead Persistent IR (BOA) Upgrade Q2	2	2011	2	2011
ST-2 Spiral 6.4 BMD Overhead Persistent IR (BOA) Upgrade Q3	3	2011	3	2011
ST-2 Spiral 6.4 BMD Overhead Persistent IR (BOA) Upgrade Q4	4	2011	4	2011
Spiral 8.2 Testing Q4 FY11	4	2011	4	2011
Spiral 8.2 Testing Q1 FY12	1	2012	1	2012
Spiral 8.2 Testing Q2 FY12	2	2012	2	2012
Spiral 8.2 Testing Q3 FY12	3	2012	3	2012
Spiral 8.4 Testing Q2 FY13	2	2013	2	2013
Spiral 8.4 Testing Q3 FY13	3	2013	3	2013
Spiral 8.4 Testing Q4 FY13	4	2013	4	2013
Spiral 8.4 Testing Q1 FY14	1	2014	1	2014
Spiral 10.2 Testing Q4 FY14	4	2014	4	2014

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Spiral 10.2 Testing Q1 FY15	1	2015	1	2015
Spiral 10.2 Testing Q2 FY15	2	2015	2	2015
Spiral 10.2 Testing Q3 FY15	3	2015	3	2015
Vigilant Shield 11	1	2011	1	2011
Vigilant Shield 12	1	2012	1	2012
Vigilant Shield 13	1	2013	1	2013
Vigilant Shield 14	1	2014	1	2014
Vigilant Shield 15	1	2015	1	2015
Key Resolve 12	2	2012	2	2012
Key Resolve Q2 FY13	2	2013	2	2013
Key Resolve Q2 FY14	2	2014	2	2014
Key Resolve Q2 FY15	2	2015	2	2015
Global Lightening 12	1	2012	1	2012
Global Lightening 13	1	2013	1	2013
Keen Edge	2	2012	2	2012
Keen Edge Q2	2	2014	2	2014
Nimble Titan	3	2012	3	2012
Nimble Titan Q3	3	2014	3	2014
Terminal Fury 11	3	2011	3	2011
Terminal Fury 12	3	2012	3	2012

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Terminal Fury 13	3	2013	3	2013
Terminal Fury 14	3	2014	3	2014
Terminal Fury 15	3	2015	3	2015
Eagle Resolve 12	3	2012	3	2012
Eagle Resolve	1	2013	1	2013
Future Epoch Wargame	1	2013	1	2013
Assured Response 04X Q1 FY11	1	2011	1	2011
Assured Response 04A	4	2011	4	2011
Assured Response 04X Q1 FY12	1	2012	1	2012
Assured Response 05a	1	2014	1	2014
Assured Response 06a	2	2015	2	2015
Air and Missile Defense Exercise Q3 FY13	3	2013	3	2013
Air and Missile Defense Exercise Q3 FY15	3	2015	3	2015
Austere Challenge	3	2013	3	2013
Eagle Resolve Q1	1	2014	1	2014
Foreign Exercise Q1	1	2014	1	2014
Foreign Exercise Q2	2	2014	2	2014
Foreign Exercise Q3,Q4	3	2014	4	2014
Congressional Wargame Q4 FY12	4	2012	4	2012
Congressional Wargame Q2 FY13	2	2013	2	2013

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Congressional Wargame Q2 FY14	2	2014	2	2014
Congressional Wargame Q2 FY15	2	2015	2	2015
Global Thunder 11	3	2011	3	2011
Global Thunder 12	3	2012	3	2012
Global Thunder 13	3	2013	3	2013
Global Thunder 14	3	2014	3	2014
Global Thunder 15	3	2015	3	2015
Future Epoch Wargame Q1	1	2015	1	2015
Global Engagement Manager (GEM) Spiral 8.2 Test Environment #1 Q2	2	2011	2	2011
Global Engagement Manager (GEM) Spiral 8.2 Test Environment #1 Q3	3	2011	3	2011
Global Engagement Manager (GEM) Spiral 8.2 Test Environment #1 Q4	4	2011	4	2011
Global Engagement Manager (GEM) Spiral 8.2 Test Environment #2	4	2011	4	2011
C2BMC Regional Testbed	1	2011	1	2011
Ground Test Environment	3	2011	3	2011
Performance Assessment (PA)-11 Q2	2	2011	2	2011
Performance Assessment (PA)-11 Q3	3	2011	3	2011
Performance Assessment (PA)-11 Q4	4	2011	4	2011
Global Lightening 11	1	2011	1	2011
Global Lightening 14	1	2014	1	2014
Global Lightening 15	1	2015	1	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
GTI-04 OT (WF on Console HWIL Test)	4	2011	4	2011
GTD-04 (Full BMDS District Test)	1	2012	1	2012
GTD-04 OT (WF on Console Distributed Test)	2	2012	2	2012
GTD-04 (WF Trial period for Suitability Testing)	3	2012	3	2012
GTD-04 (Warfighter Global Defender Exercise)	3	2012	3	2012
GTD-05 (Full BMDS Distributed Test)	1	2014	1	2014
GTD-05 (WF Trial period for Suitability Testing)	3	2014	3	2014
GTD-05 OT (WF on Console Distributed Test)	3	2014	3	2014
GTD-05 (Warfighter Global Defender Exercise)	3	2014	3	2014
GTI-05 OT (WF on Console HWIL Test)	1	2014	1	2014
Joint Project Optic Windmill	4	2014	4	2014
G-1b-L (EKV solar angle chamber test)	1	2011	1	2011
G-17-H (PCIL Integration Test)	2	2011	2	2011
G-48.1-L (AEDC 10V Chamber Test)	3	2011	3	2011
G-7-H (TEC HWIL)	3	2011	3	2011
G-04b-L (Space Chamber Test)	4	2011	4	2011
G-19-H (TPY-2 FBM HWIL)	4	2011	4	2011
FTM-16 E1 (Aegis Simulated Intercept Flight Test)	1	2011	1	2011
FTM-16 E2 (Aegis Intercept Flight Test)	1	2011	1	2011
GTX-04c (Full BMDS Distributed Test)	1	2011	1	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>

Event	Start		End	
	Quarter	Year	Quarter	Year
GTX-04d (Full BMDS HWIL Test)	1	2011	1	2011
JFTM-04 E1 (Japanese Cooperative Aegis Track Ex/US Sim Engagement)	1	2011	1	2011
JFTM-04 E2 (Japanese Cooperative Aegis Track Ex/US Sim Engagement)	1	2011	1	2011
Patriot 7-3 (Patriot Multiple Simultaneous Engagement)	1	2011	1	2011
AST-14 (Israeli Cooperative Intercept Flight Test)	2	2011	2	2011
FTG-07 (EC Intercept Flight Test)	2	2011	2	2011
FTL-05 (ABL Intercept Flight Test)	2	2011	2	2011
FTT-13 (THAAD Intercept Flight Test)	2	2011	2	2011
GTI-04 (INT) (Full BMDS HWIL Test)	2	2011	2	2011
FTS-02 (STSS Demonstrator Flight Test)	3	2011	3	2011
GTX-04e (Regional Focused HWIL Test)	3	2011	3	2011
GTI-04 (EXE) (Full BMDS HWIL Test)	3	2011	3	2011
EPOCH-1 (Aegis/THAAD/Patriot Multiple Engagement Flight Test)	4	2011	4	2011
FTL-06 (ABL Intercept Flight Test)	4	2011	4	2011
FTG-08 (GMD Intercept Flight Test)	1	2012	1	2012
FTM-19 E1 (Aegis Simulated Intercept Flight Test)	1	2012	1	2012
FTM-19 E2 (Aegis Intercept Flight Test)	1	2012	1	2012
FTM-18 (Aegis Intercept Flight Test)	2	2012	2	2012
FTT-14 (THAAD Intercept Flight Test)	2	2012	2	2012
PTV-1 (Aegis Interceptor Only Test)	2	2012	2	2012

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
FTL-07 (ABL Intercept Flight Test)	3	2012	3	2012
FTL-08 (ABL Intercept Flight Test)	3	2012	3	2012
GTX-05a (Regional Focused HWIL Test)	3	2012	3	2012
CTV-1 (Aegis Interceptor Only Test)	4	2012	4	2012
FTG-09 (GMD Salvo Flight Test)	4	2012	4	2012
FTT-15 (THAAD Intercept Flight Test)	4	2012	4	2012
GTX-05b (Strategic Focused HWIL Test)	4	2012	4	2012
AST-15 (Israeli Cooperative Intercept Flight Test)	1	2013	1	2013
FTM-20 E1 (Aegis Simulated Intercept Flight Test)	1	2013	1	2013
FTM-20 E2 (Aegis Intercept Flight Test)	1	2013	1	2013
FTM-20 E3 (Aegis Simulated Intercept Flight Test)	1	2013	1	2013
FTX-12 (UEWR Tracking Test)	1	2013	1	2013
CTV-2 (Aegis Interceptor Only Test)	2	2013	2	2013
FTT-16 (THAAD Intercept Flight Test)	2	2013	2	2013
GTI-05 (INT) (Full BMDS HWIL Test)	2	2013	2	2013
GTX-06a (BMDS Focused HWIL Test)	2	2013	2	2013
FTL-09 (ABL Intercept Flight Test)	3	2013	3	2013
FTL-10 (ABL Intercept Flight Test)	3	2013	3	2013
FTX-13 (GMD Risk Reduction Flight)	3	2013	3	2013
FTX-14 (Aegis Simulated Intercept Flight Test)	3	2013	3	2013

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
GTX-06b (BMDS Focused HWIL Test)	3	2013	3	2013
FTG-10 (EC Intercept Flight Test)	4	2013	4	2013
FTT-17 (THAAD Intercept Flight Test)	4	2013	4	2013
SFTM-1 E1 (Aegis Simulated Intercept Flight Test)	4	2013	4	2013
SFTM-1 E2 (Aegis Interceptor Only Test)	4	2013	4	2013
GTI-05 (EXE) (Full BMDS HWIL Test)	4	2013	4	2013
AST-16 (Israeli Cooperative Intercept Flight Test)	1	2014	1	2014
GTX-06c (BMDS Focused HWIL Test)	1	2014	1	2014
SFTM-2 E1 (Aegis Simulated Intercept Flight Test)	1	2014	1	2014
SFTM-2 E2 (Aegis Non Intercept Flight Test)	1	2014	1	2014
FTG-11 (GMD Intercept Flight Test)	2	2014	2	2014
FTM-21 (Aegis Intercept Flight Test)	2	2014	2	2014
FTM-22 (Aegis Intercept Flight Test)	2	2014	2	2014
FTT-18 (THAAD Intercept Flight Test)	2	2014	2	2014
FTL-11 (ABL Intercept Flight Test)	3	2014	3	2014
FTL-12 (ABL Intercept Flight Test)	3	2014	3	2014
SFTM-3 E1 (Aegis Simulated Intercept Flight Test)	3	2014	3	2014
SFTM-3 E2 (Aegis Intercept Flight Test)	3	2014	3	2014
GTI-06 (INT) (Full BMDS HWIL Test)	3	2014	3	2014
FTT-19 (THAAD Intercept Flight Test)	4	2014	4	2014

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD22: <i>Missile Defense Integration and Operations Center (MDIOC)</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
FTX-15 (ECM Test Flight)	4	2014	4	2014
GTI-06 (EXE) (Full BMDS HWIL Test)	1	2015	1	2015
SFTM-4 (Aegis Intercept Flight Test)	1	2015	1	2015
EPOCH-2 (GMD/Aegis/THAAD/Patriot Multiple Engagement Flight Test)	2	2015	2	2015
GTD-06 (Full BMDS Distributed Test)	2	2015	2	2015
Caravan 3 (USFT-5) (Israeli Program Intercept Flight Test)	3	2015	3	2015
FTL-13 (ABL Intercept Flight Test)	3	2015	3	2015
FTL-14 (ABL Intercept Flight Test)	3	2015	3	2015
FTM-23 E1 (Aegis Salvo Flight Test)	3	2015	3	2015
FTM-23 E2 (Aegis Intercept Flight Test)	3	2015	3	2015
FTM-23 E3 (Aegis Intercept Flight Test)	3	2015	3	2015
Caravan 3 (USFT-6) (Israeli Program Intercept Flight Test)	4	2015	4	2015
Contingency Hardware-in-the-Loop	4	2015	4	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
ZX40: <i>Program-Wide Support</i>	2.779	2.067	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	4.846
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> See Section A: Mission Description and Budget Item Justification ; <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA	2.779	2.067	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE</i> <i>INTEGRATION & OPERATIONS CENTER</i> <i>(MDIOC)</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	2.779	2.067	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE</i> <i>INTEGRATION & OPERATIONS CENTER</i> <i>(MDIOC)</i>	PROJECT ZX40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>MD40: Program-Wide Support</i>	0.000	0.000	2.900	0.000	2.900	3.225	2.552	2.521	2.914	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11.

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> NA <i>FY 2010 Plans:</i> NA	0.000	0.000	2.900	0.000	2.900

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> NA					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	2.900	0.000	2.900

C. Other Program Funding Summary (\$ in Millions)			FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
Subtotal	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>											
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603912C: <i>BMD European Comm Support</i>											
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	Continuing	Continuing
XX46: <i>Sea Based X-Band Radar (SBX) Sustainment</i>	143.878	167.153	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	311.031
MD46: <i>Sea-Based X-band (SBX) Sustainment</i>	0.000	0.000	153.056	0.000	153.056	150.104	159.832	160.163	197.099	Continuing	Continuing

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project XX46 for FY2009-2010 is now captured in Project MD46.

Since its emphasis is on proving component and subsystem maturity prior to integration into a more complex integrated system, the Sensors and SBX programs fall under RDT&E Budget Activity 4, Advanced Component Development and Prototypes (ACD&P).

The best way 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 (C2BMC). 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 BMD capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide both the best sensor information on the enemy missile's location and track as well as a more diverse and effective set of weapon options for the Combatant Commander to defeat the attack -- all connected by a unifying C2BMC system. As a result, an effort funded in a Program Element may be critical to the success of efforts in the other Program Elements -- we refer to these connections as ``interdependencies``. Throughout the budget justification materials we have attempted to highlight interdependencies in order to fully explain the relationship between different parts of the proposed program.

Sensors software development efforts will add system capabilities in compliance with BMDS Integrated Build C and D specifications for enhanced capabilities to support both Regional and Strategic missions. For BMDS Integrated Build C, these capabilities include integration of Hercules Suite I algorithms, and support for C2BMC taskings, such as sensor resource management. For BMDS Integrated Build D, these capabilities include improved sensor registration, integration of discrimination enhancements, and support for C2BMC correlation and sensor management improvements. In FY 2010 and FY 2011, these builds will provide System-level sensor resource management with track forwarding in support of Regional and Strategic Missions, limited peer-to-peer weapon system engagement coordination in support of Regional missions, and enhanced BMDS capability with increased defended area and integration of System-level sensor and BMDS System Track data.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>
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The FY 2011 program is balanced reflecting the four focus areas of the current Missile Defense Program: to develop, rigorously test, and field an integrated BMDS architecture to counter existing threats; continue a viable Homeland Defense against rogue threats beyond 2030; demonstrate our proven technologies to show Missile Defense works; and develop technologies to hedge against future missile threat growth.

A. Mission Description and Budget Item Justification

Given the unique characteristics of short range ballistic missiles (SRBMs), medium range ballistic missiles (MRBMs), intermediate range ballistic missiles (IRBMs), and intercontinental ballistic missiles (ICBMs), no one missile defense interceptor or sensor system can effectively counter all ballistic missile threats. War fighters are not only faced with the challenge of intercepting relatively small objects at great distances and very high velocities, but they may have to counter large raid sizes involving combinations of SRBMs, MRBMs, IRBMs, and ICBMs and, in the future, countermeasures associated with structured ballistic missile attacks. Stand-alone missile defense systems must be integrated into a layered BMDS to achieve cost- and operational-efficiencies, while improving protection performance with increased defended area and minimizing force structure costs.

The most operationally effective missile defense architecture is a layering of endoatmospheric and exoatmospheric missile interceptor systems with ground and space sensors connected and managed by a robust Command and Control, Battle Management and Communication (C2BMC) infrastructure. The FY 2011 program is balanced to develop, rigorously test, and field an integrated BMDS architecture to counter existing regional threats, continue developing our limited ICBM defense, prove our Missile Defense System works, and develop new technologies to address future threats. The current program has four focus areas:

1. Enhance missile defense to defend deployed forces, allies, and friends against theater threats
2. Continue a viable homeland defense against rogue threats beyond 2030
3. Prove missile defense works
4. Develop technologies to hedge against future missile threat growth.

THE KEY ENABLER FOR THESE FOCUS AREAS IS A PERVASIVE SENSOR NET.

BMDS effectiveness depends upon quality of services (that is, data of sufficient accuracy and low enough latency) rendered by the interdependent BMDS programs to each other. The BMD Sensors program provides essential data for the command and control of BMDS weapon systems, such as Terminal High Altitude Area Defense (THAAD) and Ground-based Midcourse Defense (GMD). These sensors, connected to the BMDS through C2BMC, enable detection and tracking of targets, and provide fire-control quality ballistic missile position, velocity, and discrimination data to BMDS weapon systems. As threats expand and mature, the need for

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>
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continuously available sensors supports investment in the operations, sustainment, and enhancement of existing radars, as well as the development of new sensors, such as the Precision Tracking Space System (PTSS). The Ballistic Missile Defense System (BMDS) development approach allows sensor technologies and capabilities to be incorporated as they mature and evolve into a layered network of sensors. Overlapping sensor coverage with a diversity of sensor types will improve detection, track, discrimination and kill assessments. The extended sensor coverage and accuracy provided by a network of layered sensors makes the BMDS more efficient, reduces the number of target engagements needed, conserving interceptor inventory and ensuring a high probability of successful engagement.

The Sea-Based X-Band Radar (SBX) is a major contributor to a viable homeland defense. The largest X-Band radar in the world, it serves as the primary midcourse sensor in the BMDS layered network of radars. Self-propelled and semi-submersible, the SBX operates in various locations in the Pacific Ocean. It enables Combatant Commanders to engage ballistic missile threats in all phases of flight. The SBX provides high resolution cued search, acquisition, tracking, target discrimination, and debris assessments. GMD relies on SBX radar data for fire control solutions. Operations and sustainment of satellite communications to the BMDS are provided by C2BMC, and enable sensor tasking/control by the Ground-Based Midcourse fire control (GFC).

The major goals of this system element are to:

- Operate and sustain the SBX and its subsystems to support BMDS flight testing and operations as required
- Deliver advanced X-Band Radar (XBR) algorithms to address evolving threats
- Continue to enhance SBX capabilities and integrate into the BMDS
- Participate in BMDS ground and flight tests and Targets of Opportunity testing (funding for testing is carried under PE 0603884C (Test and Evaluation line))
- Achieve American Bureau of Shipping (ABS) certification
- Support the transfer of SBX to the U.S. Navy
- Enhance XBR data provided to GMD high fidelity digital simulation efforts

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	146.895	174.576	0.000	0.000	0.000
Current President's Budget	143.878	167.153	153.056	0.000	153.056
Total Adjustments	-3.017	-7.423	153.056	0.000	153.056
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		-7.423			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.753	0.000			
• SBIR/STTR Transfer	-2.264	0.000			
• Other Adjustment Detail	0.000	0.000	153.056	0.000	153.056

Change Summary Explanation

No FY 2011 data provided in PB10.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE				PROJECT				
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>			PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>				XX46: <i>Sea Based X-Band Radar (SBX) Sustainment</i>				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
XX46: <i>Sea Based X-Band Radar (SBX) Sustainment</i>	143.878	167.153	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	311.031
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

For all Ballistic Missile Defense (BMD) System Level Test Schedule information, please refer to the Ballistic Missile Defense (BMD) System Level Test Schedule tab.

Project XX46 describes the SBX program for FY 2009 and 2010. Program plans for FY 2011 are found in Project MD46 for FY 2011-2015.

A. Mission Description and Budget Item Justification

This project provides for the operations and support of the Sea-Based X-Band (SBX) Radar and its four major sub-systems: the self-propelled vessel; the X-Band Radar (XBR); the In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT); and the communications network.

The SBX is the largest X-Band radar in the world and serves as the primary midcourse sensor in the BMDS layered network of radars. Self-propelled and semi-submersible, the SBX operates in various locations in the Pacific Ocean. It enables Combatant Commanders to engage ballistic missile threats in all phases of flight. The SBX provides high resolution cued search, acquisition, tracking, target discrimination, and debris assessments. The Ground-Based Midcourse system (PE 0603882C) relies on SBX radar data for fire control solutions. Operations and sustainment of satellite communications to the BMDS are provided by C2BMC, and enable sensor tasking/control by the Ground-Based Midcourse fire control (GFC).

The major goals of this system element are to:

- Operate and sustain the SBX and its subsystems to support BMDS flight testing and operations as required;
- Deliver advanced XBR algorithms to address evolving threats;
- Continue to enhance SBX capabilities and integrate into the BMDS;
- Participate in BMDS ground and flight tests and Targets of Opportunity testing (funding for testing is carried under PE 0603884C (Test and Evaluation line));
- Achieve American Bureau of Shipping (ABS) certification;
- Support the transfer of the SBX to the U.S. Navy;
- Enhance XBR portion of GMD models and simulation (GMDSIM) to provide high fidelity digital simulation.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT XX46: <i>Sea Based X-Band Radar (SBX) Sustainment</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Sea-Based X-Band Radar Development See Description Below <i>FY 2009 Accomplishments:</i> Continued software development and maintenance, with focus on advanced discrimination and algorithms Continued X-Band Radar (XBR) software build 2.2 integration and testing Began development of XBR software build 3.0 and conducted System Readiness Review (SRR) and Critical Design Review (CDR) Participated in Glory Trip 195 (U.S. Air Force Targets of Opportunity) and GMD intercept flight test FTG-05 (which demonstrated SBX target tracking capability) Continued maturation of SBX advanced algorithms <i>FY 2010 Plans:</i> Continue development, integration, testing, and maintenance of XBR software, including Build 3.0, in support of BMDS Integrated Build C Participate in GMD Intercept Flight Test FTG-06 as follows: Acquire target and send track reports to GMD Fire Control Transition to non-tactical mode to collect critical engagement conditions/empirical measurement events (CEC/EME)** data for verification and validation of models and simulation Complete Formal Qualification Testing (FQT) for Build 3.0 Verify and validate SBX analytical model Continue maturation of SBX advanced algorithms **CEC/EMEs are the conditions and events ;where data is obtained from flight and ground tests in order to anchor models and simulations.	16.733	14.350	0.000	0.000	0.000	

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT XX46: <i>Sea Based X-Band Radar (SBX) Sustainment</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continue on-site SATCOM support aboard SBX and at earth stations for hardware and software Continue sustaining engineering support and integrated logistics support Continue Space segment lease <i>FY 2011 Base Plans:</i> FY11 planned program is described in Project MD46. <i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	143.878	167.153	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT XX46: <i>Sea Based X-Band Radar (SBX) Sustainment</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>											
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT XX46: <i>Sea Based X-Band Radar (SBX) Sustainment</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>											
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The SBX will continue to follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, development and evolutionary acquisition.

Products and services will be acquired with competitive means to the extent possible and practical.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT XX46: <i>Sea Based X-Band Radar (SBX) Sustainment</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Sea-Based X-Band Radar Development SBX and XBR Development XX46	SS/CPAF	Boeing AL/AK/AZ/CA/ CO/HI/MA/TX/VA	16.733	14.350	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
SBX System Integration SBX Systems Integration XX46	SS/CPAF	Boeing AL/AK/AZ/CA/ CO/HI/MA/TX/VA	4.652	3.600	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			21.385	17.950		0.000		0.000		0.000			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Force Protection Systems Force Protection XX46	SS/CPFF	ALUTIIA AK/VA	9.984	6.600	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SBX Vessel Operations and Support SBX Operations and Support (Vessel) XX46	SS/CPAF	Boeing AL/AK/AZ/CA/ CO/HI/MA/TX/VA	44.106	33.677	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
	TBD/TBD	DEFUEL	10.000	8.926	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT XX46: <i>Sea Based X-Band Radar (SBX) Sustainment</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SBX Vessel Operations and Support Fuel XX46		-											
SBX Vessel Operations and Support Support Vessel XX46	SS/CPFF	Boeing/TBD AL/AK/AZ/CA/ CO/HI/MA/TX/VA	31.000	32.000	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
SBX Vessel Operations and Support ABS Certification XX46	SS/TBD	TBD AL/AK	0.000	3.400	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
SBX Vessel Operations and Support Vessel Voyage Repairs XX46	SS/TBD	TBD AL/AK/HI	0.000	13.000	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
SBX Vessel Operations and Support Navy Hybrid Program Office XX46	TBD/TBD	US Navy AL/AK/HI	2.373	8.000	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SBX Vessel Operations and Support Mooring line, Dove Dry dock, Site Visit, Ammunition XX46	TBD/TBD	PH NS, HQUSAJMC, NSWC Crane HI, IN	0.358	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
XBR Operations and Support XBR Operations and Support XX46	SS/CPIF	Raytheon AL/AK/HI	24.672	31.200		0.000		0.000		0.000	Continuing	Continuing	Continuing
XBR Operations and Support Replace XBR Superdomes XX46	SS/CPIF	Raytheon AL/AK/HI	0.000	10.600	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
SBX Communications Operations and	TBD/TBD	DISA VA	0.000	1.800	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT XX46: <i>Sea Based X-Band Radar (SBX) Sustainment</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Sustainment SBX Comms O&S XX46													
Subtotal			122.493	149.203			0.000		0.000		0.000		

Remarks

NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000			0.000		0.000				

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	143.878	167.153		0.000		0.000		0.000				

Remarks

NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT XX46: <i>Sea Based X-Band Radar (SBX) Sustainment</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				
	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	
Glory Trip GT-198 (USAF Target of Opportunity)	█																												
XBR Software Delivery -- B2.2.1.2		█																											
Shipyard Period & Sea Trials		█	█																										
Complete Full Qual Testing (FQT) -- B2.2.1.2			█																										
Glory Trip GT-195 (USAF Target of Opportunity)				█																									
Glory Trip GT-200 (USAF Target of Opportunity)					█																								
Performance Assessment 2009 (PA-09)					█																								
GMD Intercept Flight Test FTG-06						█																							
Complete Formal Qual Testing (FQT) Build 3						█																							
Technical Assessment 2010 (TA-10)								█																					
Ground Test Integrated GTI-04										█																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT XX46: <i>Sea Based X-Band Radar (SBX) Sustainment</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Glory Trip GT-198 (USAF Target of Opportunity)	1	2009	1	2009
XBR Software Delivery -- B2.2.1.2	2	2009	2	2009
Shipyard Period & Sea Trials	2	2009	3	2009
Complete Full Qual Testing (FQT) -- B2.2.1.2	3	2009	3	2009
Glory Trip GT-195 (USAF Target of Opportunity)	4	2009	4	2009
Glory Trip GT-200 (USAF Target of Opportunity)	1	2010	1	2010
Performance Assessment 2009 (PA-09)	1	2010	1	2010
GMD Intercept Flight Test FTG-06	2	2010	2	2010
Complete Formal Qual Testing (FQT) Build 3	2	2010	2	2010
Technical Assessment 2010 (TA-10)	1	2011	1	2011
Ground Test Integrated GTI-04	3	2011	3	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT MD46: <i>Sea-Based X-band (SBX) Sustainment</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>MD46: Sea-Based X-band (SBX) Sustainment</i>	0.000	0.000	153.056	0.000	153.056	150.104	159.832	160.163	197.099	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project XX46 for FY 2009-2010 is now captured in Project MD46 for FY 2011-2015.

A. Mission Description and Budget Item Justification

Continuously available, transportable, and mobile BMDS sensors provide real-time detection and tracking data to the system and the warfighter through C2BMC. The BMDS relies on space-based (Defense Support Program, space-based infrared satellites and, in the future, an operational Precision Tracking Space System (PTSS)), ground-based (Cobra Dane, Upgraded Early Warning Radar (UEWR), AN/TPY-2), and sea-based mobile (Aegis BMD ships and Sea-Based X-band radar (SBX)) sensors to provide detection, tracking, classification and hit assessment information.

The SBX is the largest X-Band radar (XBR) in the world and serves as the primary midcourse sensor in the BMDS layered network of radars. Self-propelled and semi-submersible, the SBX operates in various locations in the Pacific Ocean. It enables Combatant Commanders to engage ballistic missile threats in all phases of flight. The SBX provides high resolution cued search, acquisition, tracking, target discrimination, and debris assessments. The Ground-Based Midcourse system (PE 0603882C) relies on SBX radar data for fire control solutions. C2BMC operates and sustains satellite communications to the BMDS, and enables sensor tasking/control by the Ground-Based Midcourse fire control (GFC).

The major goals of this system element are to:

- Operate and sustain the SBX and its subsystems to support BMDS flight testing and operations as required
- Deliver advanced X-Band Radar (XBR) algorithms to address evolving threats
- Continue to enhance SBX capabilities and integrate into the BMDS;
- Participate in BMDS ground and flight tests and Targets of Opportunity testing (funding for testing is carried in the Sensors Program Element (0603884C))
- Continue American Bureau of Shipping (ABS) certification;
- Support the transfer of the SBX to the U.S. Navy

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT MD46: <i>Sea-Based X-band (SBX) Sustainment</i>
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Critical engagement conditions (CECs) and empirical measurement events (EMEs)** associated with the SBX are tracked in the BMD Sensors Program Element 0603884C. The FY 2011 Sensors test program will execute 68 CEC/EME required data collections to reach a cumulative 76% completion (145 of 190 total) of data collections necessary for validation, verification, and assessment (VV&A) of BMDS modeling and simulation (M&S). These CECs/EMEs increase confidence in the models to inform COCOM assessment and deployment decisions. The following table illustrates the CEC/EME data collection schedule for FY 2011 and beyond:

Total Collection Opportunities: 190 Pre-FY09: 50 FY09: 14 FY10: 13 FY11: 68 FY12: 9 FY13: 8 FY14: 20 FY15: 5 FY16: 3
 Cum Total: Pre-FY09: 50 FY09: 64 FY10: 77 FY11: 145 FY12: 154 FY13: 162 FY14: 182 FY15: 187 FY16: 190
 % Executed Cum: Pre-FY09: 26% FY09: 34% FY10: 41% FY11: 76% FY12: 81% FY13: 85% FY14: 96% FY15: 98% FY16: 100%

**CEC/EMEs are the conditions and events where data is obtained from flight and ground tests in order to anchor models and simulations.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Vessel Operations and Support See Description Below <i>FY 2009 Accomplishments:</i> FY09 Accomplishments are found in Project XX46. <i>FY 2010 Plans:</i> FY10 planned program is described in Project XX46. <i>FY 2011 Base Plans:</i> This funding covers the ongoing operations and sustainment of the Sea-Based X-Band Radar (SBX) platform, its support vessel (the motor vessel Dove), and land-based support facilities. These activities include fueling, provisioning, and staffing of the SBX platform and support vessel, care and lodging of crews, and transportation of crews and equipment. For FY 2011, the SBX program plans to:	0.000	0.000	98.029	0.000	98.029

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT MD46: <i>Sea-Based X-band (SBX) Sustainment</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> Operations and sustainment of the SBX's X-Band radar (XBR) ;include: manpower for operating and maintaining the radar, spare and repair parts procurement, and hardware maintenance. The on-vessel XBR personnel perform the functions of round-the-clock radar operations, calibration of the radar and support/test equipment, and maintenance and repair of the radar associated equipment. For FY 2011, the SBX program plans to:</p> <p>Continue to operate and maintain the X-Band radar and associated equipment</p> <p>Maintain mission hardware Provide and support operations crew Complete XBR upgrades during shipyard period Continue XBR Superdome replacement planning</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
<p>SBX Communications Operations and Support</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> FY09 Accomplishments are found in Project XX46.</p> <p><i>FY 2010 Plans:</i> FY10 planned program is described in Project XX46.</p>	0.000	0.000	1.900	0.000	1.900

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT MD46: <i>Sea-Based X-band (SBX) Sustainment</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> This operations and support (O&S) effort supports the SBX Communications Suite. It includes communications suite operational spares, repair, and replacement; communications operators / maintainers; communications support costs; and sustains satellite communications (SATCOM) operations 24 hours a day 365 days a year. For FY 2011, Sensors plans to:</p> <p>Continue round-the-clock sustainment for communications capabilities for Sea-Based X-Band radar (SBX) Continue on-site SATCOM support of fielded sites for hardware and software Continue sustaining engineering support and integrated logistics support for fielded hardware and software Continue space segment lease.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
<p>System Force Protection See Description Below</p> <p><i>FY 2009 Accomplishments:</i> FY09 Accomplishments are found in Project XX46.</p> <p><i>FY 2010 Plans:</i> FY10 planned program is described in Project XX46.</p> <p><i>FY 2011 Base Plans:</i> Force protection for the Sea-Based X-Band Radar (SBX) is an ongoing effort comprising two major functions: on-board protection of the vessel, and portside security augmentation, if required, for the</p>	0.000	0.000	10.000	0.000	10.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT MD46: <i>Sea-Based X-band (SBX) Sustainment</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>SBX vessel and its Off-Shore Support (OSS) vessel "The Dove", while docked. On-board protection security functions include: on-board visitor control, access control to sensitive areas, inspection of incoming personnel and equipment, and protection against hostile boarding. Portside security functions include: inspection and control of supplies and equipment being readied for transport onto the SBX, access control of the docking area, and visitor control to the SBX and support vessel. For FY 2011, the SBX program plans to:</p> <p>Continue to provide on-board force protection for the SBX and portside security for the SBX and its off-shore support vessel "The Dove"</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	153.056	0.000	153.056

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT MD46: <i>Sea-Based X-band (SBX) Sustainment</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT MD46: <i>Sea-Based X-band (SBX) Sustainment</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>											
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The SBX will continue to follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, development and evolutionary acquisition.

Products and services will be acquired with competitive means to the extent possible and practical.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the BMDS mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT MD46: <i>Sea-Based X-band (SBX) Sustainment</i>
services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.		
E. Performance Metrics NA		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT MD46: <i>Sea-Based X-band (SBX) Sustainment</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Vessel Operations and Support SBX Operations and Support (Vessel) MD46	SS/CPAF	Boeing AL/AK/AZ/CA/ CO/TX/VA/HI	0.000	0.000		68.303	Jan 2011	0.000		68.303	Continuing	Continuing	Continuing
Vessel Operations and Support Fuel MD46	SS/Various	Boeing/TBD AL/AK/AZ/CA/ CO/TX/VA/HI	0.000	0.000		13.300	Jan 2011	0.000		13.300	Continuing	Continuing	Continuing
Vessel Operations and Support Vessel Voyage Repairs MD46	SS/Various	TBD AL/AK/HI	0.000	0.000		7.729	Jan 2011	0.000		7.729	Continuing	Continuing	Continuing
Vessel Operations and Support Navy Hybrid Program Office MD46	TBD/TBD	US Navy AL, NCR	0.000	0.000		8.000	Jan 2011	0.000		8.000	Continuing	Continuing	Continuing
	SS/CPAF	Boeing AL	0.000	0.000		0.697	Jan 2011	0.000		0.697	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT MD46: <i>Sea-Based X-band (SBX) Sustainment</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Vessel Operations and Support ABS Certification MD46													
XBR Operations and Support XBR Operations and Support MD46	SS/CPAF	Raytheon AL/AK/HI	0.000	0.000		32.200	Jan 2011	0.000		32.200	Continuing	Continuing	Continuing
XBR Operations and Support Replace XBR Superdomes & Workstations (Planning) MD46	SS/CPAF	Raytheon AL/AK/HI	0.000	0.000		1.600	Jan 2011	0.000		1.600	Continuing	Continuing	Continuing
XBR Operations and Support XBR SW upgrades/Maint. MD46	SS/CPAF	Raytheon MA	0.000	0.000		9.327		0.000		9.327	Continuing	Continuing	Continuing
SBX Communications Operations and Support SBX Comms O&S MD46	TBD/TBD	DISA VA	0.000	0.000		1.900	Oct 2010	0.000		1.900	Continuing	Continuing	Continuing
System Force Protection System Force Protection MD46	SS/CPFF	Chenega On Vessel/AK	0.000	0.000		10.000	Jan 2011	0.000		10.000	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		153.056		0.000		153.056			

Remarks
NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT MD46: <i>Sea-Based X-band (SBX) Sustainment</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	0.000	0.000		153.056		0.000		153.056			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT MD46: <i>Sea-Based X-band (SBX) Sustainment</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
3-Month ABS Certification and Shipyard Modification								■	■																			
Transition to U.S. Navy										■																		
Shipyard Maintenance Period FY 2012														■														
Shipyard Maintenance Period 2Q FY 2013															■													
Shipyard/In-Port Maintenance 3Q FY2014																							■					
Shipyard/In-Port Maintenance 4Q FY 2015																												■

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	PROJECT MD46: <i>Sea-Based X-band (SBX) Sustainment</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
3-Month ABS Certification and Shipyard Modification	4	2010	1	2011
Transition to U.S. Navy	2	2011	2	2011
Shipyard Maintenance Period FY 2012	1	2012	1	2012
Shipyard Maintenance Period 2Q FY 2013	2	2013	2	2013
Shipyard/In-Port Maintenance 3Q FY2014	3	2014	3	2014
Shipyard/In-Port Maintenance 4Q FY 2015	4	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
DX48: <i>European Capability Block 4</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722

Note

Funding for European Interceptor Site construction in FY 2008 and FY 2009 previously captured in the Midcourse PE RDT&E budget exhibits is now explained in MDA Military Construction (MILCON) DD Forms 1390/1391.

A. Mission Description and Budget Item Justification

The European Capability Block 4 RDT&E program (Project DX48) expands the Ballistic Missile Defense System (BMDS) capability to defend allies and deployed forces in Europe from limited Iranian long-range threats by establishing both an Interceptor Site and a Midcourse Radar site in Europe. The European Interceptor Site (EIS) is planned as a United States (U.S.) facility on foreign soil, supported by a European Midcourse Radar (EMR), also planned as a United States (US) facility in Europe. Both the EIS and EMR will interface with US command and control nodes in Europe through upgrades to US communications at Ramstein Air Force Base (Germany). The Command & Control communications interface upgrade in Europe is known as the European Communications System (ECS).

The European Interceptor Site (EIS) will establish, operate, and maintain the following major components:

Ten (10) Ground Based Interceptors (Two-Stage).

Ten (10) Interceptor silos and ten (10) Silo Interface Vaults capable of supporting Interceptors and Launch Support Equipment (LSE) that interfaces with on-site Command Launch Equipment (CLE).

A Re-locatable In Flight Interceptor Communications System (IFICS) Data Terminal (RIDT) capable of sending in-flight target updates to and receiving in-flight status reports from Interceptors launched from the EIS.

The Ballistic Missile Defense System (BMDS) Communications System Complex (BCSC) in support of the European Interceptor Site (EIS) consolidates all of the communications systems in one facility: Satellite Communication (SATCOM), Defense Information Systems Network (DISN) core, campus communications (includes

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	
<p>the Defense Systems Network (DSN), Secret Internet Protocol Router Network (SIPRNET), Non-Secure Internet Protocol Router Network (NIPRNET) to include Video Teleconferencing Internet Protocol (VTCoIP) capability, and unclassified telephone service), Gateway, communications management, and wide area networks. This capability will provide the communications connectivity from the interceptor site to the BMDS Network.</p> <p>Military Construction Funds (MILCON) are appropriated for site preparation and construction of all EIS facilities The European Midcourse Radar (EMR) Site will operate and maintain the following major components:</p> <p>The European Midcourse Radar is a steerable, X-band phased array radar currently located at Kwajalein Missile Range (KMR). The high-resolution X-band sensor will provide search, track, and discrimination of Intercontinental Ballistic Missiles (ICBMs) in the midcourse phase of flight. This data will be forwarded via communications links to the BMDS. Starting in FY08, the EMR back-end hardware (signal and data processing equipment, etc.) will be upgraded and then, deployed to the European location. Hardware (HW) upgrade design, Common Software (SW) development, Acquisition of long lead and develop and implement detailed obsolescence risk reduction plans. Design and begin manufacture of new EMR Radome. Disassemble and transport GBR-P antennae and mount from Kwajalein to the European Theater Military Construction Funds (MILCON) are appropriated for site preparation and construction of all EMR facilities</p> <p>The European Communications System (ECS) located in Ramstein AFB, Germany will provide an integrated layered defense by networking and unifying (common purpose) individual element components (sensors, weapon systems, fire control) with all military echelons across the globe. This will allow the National Command Authority (NCA) and commanders at strategic and tactical levels to systematically plan the fight (BMD Planner), commonly see it unfold (situational awareness), and dynamically direct/adjust (Global Engagement Manager (GEM)/Battle Management) networked sensors and weapons systems (BMD Network) to optimally engage (one shot - one kill) ballistic missile threats at any range, in any phase of flight, at any time. The C2BMC system provides the means to move information and data from theater and regional to a global missile defense. This communications network, part of the larger U.S. command and control system, transmits and receives data on threat missile launches, missile flight profiles, and projected target locations, enabling political and military leaders to determine when and where to launch weapons to intercept them. The system is designed to rapidly provide a wide range of information to decision-makers because of the short distances in Europe and the great speed of ballistic missiles that require threat assessment and interceptor launch decisions in just minutes.</p> <p>At its completion, the EIS will provide the capability to support and launch ten (10) interceptors to protect the United States and its allies. The EIS MILCON project includes the following activities: Site preparation and the construction of EIS facilities including: SIVs/Silos, an Interceptor Monitoring Facility, EKV fuel storage and</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i>	PE 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>
BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	

oxidizer storage facilities, Interceptor Tank/De-tank Facility, Mechanical-Electrical building, Primary & Backup Power Plant, RIDT complex, BMD Communications Support Complex (BCSC) as well as a host of support and security related facilities to ensure the effective operation, maintenance and security of the site.

The Block 4.0 Capability Goals are consistent with the MDA MFP, which ensures the orderly and effective integration, testing, fielding and supportability of BMDS Elements and components for the Warfighter. Performance goals are specified via:

- Defended area
- Launch area denied
- Probability of engagement success
- Threat/Countermeasures
- Environmental resistance for both Long Range Ballistic Missiles (LRBM) and Intermediate Range Ballistic Missiles (IRBM).

Classified metrics for these goals are contained in the Ballistic Missile Defense System Specification (BMD SS) document.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	362.007	0.000	0.000	0.000	0.000
Current President's Budget	348.722	0.000	0.000	0.000	0.000
Total Adjustments	-13.285	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-7.707	0.000			
• SBIR/STTR Transfer	-5.578	0.000			
• Other Adjustment Detail	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY
0400: *Research, Development, Test & Evaluation, Defense-Wide*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE
PE 0603908C: *BMD EUROPEAN INTERCEPTOR SITE*

Change Summary Explanation

FY 2009 decrease includes SBIR/STTR and MDA adjustments.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	PROJECT DX48: <i>European Capability Block 4</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
DX48: <i>European Capability Block 4</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

Block 4.0 provides the funding for the expansion of the BMDS capability at a third missile site; execution of the flight and ground testing program to include the demonstration of additional Engagement Sequence Groups (ESGs); fielding of additional interceptors; and the sustainment and support for the fielded capability.

Block 4.0 incorporates the next increment of fielded capability with up to ten (10) additional interceptors for either a European Site or expanded inventory at Fort Greely, AK.

Block 4.0 planned additional enhancements for European Capability includes:

European Interceptor Site (EIS) with ten (10) additional silos and ten (10) Silo Interface Vaults (SIVs) capable of supporting interceptors and Launch Support Equipment (including CLE) to support interceptors and provide capabilities comparable to other operational sites.

Design and development of GFC improvements to include multi-AOR.

A Relocatable IFICS Data Terminal (RIDT) capable of sending in-flight target updates to and receiving in-flight status reports from interceptors launched from European Capability.

GMD Communication Network (GCN) infrastructure connecting European Capability components to GMD Fire Control (GFC) Nodes located at the Missile Defense Integration and Operations Center (MDIOC) and Fort Greely, AK.

European Capability facilities including: Interceptor Monitoring Facility, Mechanical Electrical Building (MEB), Interceptor Storage Facility, RIDT Building, Military Satellite Communications (MILSATCOM) facility and other facilities at the European Interceptor Site (EIS) capable of providing appropriate protection of equipment.

Fielding of ten (10) 2-Stage configuration GBIs .

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	PROJECT DX48: <i>European Capability Block 4</i>
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ESGs are demonstrated in the GMD Integrated Test Program. Capabilities of the BMDS will be enhanced as the number of operationally available ESGs increases. During Block 4.0, GMD will demonstrate capability in two additional BMDS ESGs:

- Engage on FBX-T (Hercules Algorithm)
- Launch on FBX-T (Hercules Algorithm)

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Planning/Design/Site Activation See Description Below <i>FY 2009 Accomplishments:</i> The GMD Ground Systems (GS) enable fire control and operation of the GMD Element as part of the BMDS. The European Site Ground System project includes ten (10) missile silos and Silo Interface Vault (SIVs), (2) IFICS Data Terminal, connectivity to the GMD Communication Network (GCN), Command Launch Equipment, and upgraded Ground Systems hardware. Continued planning and design for a European Interceptor Site (EIS) missile defense complex. Continued acquisition of Long Lead silos and SIVs for the European Interceptor Site. Initiated European Interceptor Site upon ratification of Host Nation Agreement. <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA	94.241	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	PROJECT DX48: <i>European Capability Block 4</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA						
Ground Based Interceptor (Long Lead) See Description Below <i>FY 2009 Accomplishments:</i> During Block 4.0 ten (10) 2-stage configuration Ground Based Interceptors (GBIs) will be developed and fielded within EUCOM to defend U.S. allies and deployed forces in Europe from limited Iranian long-range threats. Prepared to initiate acquisition of long lead for development of ten (10) two-stage GBIs (European Capability Fielding), pending successfully meeting the criteria described in Section 226 of the FY08 National Defense Authorization Act. <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA <i>FY 2011 OCO Plans:</i> NA		1.844	0.000	0.000	0.000	0.000
Two-Stage Interceptor Development See Description Below		238.361	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	PROJECT DX48: <i>European Capability Block 4</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> The two stage interceptor development consists of the integration of a two-stage booster which is based on and leverages the existing three-stage design.</p> <p>Completed acquisition of one (1) 2-Stage GBI for the Booster Verification Test (BVT) (Flight Test). Initiated the acquisition of one (1) 2-Stage GBI (Flight Test) for the FY10 2-Stage Interceptor Flight Test.</p> <p>Continued Development of 2-Stage Booster Completed acquisition of one (1) GBIs for Ground Test, originally initiated as 3 stage GBIs in Block 1, now part of the acceleration of the 2-Stage development program. Continued planned acquisition of one (1) GBI for Ground Test, originally initiated as 3-stage GBI in Block 1, now part of the acceleration of the 2-Stage development program.</p> <p><i>FY 2010 Plans:</i> NA</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>European Interceptor Site (EIS) Communications See Description Below</p> <p><i>FY 2009 Accomplishments:</i> The Ballistic Missile Defense System (BMDS) Communications System Complex (BCSC) in support of the European Interceptor Site (EIS) consolidates all of the communications systems in one</p>		14.276	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	PROJECT DX48: <i>European Capability Block 4</i>
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	PROJECT DX48: <i>European Capability Block 4</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	PROJECT DX48: <i>European Capability Block 4</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

EIS will continue to follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, development, and evolutionary acquisition through the use of MDA's new block structure and spiral development. The Department has structured the missile defense acquisition strategy to continually provide needed upgrades to the EIS system components within the new block structure. This process allows early implementation of new technologies and enhanced capabilities able to defend against the evolving threats of today and the future. This process also minimizes the risk of obsolescence, provides opportunities for standards updates, and allows decision makers to make informed trades between cost, schedule, and performance while exploring operational and technological possibilities. This developmental approach has been enhanced within the EIS program to include additional test infrastructure, improved test management, and improved models and simulations that have enhanced EIS's ability to test in more complex and operationally realistic test environments earlier than the standard acquisition process.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Ground Systems Planning/Design/Site Activation DX48	C/CPAF	Boeing AL/AK/AZ/CA/CO/MA/VA/Europe Site	65.140	0.000		0.000		0.000		0.000	0	65.140	65.140
Ground Systems Missile Field Equipment DX48	C/CPAF	Boeing AL/AK/AZ/CA/CO/VA/Europe Site	82.191	0.000		0.000		0.000		0.000	0	82.191	82.191
Ground Based Interceptor Ground Based Interceptor (Long Lead) DX48	SS/CPAF	Boeing AL/AK/AZ/CA/CO/UT/VA	19.200	0.000		0.000		0.000		0.000	0	19.200	19.200
Two-Stage Interceptor Development 2-Stage Integration and Development DX48	C/CPAF	Boeing AL/AK/AZ/CA/CO/UT/VA	122.700	0.000		0.000		0.000		0.000	0	122.700	122.700
European Interceptor Site (EIS) Communications EIS - Comms Engineering Support DX48	SS/CPAF	Lockheed Martin Team VA	4.807	0.000		0.000		0.000		0.000	0	4.807	4.807
European Interceptor Site (EIS) Communications EIS - BCSC DX48	TBD/TBD	PM DCATS VA	3.687	0.000		0.000		0.000		0.000	0	3.687	3.687
European Interceptor Site (EIS)	TBD/TBD	DISA VA	2.001	0.000		0.000		0.000		0.000	0	2.001	2.001

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Communications EIS - Comms Power DX48													
European Interceptor Site (EIS) Communications EIS - SATCOM DX48	TBD/TBD	DISA VA	1.761	0.000		0.000		0.000		0.000	0	1.761	1.761
European Interceptor Site (EIS) Communications EIS - Terrestrial Communications Capability DX48	TBD/TBD	DISA USAFE	0.160	0.000		0.000		0.000		0.000	0	0.160	0.160
European Interceptor Site (EIS) Communications EIS - Comms Support DX48	TBD/TBD	DISA VA	0.160	0.000		0.000		0.000		0.000	0	0.160	0.160
Subtotal			301.807	0.000		0.000		0.000		0.000	0.000	301.807	301.807

Remarks
The existing prime contract will be complete at the end of first quarter FY 2009; funding amounts shown in the R-3 for the remaining three quarters of FY 2009 are estimates.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
The existing prime contract will be complete at the end of first quarter FY 2009; funding amounts shown in the R-3 for the remaining three quarters of FY 2009 are estimates.

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Two-Stage Interceptor Development 2-Stage Flight Test Interceptors DX48	C/CPAF	Boeing AL/AK/AZ/CA/CO/UT/VA	44.200	0.000		0.000		0.000		0.000	0	44.200	44.200
Two-Stage Interceptor Development 2-Stage Ground Test Interceptors DX48	C/CPAF	Boeing AL/AK/AZ/CA/CO/UT/VA	16.000	0.000		0.000		0.000		0.000	0	16.000	16.000
Subtotal			60.200	0.000		0.000		0.000		0.000	0.000	60.200	60.200

Remarks
NA

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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	
	362.007	0.000		0.000		0.000		0.000	0.000	0.000	362.007	362.007

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015							
	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				
BVT GBI																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
BVT GBI	4	2009	4	2009

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
DX48: <i>European Capability Block 4</i>	70.452	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	70.452
XX48: <i>European Capability Sustainment</i>	3.276	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	3.276

Note

European Midcourse Radar (EMR) upgrades began in FY 2008 in the Sensors PE 0603884C, Project DX11 - BMD radars Block 4.0. FY 2008 maintenance of the GBR-P (EMR) radar in a caretaker status is also in the Sensors PE, Project XX11 - BMD Radars Sustainment. For FY 2010 and out both efforts are contained in the European Capability PE 0603911C.

A. Mission Description and Budget Item Justification

EMR is a large, steerable, X-band phased array radar currently located at Kwajalein Missile Range, Kwajalein Atoll. EMR will be maintained in caretaker status (warm stand-by) at Kwajalein into FY 2010. The EMR back-end hardware (signal data processing equipment, etc.) will be upgraded and the entire radar deployed to a European location to provide BMDS midcourse discrimination capability.

The EMR requires a Ballistic Missile Defense System (BMDS) Communications System Complex (BCSC) that consolidates all of the communications systems: Satellite Communications (SATCOM), Defense Information Systems Network (DISN) core, campus communications (includes the Defense Systems Network (DSN), Secret Internet Protocol Router Network (SIPRNET), Non-Secure Internet Protocol Router Network (NIPRNET) to include Video Teleconferencing Internet Protocol (VTColP) capability, and unclassified telephone service), gateway, communications management, and wide area networks. This capability will provide the communications connectivity from the radar site to the BMDS Network. The EMR BCSC is a permanent facility.

EMR will provide tracking and discrimination coverage for ICBMs in the midcourse phase of flight. This will increase the BMDS probability of engagement success. A permanent BCSC facility is required to provide the communications connectivity from the radar site to the BMDS Network.

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>
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Complete EMR upgrade and communications suite procurement in support of BMDS Block 4.0 goal to Defend Allies & Deployed Forces in Europe from Limited Iranian Long-Range Threats, Expand Protection of U.S.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	76.537	0.000	0.000	0.000	0.000
Current President's Budget	73.728	0.000	0.000	0.000	0.000
Total Adjustments	-2.809	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-1.629	0.000			
• SBIR/STTR Transfer	-1.180	0.000			
• Other Adjustment Detail	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

FY 2009 decrease includes SBIR/STTR & MDA adjustments.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	PROJECT DX48: <i>European Capability Block 4</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
DX48: <i>European Capability Block 4</i>	70.452	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	70.452
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

European Midcourse Radar (EMR) Upgrade began in FY 2008 under BMDS Radars PE 0630884C, Project DX11 BMD Radars Block 4.0. In FY 2010 EMR is under the European Capability PE 0603911C, under Project DX48, and in FY 2011 and beyond in project MD48..

A. Mission Description and Budget Item Justification

BMDS Block 4.0 defends allies and deployed forces in Europe from limited Iranian long-range threats; and continues to expand protection in the U.S. Major efforts include an upgrade and deployment of the European Midcourse Radar (EMR) to Europe to provide sensor coverage of ballistic missiles in their mid-course phase of flight. The EMR requires a Ballistic Missile Defense System (BMDS) Communications System Complex (BCSC) that consolidates all of the communications systems.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
EMR Upgrade	39.828	0.000	0.000	0.000	0.000
See Description Below					
<i>FY 2009 Accomplishments:</i> The European Midcourse Radar (EMR) Upgrade is a large, steerable, X-band phased array radar currently located at Kwajalein Missile Range (KMR), Kwajalein Atoll. EMR is being maintained in caretaker status (warm stand-by) at Kwajalein through FY 2010. The EMR back-end hardware (signal and data processing equipment, etc.) will be upgraded and the radar will be deployed to a European location to provide the BMDS midcourse discrimination capability in defense of the United States and Europe.					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> <i>MIDCOURSE RADAR</i>	PROJECT DX48: <i>European Capability Block 4</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Prepared for hardware (HW) upgrade design. Prepared for Common Software (SW) development.</p> <p><i>FY 2010 Plans:</i> NA</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Site Activation, Facilities Design</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> European Midcourse Radar (EMR) Site design and Site Preparation efforts begin in FY 2009. Actual site construction is being funded with MILCON.</p> <p>Began site activation planning and site mobilization and preparation activities. Began site design. Development and design of site activation facilities. Completed site selection activities.</p> <p><i>FY 2010 Plans:</i> NA</p> <p><i>FY 2011 Base Plans:</i> NA</p>		15.168	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> <i>MIDCOURSE RADAR</i>	PROJECT DX48: <i>European Capability Block 4</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA						
EMR Communications See Description Below <i>FY 2009 Accomplishments:</i> The Ballistic Missile Defense System (BMDS) Communications System Complex (BCSC) in support of the European Midcourse Radar (EMR) consolidates all of the communications systems in one facility: Satellite Communications (SATCOM), Defense Information Systems Network (DISN) core, campus communications (includes the Defense Systems Network (DSN), Secret Internet Protocol Router Network (SIPRNET), Non-Secure Internet Protocol Router Network (NIPRNET) to include Video Teleconferencing Internet Protocol (VTColP) capability, and unclassified telephone service), gateway, communications management, and wide area networks. This capability will provide the communications connectivity from the radar site to the BMDS Network. Engineering support to ensure the EMR BCSC integration into the overall BMDS Provided BMDS network and communications installation and support at the EMR Continued BCSC acquisition Continued acquisition of Modernization Enterprise Terminal (MET) SATCOM X/Ka-band capability Continued acquisition of Communications Power System Continued acquisition of Defense Red Switch Network (DRSN) equipment Initiated acquisition and leases of terrestrial communications capability (fiber optic cable, microwave, etc.) to support circuit requirements of the EMR <i>FY 2010 Plans:</i> NA		15.456	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> MIDCOURSE RADAR	PROJECT DX48: <i>European Capability Block 4</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> NA					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	70.452	0.000	0.000	0.000	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> MIDCOURSE RADAR	PROJECT DX48: <i>European Capability Block 4</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> MIDCOURSE RADAR	PROJECT DX48: <i>European Capability Block 4</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603913C: <i>ISRAELI COOPERATIVE</i>											
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The EMR will continue to follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, development and evolutionary acquisition through the use of MDA's block structure and spiral development.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> <i>MIDCOURSE RADAR</i>	PROJECT DX48: <i>European Capability Block 4</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
EMR Hardware & Software Upgrade EMR Upgrade DX48	SS/CPAF	Raytheon MA	42.637	0.000		0.000		0.000		0.000	0	42.637	42.637
EMR Site Planning & Activation Site Activation, Facilities Design DX48	TBD/TBD	MDA-DFW AL	15.168	0.000		0.000		0.000		0.000	0	15.168	15.168
EMR Communications EMR - BCSC DX48	TBD/TBD	PM DCATS VA	4.413	0.000		0.000		0.000		0.000	0	4.413	4.413
EMR Communications EMR - SATCOM DX48	TBD/TBD	DISA VA	2.356	0.000		0.000		0.000		0.000	0	2.356	2.356
EMR Communications EMR - Comms Power DX48	TBD/TBD	DISA VA	2.454	0.000		0.000		0.000		0.000	0	2.454	2.454
EMR Communications EMR - Comms Support DX48	TBD/TBD	DISA VA	0.196	0.000		0.000		0.000		0.000	0	0.196	0.196
EMR Communications EMR - Terrestrial Fiber Optic Cable DX48	TBD/TBD	DISA/USAFE VA	0.188	0.000		0.000		0.000		0.000	0	0.188	0.188
EMR Communications EMR - Comms Engineering Support DX48	SS/CPAF	Lockheed Martin Team VA	5.849	0.000		0.000		0.000		0.000	0	5.849	5.849
Subtotal			73.261	0.000		0.000		0.000		0.000	0.000	73.261	73.261

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> MIDCOURSE RADAR	PROJECT DX48: <i>European Capability Block 4</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> MIDCOURSE RADAR	PROJECT DX48: <i>European Capability Block 4</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
	73.261	0.000		0.000		0.000		0.000	0.000	73.261	73.261

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> <i>MIDCOURSE RADAR</i>	PROJECT DX48: <i>European Capability Block 4</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Begin EMR Hardware Design/Long Lead Procurement	■																											
EMR Site Design 35% Complete		■																										
EMR Site Design 60% Complete				■																								
Begin EMR Site Preparation				■																								

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> <i>MIDCOURSE RADAR</i>	PROJECT DX48: <i>European Capability Block 4</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Begin EMR Hardware Design/Long Lead Procurement	1	2009	1	2009
EMR Site Design 35% Complete	2	2009	2	2009
EMR Site Design 60% Complete	4	2009	4	2009
Begin EMR Site Preparation	4	2009	4	2009

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> <i>MIDCOURSE RADAR</i>	PROJECT XX48: <i>European Capability Sustainment</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
XX48: <i>European Capability Sustainment</i>	3.276	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	3.276
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

FY 2008 EMR caretaker maintenance is in the Sensors PE 06030884C, Project XX11. For FY 2010 this effort is in the European Capability (EC) PE 0603911C, under the same Project XX48.

A. Mission Description and Budget Item Justification

Maintains the Ground-Based Radar-Prototype (GBR-P) radar at Kwajalein in a caretaker status until it is disassembled and upgraded to the European Midcourse Radar (EMR).

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
GBR-P (EMR) Caretaker Support See Description Below <i>FY 2009 Accomplishments:</i> Maintained the GBR-P radar at Kwajalein in a caretaker status until it is disassembled and upgraded to the European Midcourse Radar (EMR) configuration. <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA	3.276	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> <i>MIDCOURSE RADAR</i>	PROJECT XX48: <i>European Capability Sustainment</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	3.276	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> <i>MIDCOURSE RADAR</i>	PROJECT XX48: <i>European Capability Sustainment</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> <i>MIDCOURSE RADAR</i>	PROJECT XX48: <i>European Capability Sustainment</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>											
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The EMR will continue to follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, development and evolutionary acquisition through the use of MDA's new block structure and spiral development.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	PROJECT XX48: <i>European Capability Sustainment</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
European Midcourse Radar (EMR) Sustainment GBR-P (EMR) Caretaker Support XX48	SS/CPAF	Raytheon MA	3.276	0.000		0.000		0.000		0.000	0	3.276	3.276
Subtotal			3.276	0.000		0.000		0.000		0.000	0.000	3.276	3.276

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> MIDCOURSE RADAR	PROJECT XX48: <i>European Capability Sustainment</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	3.276	0.000		0.000		0.000		0.000	0.000	3.276	3.276

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> <i>MIDCOURSE RADAR</i>	PROJECT XX48: <i>European Capability Sustainment</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015							
	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				
EMR Caretaker support	■	■	■	■																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603909C: <i>BMD EUROPEAN</i> <i>MIDCOURSE RADAR</i>	PROJECT XX48: <i>European Capability Sustainment</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
EMR Caretaker support	1	2009	4	2009

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603911C: <i>BMD EUROPEAN CAPABILITY</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
DX48: <i>European Capability Block 4</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226

Note

The FY 2011 program is balanced reflecting the four focus areas of the current Missile Defense Program: to develop, rigorously test, and field an integrated BMDS architecture to counter existing regional threats, continue a viable Homeland Defense against rogue threats beyond 2030; demonstrate our proven technologies to show Missile Defense works; and develop technologies to hedge against future missile threat growth.

The best way 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 (C2BMC). 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 BMD capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide both the best sensor information on the enemy missile's location and track as well as a more diverse and effective set of weapon options for the Combatant Commander to defeat the attack -- all connected by a unifying C2BMC system. As a result, an effort funded in a Program Element may be critical to the success of efforts in the other Program Elements we refer to these connections as ``interdependencies``. Throughout the budget justification materials we have attempted to highlight interdependencies in order to fully explain the relationship between different parts of the proposed program.

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in PE 0603908C (European Interceptor Site (EIS)), PE 0603909C (European Midcourse Radar (EMR)), and PE 0603912C (European Communications Interface (ECI)) for FY 2009 was captured in PE 0603911C Project DX48 for FY 2010 and is now captured in PEs 0604880C Project MD68 and 0604884C Project MD67 beginning with FY 2011.

A. Mission Description and Budget Item Justification

The European Component (EC) of the layered Ballistic Missile Defense System (BMDS) expands our BMDS capability to defend the Homeland, Allies and deployed forces in Europe from limited Iranian long-range threats by establishing both an Interceptor Site and a Midcourse Radar site in Europe. The European Interceptor Site (EIS) is planned as a United States (U.S.) facility on foreign soil, supported by a European Sensor Sites (ESS), also planned as a United States (US) facility in Europe. Both the EIS and ESS will interface with US command and control nodes in Europe and CONUS through upgrades to US communications at Ramstein Air Base (AB), Germany. The Command and Control communications interface upgrades in Europe is known as the European Communications Interface (ECI). The EC also includes sustainment for fielded assets. On September 17, 2009 the President of the United States announced changes to the EC program architecture now known as the Phased Adaptive Approach (PAA).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603911C: <i>BMD EUROPEAN CAPABILITY</i>
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The Phased Adaptive Approach (PAA) was developed in response to the rapid proliferation of short and medium range ballistic missiles in Iran and the threat they pose to U.S. Allies and partners, as well as to U.S. deployed personnel and their accompanying families in the Middle East and in Europe. By leveraging recent advances in sensor and interceptor technologies, the United States will aggressively counter this growing regional threat with a more powerful and agile system. The United States is pursuing a four phased approach which will provide a more effective missile defense capability for defense of NATO territories and enhance U.S. homeland defense. ; It will be complementary of and interoperable with those being developed by NATO, be applicable in other theaters around the world, and will be more adaptable and flexible in order to counter threat advances and provide increased defended areas over time. The initial phase includes the deployment of current and proven missile defense, including the sea-based Aegis Weapons System, the SM-3 interceptor (Block IA), and sensors such as the forward-based Army Navy/ Transportable Radar Surveillance system (AN/TPY-2). Subsequent phases will be implemented based on technical maturity, appropriate testing, and threat driven requirements.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	50.504	0.000	0.000	0.000
Current President's Budget	0.000	50.226	0.000	0.000	0.000
Total Adjustments	0.000	-0.278	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		-0.278			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustment Detail	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

FY 2011 changes due to accommodate the Agency's changing priorities.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	PROJECT DX48: <i>European Capability Block 4</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
DX48: <i>European Capability Block 4</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

FY 2009 content was captured in PE 0603908C (BMD European Interceptor Site, Project DX48) and 0603909C (BMD Midcourse Radar, Project DX48).

A. Mission Description and Budget Item Justification

The European Component (EC) of the layered Ballistic Missile Defense System (BMDS) expands our BMDS capability to defend the Homeland, Allies and deployed forces in Europe from limited Iranian long-range threats by establishing both an Interceptor Site and a Midcourse Radar site in Europe. The European Interceptor Site (EIS) is planned as a United States (U.S.) facility on foreign soil, supported by a European Sensor Sites (ESS), also planned as a United States (US) facility in Europe. Both the EIS and ESS will interface with US command and control nodes in Europe and CONUS through upgrades to US communications at Ramstein Air Base (AB), Germany. The Command and Control communications interface upgrades in Europe is known as the European Communications Interface (ECI). The EC also includes sustainment for fielded assets.

EC will continue funding for expansion of the BMDS capability via execution of two stage missile testing.

The BVT-01 flight test will be conducted using energy management and pitch over maneuvers. The flight test will also gather pertinent data on the performance of the Exoatmospheric Kill Vehicle (EKV).

The EC will enable a quality of service sufficient to defeat the threat and to ensure interoperability with the BMDS.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Two Stage Test See Description Below	0.000	50.226	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	PROJECT DX48: <i>European Capability Block 4</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> FY 2009 content was captured in PE 0603908C (BMD European Interceptor Site, Project DX48).</p> <p><i>FY 2010 Plans:</i> BVT-1 Interceptor hardware. Continue the acquisition of one (1) 2-Stage GBI (Flight Test) for the FY 10 2-Stage Interceptor Flight Test. BVT-1 (EC 2-Stage Booster Interceptor Flight Test) test execution.</p> <p><i>FY 2011 Base Plans:</i> No European Capability work in PE 0603911(BMD European Capability) is planned for FY11.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	0.000	50.226	0.000	0.000	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	PROJECT DX48: <i>European Capability Block 4</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	PROJECT DX48: <i>European Capability Block 4</i>

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>											
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluations; and management and professional services.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	PROJECT DX48: <i>European Capability Block 4</i>

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 ITEM NOMENCLATURE PE 0603911C: BMD EUROPEAN CAPABILITY	PROJECT DX48: European Capability Block 4
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Two Stage Test C/CPAF DX48	TBD/TBD	CSS, Boeing HSV	0.000	45.226		0.000		0.000		0.000	0	45.226	45.226

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	PROJECT DX48: <i>European Capability Block 4</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Two Stage Test EC Internal Office Budget DX48	C/CPAF	MDA HSV	0.000	5.000		0.000		0.000		0.000	0	5.000	5.000
Subtotal			0.000	50.226		0.000		0.000		0.000	0.000	50.226	50.226

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		0.000	50.226	0.000	0.000	0.000	50.226	50.226

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency							DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>			R-1 ITEM NOMENCLATURE PE 0603911C: <i>BMD EUROPEAN CAPABILITY</i>			PROJECT DX48: <i>European Capability Block 4</i>			
	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks NA									

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	PROJECT DX48: <i>European Capability Block 4</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015							
	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				
Two Stage Test					■	■	■																									

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	PROJECT DX48: <i>European Capability Block 4</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Two Stage Test	1	2010	3	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				PE 0603912C: <i>BMD European Comm Support</i>							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
DX48: <i>European Capability Block 4</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016

Note

European Communications Interface (ECI) efforts began in FY 2008 in the Command and Control, Battle Management, and Communications (C2BMC) PE 0603896C, Project DX01 - BMD C2BMC Block 4.0. For FY 2010 and out these efforts are contained in the European Capability PE 0603911C.

A. Mission Description and Budget Item Justification

The BMDS Block 4.0 mission is to defend allies and deployed forces in Europe from limited Iranian long-range threats, and expand protection of United States.

The European Communications Interface (ECI) located in Ramstein, Germany will provide an integrated layered defense by networking and unifying (common purpose) individual element components (sensors, weapon systems, fire control) with all military echelons across the globe. This will allow the National Command Authority (NCA) and commanders at strategic and tactical levels to systematically plan the fight (BMD Planner), commonly see it unfold (situational awareness), and dynamically direct/adjust (Global Engagement Manager (GEM)/Battle Management) networked sensors and weapons systems (BMD Network) to optimally engage (one shot - one kill) ballistic missile threats at any range, in any phase of flight, at any time.

The Ballistic Missile Defense System (BMDS) Communications System Complex (BCSC) consolidates all of the communications systems in one facility: Satellite Communications (SATCOM), Defense Information Systems Network (DISN) core, campus communications (includes the Defense Systems Network (DSN), Secret Internet Protocol Router Network (SIPRNET), Non-Secure Internet Protocol Router Network (NIPRNET) to include Video Teleconferencing Internet Protocol (VTColP) capability, and unclassified telephone service), Gateway, communications management, and wide area networks. This capability will provide the communications connectivity from the ECI to the BMDS Network.

Establish European Communications Interface (ECI) communications in support of the BMDS Block 4.0 mission to defend allies and deployed forces in Europe from limited Iranian long-range threats, and expand protection of United States.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603912C: <i>BMD European Comm Support</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	27.008	0.000	0.000	0.000	0.000
Current President's Budget	26.016	0.000	0.000	0.000	0.000
Total Adjustments	-0.992	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.576	0.000			
• SBIR/STTR Transfer	-0.416	0.000			
• Other Adjustment Detail	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

FY 2009 decrease includes SBIR/STTR and MDA Adjustments.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603912C: <i>BMD European Comm Support</i>	PROJECT DX48: <i>European Capability Block 4</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
DX48: <i>European Capability Block 4</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

European Communications Interface (ECI) efforts began in FY 2008 in the Command and Control, Battle Management, and Communications (C2BMC) PE 0603896C, Project DX01 - BMD C2BMC Block 4.0. For FY 2010 and out these efforts are contained in the European Capability PE 0603911C.

A. Mission Description and Budget Item Justification

The BMDS Block 4.0 mission is to defend allies and deployed forces in Europe from limited Iranian long-range threats, and expand protection of United States.

The European Communications Interface (ECI) located in Ramstein, Germany will provide an integrated layered defense by networking and unifying (common purpose) individual element components (sensors, weapon systems, fire control) with all military echelons across the globe. This will allow the National Command Authority (NCA) and commanders at strategic and tactical levels to systematically plan the fight (BMD Planner), commonly see it unfold (situational awareness), and dynamically direct/adjust (Global Engagement Manager (GEM)/Battle Management) networked sensors and weapons systems (BMD Network) to optimally engage (one shot - one kill) ballistic missile threats at any range, in any phase of flight, at any time.

The Ballistic Missile Defense System (BMDS) Communications System Complex (BCSC) consolidates all of the communications systems in one facility: Satellite Communications (SATCOM), Defense Information Systems Network (DISN) core, campus communications (includes the Defense Systems Network (DSN), Secret Internet Protocol Router Network (SIPRNET), Non-Secure Internet Protocol Router Network (NIPRNET) to include Video Teleconferencing Internet Protocol (VTColP) capability, and unclassified telephone service), Gateway, communications management, and wide area networks. This capability will provide the communications connectivity from the ECI to the BMDS Network.

Establish European Communications Interface (ECI) communications in support of the BMDS Block 4.0 mission to defend allies and deployed forces in Europe from limited Iranian long-range threats, and expand protection of United States.

B. Accomplishments/Planned Program (\$ in Millions)

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603912C: <i>BMD European Comm Support</i>	PROJECT DX48: <i>European Capability Block 4</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>European Communications Interface (ECI) Communications</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> The Ballistic Missile Defense System (BMDS) Communications System Complex (BCSC) consolidates all of the communications systems in one facility: Satellite Communications (SATCOM), Defense Information Systems Network (DISN) core, campus communications (includes the Defense Systems Network (DSN), Secret Internet Protocol Router Network (SIPRNET), Non-Secure Internet Protocol Router Network (NIPRNET) to include Video Teleconferencing Internet Protocol (VTCoIP) capability, and unclassified telephone service), Gateway, communications management, and wide area networks. This capability will provide the communications connectivity from the ECI to the BMDS Network.</p> <p>Engineering support to ensure ECI integration into the overall BMDS Provided Ballistic Missile Defense System (BMDS) network and communications installation and support at the European Communications Interface (ECI) Continued BMDS Communications System Complex (BCSC) acquisition Continued acquisition of Modernization Enterprise Terminal (MET) Satellite Communications (SATCOM) X/Ka-Band capability Continued acquisition of Communications Power System Continued acquisition of Defense Red Switch Network (DRSN) equipment Initiated acquisition and leases of terrestrial communications capability (fiber optic cable, microwave, etc.) to support circuit requirements of the ECI</p> <p><i>FY 2010 Plans:</i> NA</p> <p><i>FY 2011 Base Plans:</i> NA</p>	26.016	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603912C: <i>BMD European Comm Support</i>	PROJECT DX48: <i>European Capability Block 4</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	26.016	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603912C: <i>BMD European Comm Support</i>	PROJECT DX48: <i>European Capability Block 4</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603912C: <i>BMD European Comm Support</i>	PROJECT DX48: <i>European Capability Block 4</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>											
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

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, spiral development, evolutionary acquisition, and knowledge-based funding. Lockheed Martin Mission Systems is the C2BMC prime contractor via an Other Transactions Agreement. 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 Development Center/University Affiliated Research Centers (FFRDC/UARC), and Advisory and Assistance Services (A&AS) personnel are also fully integrated as part of the Prime contractor's team to function in an Integrated Product Team environment.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603912C: <i>BMD European Comm Support</i>	PROJECT DX48: <i>European Capability Block 4</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
European Communications Interface (ECI) Communications ECI - BCSC DX48	TBD/TBD	PM DCATS VA	14.226	0.000		0.000		0.000		0.000	0	14.226	14.226
European Communications Interface (ECI) Communications ECI - SATCOM DX48	TBD/TBD	DISA VA	5.331	0.000		0.000		0.000		0.000	0	5.331	5.331
European Communications Interface (ECI) Communications ECI - Comms Engineering Support DX48	SS/CPAF	Lockheed Martin Team VA	5.028	0.000		0.000		0.000		0.000	0	5.028	5.028
European Communications Interface (ECI) Communications ECI - Comms Power DX48	TBD/TBD	DISA VA	1.696	0.000		0.000		0.000		0.000	0	1.696	1.696
European Communications Interface (ECI) Communications ECI - Terrestrial Communications Capability DX48	TBD/TBD	DISA USAFE	0.606	0.000		0.000		0.000		0.000	0	0.606	0.606

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603912C: <i>BMD European Comm Support</i>	PROJECT DX48: <i>European Capability Block 4</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
European Communications Interface (ECI) Communications ECI - Comms Support DX48	TBD/TBD	DISA VA	0.121	0.000		0.000		0.000		0.000	0	0.121	0.121
Subtotal			27.008	0.000		0.000		0.000		0.000	0.000	27.008	27.008

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603912C: <i>BMD European Comm Support</i>	PROJECT DX48: <i>European Capability Block 4</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Cost Totals	27.008	0.000		0.000		0.000		0.000	0.000	27.008	27.008

Remarks
NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
MD20: <i>Israeli Upper Tier</i>	0.000	0.000	50.766	0.000	50.766	49.728	50.669	52.613	54.550	Continuing	Continuing
WX26: <i>Israeli ARROW Program</i>	0.000	121.671	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	121.671
MD26: <i>Israeli ARROW Program</i>	0.000	0.000	24.247	0.000	24.247	18.309	18.338	18.342	18.375	Continuing	Continuing
WX34: <i>Short Range Ballistic Missile Defense</i>	0.000	79.652	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	79.652
MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>	0.000	0.000	46.722	0.000	46.722	43.063	44.094	45.159	46.247	Continuing	Continuing

Note

This new Program Element encompasses MDA's U.S.-Israeli cooperative programs. Prior to FY 2010, these programs were listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C)

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Projects WX26, and WX34 for FY 2009-FY 2010 are now captured in Projects MD20, MD26, and MD34.

A. Mission Description and Budget Item Justification

Since 1986, the United States and the State of Israel have cooperated on missile defense. MDA has three significant initiatives with Israel to develop and improve their indigenous capability to defend against short and medium range ballistic missiles. These include the Arrow Weapon System (AWS), the David's Sling Weapon System (DSWS) for Short Range Ballistic Missile Defense (SRBMD) and a new Arrow-3 Interceptor. Additionally, MDA is developing, testing and exercising interoperability between U.S. BMDS systems and the Israeli Missile Defense Architecture to ensure Israeli systems can be integrated into the global BMDS. These programs are under the Capability Development mission area investments.

Note:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	
<p>1.) Planned programs assume matching funds from Israel per international agreements.</p> <p>2.) Funding for these activities is directed by annual Congressional action.</p> <p>System Element Description</p> <p>The Arrow program consists of the following major efforts:</p> <p>The Arrow System Improvement Program (ASIP) enhances baseline Arrow Weapon System capabilities against more stressing evolving regional threats. ASIP enhancements will be implemented in a block upgrade program that includes ground and flight testing. The program also includes the development of Arrow co-manufacturing capability, co-production of the interceptor and the enhancement of Arrow's interoperability with U.S. Ballistic Missile Defense Systems (BMDS) via Joint Tactical Information Data System (JTIDS) /Link-16 common communication architecture. 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 2020 Israel missile defense architecture. The ASIP Agreement concludes in 2016.</p> <p>The second Capability Development mission is the development of the David's Sling Weapon System (DSWS) for Short Range Ballistic Missile Defense (SRBMD). This system, designed to counter short range rockets serve as a lower-tier to the Arrow Weapon System, is also being developed in blocks. The first fielded block capability will perform the short range rocket defense mission. This need for this system was underscored in the 2006 2nd Lebanon War.</p> <p>Beginning in FY 2008, the U.S. and Israel began jointly assessing solutions for an upper-tier component for Israel's Missile Defense Architecture. By adding an upper-tier capability to their current BMD architecture, Israel will increase the system's capability against advanced threats. The 2008 Joint Analysis of Alternatives study showed that Israel's proposed Upper Tier Component Interceptor (Arrow-3) could provide better performance at a lower cost than the land-based Standard Missile-3 (SM-3) interceptor if development and cost objectives are met. However, technology and schedule for Arrow-3 have been assessed by MDA as high risk. Therefore, MDA has developed detailed Knowledge Points to assess Israel's development progress for Arrow-3. In addition, MDA and the Israeli Ministry of Defense continue to implement practices that allow for the more effective use of program management tools to ensure risk is adequately managed.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY
0400: *Research, Development, Test & Evaluation, Defense-Wide*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE
PE 0603913C: *ISRAELI COOPERATIVE*

System Element Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS):

U.S. Israeli cooperative programs like the Arrow Weapon System and the David's Sling Weapon System are not part of the BMDS. MDA is working to ensure interoperability between U.S. BMDS assets and the Israeli Missile Defense Architecture.

Major System Element Goals:

These programs continue the United States strategic cooperation with the State of Israel in Missile Defense. Israel's primary goal is the development of an Anti-Ballistic Missile System for defending Israel and its civilian population.

For the United States:

Assist in Developing Indigenous Regional Ballistic Missile Deterrent Capability
Develop Interoperability Between Israeli Missile Defense Architecture and U.S. Ballistic Missile Defense System
Shared Technology Development/Data Collection: Weapon Systems Technology, Interceptor Technology, Phenomenology, Models & Simulations, and Potential use of SRBMD system for U.S. Forces

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	119.634	0.000	0.000	0.000
Current President's Budget	0.000	201.323	121.735	0.000	121.735
Total Adjustments	0.000	81.689	121.735	0.000	121.735
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		81.689			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustment Detail	0.000	0.000	121.735	0.000	121.735

Change Summary Explanation

No FY 2011 data provided in PB10.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>MD20: Israeli Upper Tier</i>	0.000	0.000	50.766	0.000	50.766	49.728	50.669	52.613	54.550	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

This project code encompasses MDA`s U.S.-Israeli cooperative programs for the Israeli Upper Tier program. It has been separated out from the WX26 project code found in FY 2010, and exhibits are established under the MD20 project code.

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 component of the Arrow Weapon System provides Israel an indigenous capability to defend against medium and long range ballistic missiles. Further, Arrow also acts as a cornerstone of the Architecture Enhancement Plan which is a joint U.S.-Israeli effort to create a combined U.S.-Israeli multi-tier Missile Defense Architecture. In addition to the geo-strategic goals of the Arrow cooperative effort, the United States derives technical benefit from its participation in these projects and gains knowledge and experience of the Israeli Defense Forces operation of a multi-layered defense architecture. U.S. participation in the Arrow development effort also ensures interoperability of the Arrow and the Israeli Missile Defense System with deployed U.S. missile defense assets.

Under the proposed U.S.-Israeli Project Agreement, the project will be jointly managed by the U.S. Missile Defense Agency and the Israeli Missile Defense Organization. The agreement, documents the U.S.-Israeli cost share, in which the development costs will be equitable between the U.S. and Israel with Israel providing matching funds. However a portion of the Israeli cost share is from non-financial contributions such as background information and facilities.

NOTE: Planned Program assumes matching funds from Israel per our international agreements

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Upper Tier See Description Below	0.000	0.000	50.766	0.000	50.766

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> NA</p> <p><i>FY 2010 Plans:</i> NA</p> <p><i>FY 2011 Base Plans:</i> With emerging weapons of mass destruction threats from regional enemies, the Government of Israel has determined a need for an upper-tier BMD component to complement the current Arrow Weapon System. Beginning in FY 2008, the U.S. and Israel began jointly assessing solutions for an upper-tier component for Israel's Missile Defense Architecture. The 2008 Joint Analysis of Alternatives study showed that Israel's proposed Upper Tier Component Interceptor (Arrow-3) could provide better performance at a lower cost than the land-based Standard Missile-3 (SM-3) interceptor if development and cost objectives are met. However, technology and schedule for Arrow-3 have been assessed by MDA as high risk. Therefore, MDA has developed detailed Knowledge Points to assess Israel's development progress for Arrow-3.</p> <p>FY11 Planned Program:</p> <p>Conduct first interceptor fly-out test of the Arrow-3 Interceptor Conduct 5 Element Level Knowledge Point Demonstrations</p> <p>Integrate, test and calibrate prototype seeker design. Demonstrate prototype seeker's stabilization system in flight test. Demonstrate booster rocket motor performance in flight test. Demonstrate kill vehicle motor performance in flight test. Demonstrate kill vehicle guidance and control electronics.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: NA					
Accomplishments/Planned Programs Subtotals					
	0.000	0.000	50.766	0.000	50.766

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>											
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

As a bi-lateral cooperative program with the State of Israel, the Upper Tier component of the Arrow Program does not follow standard DoD Acquisition Practices. The program is managed by an Israeli Co-Program Manager and, equal in responsibility, an U.S. Co-Program Manager. Program funding is equitable between the U.S. and Israel with Israel providing matching funds. However, a portion of the Israeli cost share is from non-financial contributions such as background information generated prior to joint program initiation. With the Upper Tier Interceptor, Israel Ministry of Defense (IMoD) will contract on behalf of U.S. government to Israeli Aerospace Industries (IAI) and other Upper Tier Interceptor contractors. A Upper Tier Interceptor Project Agreement under the RDT&E Framework agreement between the U.S. and Israel will create a joint program office to manage this program. This agreement will allow Israel to contract on behalf of the United States. 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.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
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E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Upper Tier Upper Tier MD20	TBD/CPFF	Israeli Aerospace Industries (IAI) Israel	0.000	0.000		50.766	Jul 2011	0.000		50.766	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		50.766		0.000		50.766			

Remarks
NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	0.000	0.000		50.766		0.000		50.766			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Interceptor Fly-out Test #1										■																		
Interceptor Fly-out Test #2														■														
System Test #3																												
System Test #4																										■		

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Interceptor Fly-out Test #1	2	2011	2	2011
Interceptor Fly-out Test #2	2	2012	2	2012
System Test #3	2	2013	2	2013
System Test #4	2	2014	2	2014

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX26: <i>Israeli ARROW Program</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>WX26: Israeli ARROW Program</i>	0.000	121.671	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	121.671
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

This Program Element encompasses MDA's U.S.-Israeli cooperative programs. Prior to FY 2010, this program was listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C) with the project code of WX26. For FY 2011 and beyond the program is split into MD20 for Israeli Upper Tier, and MD26 for ASIP.

A. Mission Description and Budget Item Justification

This project provides funding for Arrow Weapon System (AWS) development, to include the Arrow System Improvement Program (ASIP), the Arrow Missile Production Program (AMPP) for the co-production of Arrow Interceptors, the Israeli Test Bed (ITB) experiments to evaluate Human-In-The-Loop (HIL) battle management, and the Israeli Systems Architecture and Integration (ISA&I) studies to assess Israel's future 2020 Missile Defense Architecture. The Arrow Weapon System provides Israel an indigenous capability to defend against short and medium range ballistic missiles. Further, Arrow also acts as a cornerstone of the Architecture Enhancement Plan which is a joint U.S.-Israeli effort to create a combined U.S.-Israeli multi-tier Missile Defense Architecture. In addition to the geo-strategic goals of the Arrow cooperative effort, the United States derives technical benefit from its participation in these projects and gains knowledge and experience of the Israeli Defense Forces operation of a multi-layered defense architecture. U.S. participation in the Arrow development effort also ensures interoperability of the Arrow and the Israeli Missile Defense System with deployed U.S. missile defense assets. 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. Testing of the enhanced AWS in the U.S. against longer range threats is planned for FY 2009 and FY 2010 to verify Arrow's improved performance and capability. Co-production will continue to increase the industrial production capacity of the Arrow II interceptor. The ITB and ISA&I efforts will continue to support AWS development as well as to define future missile defense architectures and growth paths. Finally, a new Upper Tier component has been started to provide Israel with additional capability against emerging regional threats.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Arrow System Improvement Program See Description Below	0.000	41.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>		PROJECT WX26: <i>Israeli ARROW Program</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> NA</p> <p><i>FY 2010 Plans:</i> The Arrow System Improvement Program (ASIP) is the fourth phase of the cooperative effort which began in 1988 to provide Israel with an indigenous missile defense and ensure the Arrow Weapon System(AWS) retains system effectiveness against evolving longer-range, more robust regional Theater Ballistic Missile threats. This initiative commenced on March 13, 2001 under the ASIP International Agreement between the United States and the State of Israel and runs through 2016. While the current program concludes with a 2010 capstone event of two flight tests on an U.S. test range, additional capability has been proposed as part of the new Upper Tier component. Thus a follow-on spiral development AWS Block 4.5 that will increase the Arrow II's effective battlespace and provide additional sensor capability to the Arrow Weapon System is being formulated. AWS Block 5.0 will add an upper tier component to the Arrow Weapon System.</p> <p>Interdependency: BMDS elements (Terminal High Altitude Area Defense(THAAD), AEGIS, (Command, Control, Battle Management and Communications (C2BMC)), AN/TPY-2, and PATRIOT) participate in ground testing and exercises with the Arrow Weapon System.</p> <p>Conduct Joint Interoperability Exercise Juniper Cobra with Israel and U.S. forces Conduct Blue Sparrow Target Fly-out flight test in Israel Conduct System Requirements Review for AWS Block 5.0 Conduct Flight Test 2010 ;</p> <p><i>FY 2011 Base Plans:</i> NA</p>								

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX26: <i>Israeli ARROW Program</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA						
Israeli Test Bed (ITB) See Description Below <i>FY 2009 Accomplishments:</i> NA <i>FY 2010 Plans:</i> The Israeli Test Bed (ITB) is a cooperative effort conducted under the March 30, 1989 Theater Ballistic Missile Defense Test Bed Memorandum of Agreement between the U.S. and Israel. The ITB is a large scale human-in-the-loop (HIL) modeling and simulation facility for the purpose of developing, analyzing, and evaluating candidate architectures, battle management concepts, and engagement algorithms. Many of the exercises accomplished on the ITB include participation of U.S. and Israel warfighters. The principal ITB facility resides at Holon, Israel. A second ITB capability is operational at the Missile Defense Agency's Advanced Research Center in Huntsville, Alabama. Accomplish ;three experiments and ;one exercise refining HIL tools for Command and Control, developing regional defense architectures, and impacts to tactics, techniques and procedures of the combined U.S.-Israeli Multi-tier Missile Defense Architecture. <i>FY 2011 Base Plans:</i> NA <i>FY 2011 OCO Plans:</i> NA		0.000	3.535	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX26: <i>Israeli ARROW Program</i>
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX26: <i>Israeli ARROW Program</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX26: <i>Israeli ARROW Program</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

As a bi-lateral cooperative program with the State of Israel, the Arrow Program does not follow normal DoD Acquisition Practices. The program is managed by an Israeli Co-Program Manager and, equal in responsibility, an U.S. Co-Program Manager. Program funding is equitable between the U.S. and Israel with Israel providing matching funds. However, a portion of the Israeli cost share is from non-financial contributions such as background information and facilities. With ASIP, Israel Ministry of Defense (IMoD) contracts on behalf of U.S. government to Israeli Aerospace Industries (IAI) and other ASIP contractors. MDA Targets Office contracts for production and instrumentation of targets for U.S. flight testing. Additionally with Arrow Missile Production, IMoD contracts on behalf of U.S. government to IAI. IAI then subcontracts to Boeing for manufacture of U.S. components. IAI manufactures Israeli components and performs final assembly. For the Israeli Test Bed, MDA contracts directly with Tadiran while IMoD provides their share of the funding to U.S. Finally, MDA contracts directly with WALES, Ltd for the Israeli System Architecture and Integration.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX26: <i>Israeli ARROW Program</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Arrow System Improvement Program ASIP WX26	TBD/CPFF	Israeli Aerospace Industires (IAI) Israel	0.000	41.000	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Upper Tier Upper Tier WX26	TBD/CPFF	Israeli Aerospace Industires (IAI) Israel	0.000	49.365	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Arrow Missile Production Program (AMPP) Arrow Missile Production WX26	TBD/FFP	Israeli Aerospace Industires (IAI) & Boeing Israel & Alabama	0.000	25.000	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Israeli Test Bed (ITB) Israeli Test Bed WX26	TBD/FFP	Tadiran Israel	0.000	3.535	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Israeli Systems Architecture and Integration (ISA&I) ISA&I WX26	TBD/FFP	Wales, LTD Israel	0.000	2.771	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			0.000	121.671		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX26: <i>Israeli ARROW Program</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX26: <i>Israeli ARROW Program</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Remarks NA													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	121.671		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX26: <i>Israeli ARROW Program</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
AWS Block 5.0 SRR							■																					
Arrow-3 CDR							■																					
Interoperability Tests					■																							
Israeli Test Bed Exercise					■																							
Israeli Test Bed Experiment-2Q2010						■																						
Israeli Test Bed Experiment-3Q2010							■																					
Israeli Test Bed Experiment-4Q2010								■																				
Blue Sparrow Fly-out-4Q2010								■																				
Flight Test - 3Q2010							■																					

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX26: <i>Israeli ARROW Program</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
AWS Block 5.0 SRR	3	2010	3	2010
Arrow-3 CDR	3	2010	3	2010
Interoperability Tests	1	2010	1	2010
Israeli Test Bed Exercise	1	2010	1	2010
Israeli Test Bed Experiment-2Q2010	2	2010	2	2010
Israeli Test Bed Experiment-3Q2010	3	2010	3	2010
Israeli Test Bed Experiment-4Q2010	4	2010	4	2010
Blue Sparrow Fly-out-4Q2010	4	2010	4	2010
Flight Test - 3Q2010	3	2010	3	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD26: <i>Israeli ARROW Program</i>	0.000	0.000	24.247	0.000	24.247	18.309	18.338	18.342	18.375	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

This Program Element encompasses MDA's U.S.-Israeli cooperative programs. Prior to FY 2010, these programs were listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C) project code WX26. In FY 2010 these programs were listed under this Program Element with a project code of WX26.

A. Mission Description and Budget Item Justification

This project provides funding for Arrow Weapon System (AWS) development, to include the Arrow System Improvement Program (ASIP), the Arrow Missile Production Program (AMPP) for the co-production of Arrow Interceptors, the Israeli Test Bed (ITB) experiments to evaluate Human-In-The-Loop (HIL) battle management, and the Israeli Systems Architecture and Integration (ISA&I) studies to assess Israel's future 2020 Missile Defense Architecture. The Arrow Weapon System provides Israel an indigenous capability to defend against short and medium range ballistic missiles. Further, Arrow also acts as a cornerstone of the Architecture Enhancement Plan which is a joint U.S.-Israeli effort to create a combined U.S.-Israeli multi-tier Missile Defense Architecture. In addition to the geo-strategic goals of the Arrow cooperative effort, the United States derives technical benefit from its participation in these projects and gains knowledge and experience of the Israeli Defense Forces operation of a multi-layered defense architecture. U.S. participation in the Arrow development effort also ensures interoperability of the Arrow and the Israeli Missile Defense System with deployed U.S. missile defense assets. 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. Testing of the enhanced AWS in the U.S. against longer range threats is planned to verify Arrow's improved performance and capability. Co-production will continue increased production capacity of the Arrow II interceptor. The ITB and ISA&I efforts will continue to support AWS development as well as to define future missile defense architectures and growth paths.

NOTE: Planned Program assumes matching funds from Israel per our international agreements

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Arrow System Improvement Program	0.000	0.000	5.912	0.000	5.912

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>		R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>		PROJECT MD26: <i>Israeli ARROW Program</i>	
B. Accomplishments/Planned Program (\$ in Millions)					
See Description Below					
<i>FY 2009 Accomplishments:</i> NA					
<i>FY 2010 Plans:</i> These plans are listed under this Program Element with a project code of WX26.					
<i>FY 2011 Base Plans:</i> The Arrow System Improvement Program (ASIP) is the fourth phase of the cooperative effort which began in 1988 to provide Israel with an indigenous missile defense and ensure the Arrow Weapon System (AWS) retains system effectiveness against evolving longer-range, more robust regional Theater Ballistic Missile threats. This initiative commenced on March 13, 2001 under the ASIP International Agreement between the United States and the State of Israel and runs through 2016. While the current program concludes with a 2010 capstone event of two flight tests on an U.S. test range, AWS Block 5.0 will add an upper tier component to the Arrow Weapon System.					
Interdependency: BMDS elements (Terminal High Altitude Area Defense (THAAD), AEGIS, Command, Control, Battle Management & Communications (C2BMC), AN/TPY-2, and PATRIOT) participate in ground testing and exercises with the Arrow Weapon System.					
Conduct AWS Block 5.0 Preliminary Design Review. Conduct flight test.					
<i>FY 2011 OCO Plans:</i> NA					
Arrow Missile Production Program (AMPP)					
	0.000	0.000	12.000	0.000	12.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> NA</p> <p><i>FY 2010 Plans:</i> These plans are listed under this Program Element with a project code of WX26.</p> <p><i>FY 2011 Base Plans:</i> The co-manufacturing project further enhances the Arrow Weapon System by establishing a capability in the United States and the State of Israel to co-produce Arrow components and interceptors. The goal of the co-production effort is to accelerate production of Arrow interceptors to meet Israel's defense requirements. The current production plan will be completed in 2011 and meet Israel's Defense Forces (IDF) current inventory requirement. However, discussions are ongoing to possibly increase these requirements and thus extend the co-production program.</p> <p>Continue delivery of Arrow II interceptors.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Israeli Test Bed (ITB)</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> NA</p>		0.000	0.000	3.535	0.000	3.535

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> These plans are listed under this Program Element with a project code of WX26.</p> <p><i>FY 2011 Base Plans:</i> The Israeli Test Bed (ITB) is a cooperative effort conducted under the March 30, 1989 Theater Ballistic Missile Defense Test Bed Memorandum of Agreement between the U.S. and Israel. The ITB is a large scale Human-in-the-loop (HIL) modeling and simulation facility for the purpose of developing, analyzing, and evaluating candidate architectures, battle management concepts, and engagement algorithms. Many of the exercises accomplished on the ITB include participation of U.S. and Israeli warfighters. The principal ITB facility resides at Holon, Israel. A second ITB capability is operational at the Missile Defense Agency's Advanced Research Center in Huntsville, Alabama.</p> <p>FY 2011 Planned Program: Accomplish ;three experiments refining HIL tools for Command and Control, developing regional defense architectures, and impacts to tactics, techniques and procedures of the combined U.S.-Israeli Multi-tier Missile Defense Architecture.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Israeli Systems Architecture and Integration (ISA&I) See Description Below</p> <p><i>FY 2009 Accomplishments:</i> NA</p> <p><i>FY 2010 Plans:</i> These plans are listed under this Program Element with a project code of WX26.</p>		0.000	0.000	2.800	0.000	2.800

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> The Israeli Systems Architecture and Integration (ISA&I) Study provides analysis of the future 2020 Israeli Missile Defense Architecture, growth paths for future development and interoperability with U.S. BMDS assets. Program objectives are to assess the ballistic missile threats, provide analysis and architecture options, assess missile defense system robustness and issues, and assess Israeli and U.S. missile defense interoperability issues. The ISA&I effort is contracted by MDA to an Israeli consulting firm.</p> <p>FY 2011 Planned Program: Continue studies on emerging regional ballistic missile threats, growth path options for the Israeli Missile Defense Architecture and evaluate interoperability between U.S. and Israeli missile defense systems.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	24.247	0.000	24.247

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603906C: <i>REGARDING TRENCH</i>											
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

As a bi-lateral cooperative program with the State of Israel, the Arrow Program does not follow standard DoD Acquisition Practices. The program is managed by a Israeli Co-Program Manager and, equal in responsibility, an U.S. Co-Program Manager. Program funding is equitable between the U.S. and Israel with Israel providing matching funds. However, a portion of the Israeli cost share is from non-financial contributions such as background information and facilities. With ASIP, Israel Ministry

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603913C: <i>ISRAELI COOPERATIVE</i>	MD26: <i>Israeli ARROW Program</i>

of Defense (IMoD) contracts on behalf of U.S. government to IAI and other ASIP contractors. MDA Targets Office contracts for production and instrumentation of targets for flight testing conducted in the U.S. Additionally with Arrow Missile Production, IMoD contracts on behalf of U.S. government to IAI. IAI then subcontracts to Boeing for manufacture of components in the U.S.. IAI manufactures Israeli components and performs final assembly. For the Israeli Test Bed, MDA contracts directly with Tadiran while IMoD provides their share of the funding to U.S. Finally, MDA contracts directly with WALES, Ltd for the Israeli System Architecture and Integration program. The DoD U.S. Israeli Cooperative Program Office co-manages the program with IMoD to ensure that all systems are delivered on time, on budget and meet the needs of the warfighter.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Arrow System Improvement Program ASIP MD26	TBD/CPFF	Israeli Aerospace Industries (IAI) Israel	0.000	0.000		5.912	Jul 2011	0.000		5.912	Continuing	Continuing	Continuing
Arrow Missile Production Program (AMPP) Arrow Missile Production MD26	TBD/FFP	Israeli Aerospace Industries (IAI) & Boeing Israel & Alabama	0.000	0.000		12.000	Oct 2010	0.000		12.000	Continuing	Continuing	Continuing
Israeli Test Bed (ITB) Israeli Test Bed MD26	TBD/FFP	Israeli Aerospace Industries (IAI) & Boeing Israel & Alabama	0.000	0.000		3.535	Oct 2010	0.000		3.535	Continuing	Continuing	Continuing
Israeli Systems Architecture and Integration (ISA&I) ISA&I MD26	TBD/FFP	Wales LTD Israel	0.000	0.000		2.800	Oct 2010	0.000		2.800	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		24.247		0.000		24.247			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Remarks NA													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		24.247		0.000		24.247			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>	

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Arrow Weapon System Block 5.0 Preliminary Design Review												■																
Arrow Weapon System Block 5.0 Critical Design Review																■												
Israeli Test Bed Exercise (4Q) 2011												■																
Israeli Test Bed Experiment (2Q) 2011											■																	
Israeli Test Bed Experiment (3Q) 2011											■																	
Israeli Test Bed Experiment (4Q) 2011												■																
Interoperability Test (4Q) 2012																■												
Israeli Test Bed Exercise (4Q) 2012																■												
Israeli Test Bed Experiment (3Q) 2012																■												
Israeli Test Bed Experiment (2Q) 2012																■												
Israeli Test Bed Experiment (4Q) 2012																■												
Israeli Test Bed Exercise (4Q) 2013																												
Israeli Test Bed Experiment (2Q) 2013																												
Israeli Test Bed Experiment (3Q) 2013																												
Israeli Test Bed Experiment (4Q) 2013																												
Interoperability Test (4Q) 2014																												
Israeli Test Bed Exercise (4Q) 2014																												
Israeli Test Bed Experiment (2Q) 2014																												
Israeli Test Bed Experiment (3Q) 2014																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Arrow Weapon System Block 5.0 Preliminary Design Review	3	2011	3	2011
Arrow Weapon System Block 5.0 Critical Design Review	1	2012	1	2012
Israeli Test Bed Exercise (4Q) 2011	4	2011	4	2011
Israeli Test Bed Experiment (2Q) 2011	2	2011	2	2011
Israeli Test Bed Experiment (3Q) 2011	3	2011	3	2011
Israeli Test Bed Experiment (4Q) 2011	4	2011	4	2011
Interoperability Test (4Q) 2012	4	2012	4	2012
Israeli Test Bed Exercise (4Q) 2012	4	2012	4	2012
Israeli Test Bed Experiment (3Q) 2012	3	2012	3	2012
Israeli Test Bed Experiment (2Q) 2012	2	2012	2	2012
Israeli Test Bed Experiment (4Q) 2012	4	2012	4	2012
Israeli Test Bed Exercise (4Q) 2013	4	2013	4	2013
Israeli Test Bed Experiment (2Q) 2013	2	2013	2	2013
Israeli Test Bed Experiment (3Q) 2013	3	2013	3	2013
Israeli Test Bed Experiment (4Q) 2013	4	2013	4	2013
Interoperability Test (4Q) 2014	4	2014	4	2014
Israeli Test Bed Exercise (4Q) 2014	4	2014	4	2014
Israeli Test Bed Experiment (2Q) 2014	2	2014	2	2014

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>

Event	Start		End	
	Quarter	Year	Quarter	Year
Israeli Test Bed Experiment (3Q) 2014	3	2014	3	2014
Israeli Test Bed Experiment (4Q) 2014	4	2014	4	2014
Israeli Test Bed Exercise (4Q) 2015	4	2015	4	2015
Israeli Test Bed Experiment (2Q) 2015	2	2015	2	2015
Israeli Test Bed Experiment (3Q) 2015	3	2015	3	2015
Israeli Test Bed Experiment (4Q) 2015	4	2015	4	2015
Flight Test 2011	3	2011	3	2011
Flight Test 2012	3	2012	3	2012
Flight Test 2013	3	2013	3	2013
Flight Test 2014	2	2014	2	2014
Blue Sparrow Fly-out Test 2011	1	2011	1	2011

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>WX34: Short Range Ballistic Missile Defense</i>	0.000	79.652	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	79.652
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

This Program Element encompasses MDA's U.S.-Israeli cooperative programs. Prior to FY 2010, this program was listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C) with the project code of WX34. For FY 2011 and beyond, the project code will change to MD34.

A. Mission Description and Budget Item Justification

The 2006 summer conflict between Israel and Hezbollah underscored the strategic effect of short-range, inexpensive ballistic missiles attacks on civilian populations. The current Israeli Missile Defense Architecture (comprised of PATRIOT and Arrow) has capability against some of these short-range missile threats, but does not provide a cost-effective defense. The goal of the Israeli SRBMD program is to provide an affordable defense capability. In March 2005, the U.S. and Israel initiated a joint 18-month feasibility study of a low-cost SRBMD capability as a compliment to the Arrow Weapon System. This was followed in May 2006 by Israeli's down selection to the David's Sling Weapon System (DSWS) for their SRBMD solution. While currently there is no U.S. requirement for a SRBMD system MDA plans to influence specifications and development decisions to ensure the system could be suitable for potential future U.S. needs and interoperable with the U.S. Ballistic Missile Defense System (BMDS). The system is to be developed in development blocks with the initial block providing a baseline capability against long range rockets and very short range ballistic missiles.

Under the U.S.-Israeli Project Agreement signed in September 2008, the project is jointly managed by the U.S. Missile Defense Agency and the Israeli Missile Defense Organization. The agreement documents the U.S.-Israeli cost share, in which the development costs are equitable between the U.S. and Israel with Israel providing matching funds. However a portion of the Israeli cost share is from non-financial contributions such as background information and facilities.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SRBMD Program	0.000	79.652	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
See Description Below					
<i>FY 2009 Accomplishments:</i> NA					
<i>FY 2010 Plans:</i> Conduct Critical Design Review for Block 1.0(Initial Short Range Ballistic Missile Defense (SRBMD) capability). Conduct two interceptor control navigation fly-out test. Conduct Design Review #1 for Block 3.0(Adds Cruise Missile Defense capability). Conduct Design Review for Block 2.0(Expands SRBMD capability). Conduct Design Review #2 for Block 3.0					
<i>FY 2011 Base Plans:</i> NA					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	79.652	0.000	0.000	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>											
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0901598C: <i>Management Headquarters-MDA</i>											

D. Acquisition Strategy

As a bi-lateral cooperative program with the State of Israel, the SRBMD program does not follow standard DoD Acquisition Practices. The program is managed through a joint program office lead by an Israeli Co-Program Manager and, equal in responsibility, a U.S. Co-Program Manager. Program funding is equitable between the U.S. and Israel with Israel providing matching funds. However, a portion of the Israeli cost share is from non-financial contributions such as background information and facilities. With the David Sling Weapon System, Israel Ministry of Defense (IMoD) contracts on behalf of U.S. government to Rafael and other David's Sling Weapon System contractors. A Short Range Ballistic Missile Defense Project Agreement under the RDT&E Framework agreement between U.S. and Israel was signed Sept 2008 creating a joint program office to manage this program. This agreement allows Israel to contract on behalf of the United States.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SRBMD Program SRBMD Program WX34	TBD/CPFF	Rafael Israel	0.000	79.652	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			0.000	79.652			0.000			0.000			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000			0.000			0.000			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	0.000	79.652		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
David's Sling Weapon System Block 3.0 Design Review #1						■																						
Stunner Interceptor Fly-out #1						■																						
David's Sling Weapon System Block 1.0 Critical Design Review								■																				
Stunner Interceptor Fly-out #2								■																				
David's Sling Weapon System Block 2.0 Design Review											■																	
David's Sling Weapon System Block 3.0 Design Review #2											■																	

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
David`s Sling Weapon System Block 3.0 Design Review #1	2	2010	2	2010
Stunner Interceptor Fly-out #1	2	2010	2	2010
David`s Sling Weapon System Block 1.0 Critical Design Review	3	2010	3	2010
Stunner Interceptor Fly-out #2	3	2010	3	2010
David`s Sling Weapon System Block 2.0 Design Review	4	2010	4	2010
David`s Sling Weapon System Block 3.0 Design Review #2	4	2010	4	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>MD34: Short Range Ballistic Missile Defense (SRBMD)</i>	0.000	0.000	46.722	0.000	46.722	43.063	44.094	45.159	46.247	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

This Program Element encompasses MDA`s U.S.-Israeli cooperative programs. Prior to FY 2010, this program was listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C) with the project code of WX34. For FY 2010 this program was found under this Program Element with a project code of WX34

A. Mission Description and Budget Item Justification

The 2006 summer conflict between Israel and Hezbollah underscored the strategic effect of short-range, inexpensive ballistic missiles attacks on civilian populations. The current Israeli Missile Defense Architecture (comprised of PATRIOT and Arrow) has capability against some of these short-range missile threats, but does not provide a cost-effective defense. The goal of the Israeli SRBMD program is to provide an affordable defense capability. In March 2005, the U.S. and Israel initiated a joint 18-month feasibility study of a low-cost SRBMD capability as a compliment to the Arrow Weapon System. This was followed in May 2006 by Israeli`s down selection to the David`s Sling Weapon System (DSWS) for their SRBMD solution. While currently there is no U.S. requirement for a SRBMD system, MDA is providing input and guidance regarding specifications and development decisions to ensure the system could be suitable for potential future U.S. needs and interoperable with the U.S. Ballistic Missile Defense System (BMDS). The system is to be developed in development blocks with the initial block providing a baseline capability against long range rockets and short range ballistic missiles.

Under the U.S.-Israeli Project Agreement signed in September 2008, the project is jointly managed by the U.S. Missile Defense Agency and the Israeli Missile Defense Organization. The agreement documents the U.S.-Israeli cost share, in which the development costs are equitable between the U.S. and Israel with Israel providing matching funds. However a portion of the Israeli cost share is from non-financial contributions such as background information and facilities.

NOTE: Planned Program assumes matching funds from Israel per our international agreements.

B. Accomplishments/Planned Program (\$ in Millions)

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SRBMD Program See Description Below <i>FY 2009 Accomplishments:</i> NA <i>FY 2010 Plans:</i> These plans are listed under project code WX34. <i>FY 2011 Base Plans:</i> Conduct Block 2 Preliminary Design Review Conduct Block 2 Critical Design Review Conduct one interceptor fly-out flight test <i>FY 2011 OCO Plans:</i> NA	0.000	0.000	46.722	0.000	46.722
Accomplishments/Planned Programs Subtotals	0.000	0.000	46.722	0.000	46.722

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603906C: <i>REGARDING TRENCH</i>											
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

As a bi-lateral cooperative program with the State of Israel, the SRBMD program does not follow standard DoD Acquisition Practices. The program is managed through a joint program office lead by an Israeli Co-Program Manager and, equal in responsibility, an U.S. Co-Program Manager. Program funding is equitable between the U.S. and Israel with Israel providing matching funds. However, a portion of the Israeli cost share is from non-financial contributions such as background information

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
<p>brought into the Project prior to joint program initiation. With the David Sling Weapon System, Israel Ministry of Defense (IMoD) contracts on behalf of U.S. government to Rafael and other David's Sling Weapon System contractors including Raytheon Missile Systems who acts as a critical subcontractor for the system co-development efforts.. A Short Range Ballistic Missile Defense Project Agreement under the RDT&E Framework agreement between U.S. and Israel was signed Sept 2008 creating a joint program office to manage this program. This agreement allows Israel to contract on behalf of the United States. The DoD U.S. Israeli Cooperative Program Office jointly manages the program with IMoD to ensure that all systems are delivered on time, on budget and meet the needs of the warfighter.</p> <p>MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.</p> <p>E. Performance Metrics NA</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SRBMD Program SRBMD Program MD34	TBD/CPFF	Rafael Israel	0.000	0.000		46.722	Jan 2011	0.000		46.722	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		46.722		0.000		46.722			

Remarks
NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	0.000	0.000		46.722		0.000		46.722			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
David's Sling Weapon System Block 2.0 Preliminary Design Review					■																							
David's Sling Weapon System Block 2.0 Critical Design Review														■														
Interceptor Fly-out Test 2Q2011										■																		
System Test Q2 2011										■																		
System Test Q4 2011											■																	
System Test Q3 2012												■																
System Test Q1 2013															■													
System Test Q4 2013																■												
System Test Q4 2014																				■								

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
David's Sling Weapon System Block 2.0 Preliminary Design Review	1	2010	1	2010
David's Sling Weapon System Block 2.0 Critical Design Review	2	2012	2	2012
Interceptor Fly-out Test 2Q2011	2	2011	2	2011
System Test Q2 2011	2	2011	2	2011
System Test Q4 2011	4	2011	4	2011
System Test Q3 2012	3	2012	3	2012
System Test Q1 2013	1	2013	1	2013
System Test Q4 2013	4	2013	4	2013
System Test Q4 2014	4	2014	4	2014

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604880C: <i>LAND-BASED SM-3</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	Continuing	Continuing
MD68: <i>AEGIS Ashore</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	Continuing	Continuing

Note

In accordance with the Missile Defense Agency revised budget structure, this portion of the content previously planned in PE 0603908C (European Interceptor Site (EIS)), PE 0603909C (European Midcourse Radar (EMR)), and PE 0603912C (European Communications Interface (ECI)) for FY 2009 was captured in PEs 0603892C Project WX09 and 0603911C Project DX48 for FY 2010 and is now captured in PE 0604880C, Land Based SM-3, project MD68, in FY 2011.

A. Mission Description and Budget Item Justification

The best way 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 (C2BMC). 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 BMD capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide both the best sensor information on the enemy missile's location and track as well as a more diverse and effective set of weapon options for the Combatant Commander to defeat the attack -- all connected by a unifying C2BMC system. As a result, an effort funded in a Program Element may be critical to the success of efforts in the other Program Elements. We refer to these connections as "interdependencies". Throughout the budget justification materials we have attempted to highlight interdependencies to fully explain the relationship between different parts of the proposed program.

The Phased Adaptive Approach (PAA) was developed in response to the rapid proliferation of short and medium range ballistic missiles in Iran and the threat they pose to U.S. Allies and partners, as well as to U.S. deployed personnel and their accompanying families in the Middle East and in Europe. By leveraging recent advances in sensor and interceptor technologies, the United States will aggressively counter this growing regional threat with a more powerful and agile system. The United States is pursuing a four phased approach which will provide a more effective missile defense capability for defense of NATO territories and enhance U.S. homeland defense, it will be complementary of and interoperable with those being developed by NATO, be applicable in other theaters around the world, and will be more adaptable and flexible in order to counter threat advances and provide increased defended areas over time. The initial phase includes the deployment of current and proven missile defense, including the sea-based Aegis Weapons System, the SM-3 missile (Block IA and IB), and sensors such as the forward-based Army Navy/Transportable Radar Surveillance system (AN/TPY-2). Subsequent phases will be implemented based on technical maturity, appropriate testing, and threat driven requirements.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0604880C: <i>LAND-BASED SM-3</i>

Aegis Ashore will leverage the proven Aegis BMD capability and deploy it at shore-based sites in Europe starting in 2015 in order to counter the rapidly growing threat. This will provide a land-based SM-3 exoatmospheric defense against short to medium and some intermediate range ballistic missile threats in the later stages of flight. Use of the SM-3 at shore-based sites will broaden the BMDS use of the SM-3 from its current sea-based applications.

Aegis Ashore will build a test complex at the Pacific Missile Range Facility (PMRF) at Barking Sands, Hawaii. The test complex is critical to the development of the Aegis Ashore capability and will be essential for verifying requirements and validating design capability prior to deployment.

Aegis Ashore will complement and enhance existing and emerging U.S. and partner missile defense systems to defend deployed forces, allies and friends against theater threats. Furthermore, Aegis Ashore will allow for more sophisticated engagement strategies and reduce vulnerability to countermeasures, forcing an enemy to alter or abandon tactics to penetrate the defensive system.

MDA plans to complete a concept study effort to validate the system`s technical and operational feasibility, leading to a near-term demonstration. To support this effort, MDA tasked Aegis BMD to oversee the execution of this study and analysis. MDA will approve the Aegis Ashore acquisition strategy in FY 2010.

Unifying Missile Defense Functions:

MDA has a set of Unifying Missile Defense Functions (UMDFs), which increase the effectiveness of the BMD System (including probability of engagement success, increase in defended area and raid size capability, additional redundancy of architecture, unity of command) through the integration of MDA developed capabilities. These UMDF efforts are Sensor Registration (reporting of sensor errors / biases), Correlation (ensuring the information from multiple sensors seeing a threat relates to the same object), System Track (creating a single engageable track of a threat from multiple reports provided by different land, sea, and space based sensors), Discrimination (identifying object details to determine the target from debris or decots), 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). UMDFs are 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 all ranges of ballistic threats.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604880C: <i>LAND-BASED SM-3</i>
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MiDAESS:

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the Agency, centralize the acquisition of support services manpower in a more efficient manner, and reduce Agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	281.378	0.000	281.378
Total Adjustments	0.000	0.000	281.378	0.000	281.378
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustment Detail	0.000	0.000	281.378	0.000	281.378

Change Summary Explanation

No FY 2011 data provided in PB10.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604880C: <i>LAND-BASED SM-3</i>	PROJECT MD68: <i>AEGIS Ashore</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD68: <i>AEGIS Ashore</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

Work content for Project MD68 was in Program Elements (PEs) 0603911C Project DX48 and 0603892C Project WX09 for FY 2010 and in PEs 0603908C, 0603909C, and 0603912C for FY 2009.

A. Mission Description and Budget Item Justification

The Phased Adaptive Approach (PAA) was developed in response to the rapid proliferation of short and medium range ballistic missiles in Iran and the threat they pose to U.S. allies and partners, as well as to U.S. deployed forces and their accompanying families in the Middle East and Europe. By leveraging recent advances in sensor and interceptor technologies, the United States will aggressively counter this growing regional threat with a more powerful and agile system. The United States is pursuing a four phased approach which will provide a more effective missile defense capability for defense of NATO territories and enhance U.S. homeland defense; it will be complimentary of and interoperable with those being developed by NATO, be applicable in other theaters around the world, and will be more adaptable and flexible in order to counter threat advances and provide increased defended area over time. The initial phase includes the deployment of current and proven missile defense, including the sea-based Aegis Weapon System, the SM-3 missile (Block IA and IB), and sensors such as the AN/TPY-2. Subsequent phases will be implemented based on technical maturity, appropriate testing, and threat driven requirements.

Aegis Ashore will leverage the proven Aegis BMD capability and deploy it at shore-based sites in Europe starting in 2015 in order to counter the rapidly growing threat. This will provide a land-based SM-3 exoatmospheric defense against short to medium and some intermediate range ballistic missile threats in the later stages of flight. Use of the SM-3 at shore-based sites will broaden the BMDS use of the SM-3 from its current sea-based applications.

Aegis Ashore will complement and enhance existing and emerging U.S. and partner missile defense systems to defend deployed forces, allies and friends against theater threats. Furthermore, Aegis Ashore will allow for more sophisticated engagement strategies and reduce vulnerability to countermeasures, forcing an enemy to alter or abandon tactics to penetrate the defensive system.

MDA plans to complete a concept study effort to validate the system's technical and operational feasibility, leading to a near-term demonstration. To support this effort, MDA tasked Aegis BMD to oversee the execution of this study and analysis. MDA anticipates an Aegis Ashore acquisition strategy to be approved in FY 2010.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604880C: <i>LAND-BASED SM-3</i>	PROJECT MD68: <i>AEGIS Ashore</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
AWS Development See Description Below <i>FY 2009 Accomplishments:</i> See Project DX48: European Capability. <i>FY 2010 Plans:</i> See Project WX09 in PE 0603892C, BMD AEGIS. <i>FY 2011 Base Plans:</i> Conduct System Design Review. Conduct Preliminary Design Review. Procure long lead material for PMRF vertical launch system (VLS), AWS hardware, and communications equipment. Conduct development trades to support deployment decisions. <i>FY 2011 OCO Plans:</i> NA		0.000	0.000	221.878	0.000	221.878
Missile Development See Description Below <i>FY 2009 Accomplishments:</i> See Project DX48: European Capability. ;		0.000	0.000	59.500	0.000	59.500

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604880C: <i>LAND-BASED SM-3</i>	PROJECT MD68: <i>AEGIS Ashore</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> See Project WX09 in PE 0603892C, BMD AEGIS.</p> <p><i>FY 2011 Base Plans:</i> Support AWS System Design Review and Preliminary Design Reviews. Conduct missile design modification trade studies. Complete missile functional design unique to Aegis Ashore. Procure SM-3 Blk IA and IB test rounds to support the IMTP.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	281.378	0.000	281.378

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604880C: <i>LAND-BASED SM-3</i>	PROJECT MD68: <i>AEGIS Ashore</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604880C: <i>LAND-BASED SM-3</i>	PROJECT MD68: <i>AEGIS Ashore</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>											
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The PAA of the layered BMDS acquisition objective is to synchronize industry teams within the construct of current MDA Element contracts, without designation of a Prime integrating contractor for the overall capability. Utilizing current element contracts and their Prime's current infrastructure, PAA can leverage each element's contract to focus their Prime contractor on behaviors that achieve system level collaboration. The intent is to motivate all players and establish a cooperative management framework.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604880C: <i>LAND-BASED SM-3</i>	PROJECT MD68: <i>AEGIS Ashore</i>
<p>MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluations; and management and professional services.</p> <p>Aegis BMD will let a contract for a Combat Systems Engineering Agent (CSEA). Broadly stated, the CSEA will be responsible for the design, development, installation and test of the Aegis Ashore capability at PMRF, as well as in host nations.</p> <p>Competition will be considered for procurement of any products or services in FY 2011.</p> <p><u>E. Performance Metrics</u> NA</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604880C: <i>LAND-BASED SM-3</i>	PROJECT MD68: <i>AEGIS Ashore</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AWS Development AWS Development MD68	SS/CPAF	Lockheed Martin Moorestown, NJ	0.000	0.000		180.336		0.000		180.336	Continuing	Continuing	Continuing
AWS Development AWS Development - 200912143066533 MD68	TBD/TBD	JHU/APL Columbia, MD	0.000	0.000		4.500		0.000		4.500	Continuing	Continuing	Continuing
AWS Development AWS Development - 200912143066536 MD68	TBD/TBD	NSWC PHD Port Huneme, CA	0.000	0.000		3.000		0.000		3.000	Continuing	Continuing	Continuing
AWS Development AWS Development - 200912143066541 MD68	TBD/TBD	NSWC Dahlgren Dahlgren, VA	0.000	0.000		7.000		0.000		7.000	Continuing	Continuing	Continuing
AWS Development AWS Development - 200912143066545 MD68	TBD/TBD	MIT/LL Lexington, MA	0.000	0.000		1.500		0.000		1.500	Continuing	Continuing	Continuing
AWS Development AWS Development - 200912143066552 MD68	TBD/TBD	Various VA, MD, CA, NJ, AV, HI	0.000	0.000		25.542		0.000		25.542	Continuing	Continuing	Continuing
Missile Development Missile Development MD68	SS/CPAF	Raytheon Tucson, AZ	0.000	0.000		57.000		0.000		57.000	Continuing	Continuing	Continuing
Missile Development Missile Development	TBD/TBD	Various VA, MD, NJ, AZ	0.000	0.000		2.500		0.000		2.500	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604880C: <i>LAND-BASED SM-3</i>	PROJECT MD68: <i>AEGIS Ashore</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
- 200912143024217 MD68													
Subtotal			0.000	0.000		281.378		0.000		281.378			

Remarks
NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604880C: <i>LAND-BASED SM-3</i>	PROJECT MD68: <i>AEGIS Ashore</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
	0.000	0.000		281.378		0.000		281.378			

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604880C: <i>LAND-BASED SM-3</i>	PROJECT MD68: <i>AEGIS Ashore</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Aegis Ashore System Design Review									■																			
Aegis Ashore Preliminary Design Review											■																	
AA CTV-01															■													
AA FTM-01															■													
AA FTM-02																					■							

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604880C: <i>LAND-BASED SM-3</i>	PROJECT MD68: <i>AEGIS Ashore</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Aegis Ashore System Design Review	1	2011	1	2011
Aegis Ashore Preliminary Design Review	3	2011	3	2011
AA CTV-01	1	2013	1	2013
AA FTM-01	2	2013	2	2013
AA FTM-02	1	2014	1	2014

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	Continuing	Continuing
MD09: <i>SM-3 Block IIA Co-Development</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	Continuing	Continuing

Note

NA

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 on Aegis cruisers and destroyers 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. The Aegis BMD element of the BMDS builds upon the existing U.S. 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 Missile (SRBM), Medium-Range Ballistic Missile (MRBM), Intermediate-Range Ballistic Missile (IRBM), and selected long-range class threats in the midcourse phase of flight. Upgrades to both the Aegis BMD Weapon System and the SM-3 configurations will enable Aegis BMD to provide effective, supportable defensive capability against more difficult threats in all phases of flight, including Long Range Ballistic Missiles (LRBMs).

The FY 2011 program is balanced reflecting the four focus areas of the current Missile Defense Program: to develop, rigorously test, and field an integrated BMDS architecture to counter existing regional threats, continue a viable Homeland Defense against rouge threats beyond 2030; demonstrate our proven technologies to show Missile Defense works; and develop technologies to hedge against future missile threat growth.

The best way 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 (C2BMC). 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 BMD capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide both the best sensor information on the enemy missile's location and track as well as a more diverse and effective set of weapon options for the Combatant Commander to defeat the attack -- all connected by a unifying C2BMC system. As a result, an effort funded in a program element (PE) may be critical to the

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>
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success of efforts in the other PE -- we refer to these connections as ``interdependencies``. Throughout the budget justification materials we have attempted to highlight interdependencies to fully explain the relationship between different parts of the proposed program.

The U.S./Japan Joint Cooperative Research (JCR) program conducted cooperative research in Ballistic Missile Defense. The research focused on the development of advanced missile technologies in four components of the SM-3 guided missile: sensor, advanced kinetic warhead, second stage propulsion and lightweight nosecone. In FY 2006, the JCR project concluded with the flight testing of the lightweight nosecone in Joint Control Test Vehicle-1 (JCTV-1).

Aegis BMD and the Japan Ministry of Defense (JMOD) have undertaken an SM-3 Cooperative Development (SCD) program, which consists of a spiral upgrade of the SM-3 Blk IB missile to a 21-inch diameter SM-3 missile (SM-3 Blk IIA). The objective of the SCD project is the development and initial at-sea flight test of the SM-3 Blk IIA missile. The SM-3 Blk IIA missile will increase the area that can be defended by Aegis BMD and increase the probability of kill against a larger threat set. It will leverage enhanced capability provided by BMDS sensor upgrades. The SM-3 Blk IIA missile development will build upon established joint research investments by both the U.S. and Japan. The system analysis, system trade studies, and BMD system performance goals established in the U.S./Japan BMD Joint Analysis (JAWS) completed in March 2005 are the foundation for developing the SM-3 Blk IIA missile. Key technology improvements over the current SM-3 Blk IA missile planned for the SM-3 Blk IIA missile include a significant increase in velocity and range provided by a 21-inch diameter rocket motor propulsion stack, and increased seeker sensitivity and divert capability incorporated in an advanced kinetic warhead. Key component technologies to be developed under this Annex include, but are not limited to: Lightweight nosecone, advanced kinetic warhead, 21-inch second stage rocket motor, and 21-inch third stage rocket motor. The U.S. and Japan will equitably share both work and cost.

The Scope of Work of the SCD project can be defined in three phases:

Phase I implements the SCD scope of work as it was defined in the original annex, taking the program through completion of the SDR. Aegis BMD will execute risk reduction efforts for the propulsion, nosecone, seeker and DACS development efforts and test plans, and conduct requirements definition for the SM-3 Blk IIA missile configuration. Phase I will also initiate information exchange related to production and maintenance of the SM-3 Blk IIA missile and introduce the phased engineering approach. Upon completion of requirements definition, a schedule for development and testing, and work share and cost share for development and testing will be refined.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>

Phase II will capture program changes as set out in the first planned amendment, and refine the scope of work from SDR to completion of the CDR. Aegis BMD will refine requirements and define the performance allocation and component configuration for the development and testing of the SM-3 Blk IIA missile, and both parties will design, fabricate, test, and evaluate the SM-3 Block IIA missile. Both parties will continue the information exchanges related to production and maintenance in Phase II.

Phase III will capture program changes as set out in the second planned amendment, and refine 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.

BMD Systems Engineering:

BMD Systems Engineering provides System Description Documents and System Specifications for elements to design, build, integrate and test BMDS components. These products optimize performance at the system level and further ensure that the assessment of the designed BMD System is based on sufficient ground and flight testing. Aegis BMD compliance with BMD System level requirements is monitored in a series of requirements and design reviews both at the system and element levels.

Unifying Missile Defense Functions:

MDA has a set of Unifying Missile Defense Functions (UMDFs), which increase the effectiveness of the BMD System (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. These UMDF efforts are Sensor Registration (reporting of sensor errors / biases), Correlation (ensuring the information from multiple sensors seeing a threat relates to the same object), 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). UMDFs are 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 all ranges of ballistic threats.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>
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Common Threat Engineering:

Common threat engineering produces common and consistent adversary trajectory and signature data to enable BMD System and sub-system concept and requirements, design, verification, and assessment. Common Threat data is contained in the Adversary Capability Document (ACD) and Adversary Data Packages (ADP) and drives BMDS ground tests, flight tests, digital simulations, and pre-mission analysis activities. It is also used to develop the BMD System Description Document and BMD System Specification.

BMDS Hardware In The Loop (HWIL):

The BMD Single Stimulation Framework (SSF) utilizes HWIL assets to support primarily BMDS ground testing, pre and post flight test mission construction and reconstruction, portions of the training capability, Wargames, exercises and BMDS contingency studies, as well as various other use cases to enable BMDS performance in a simulated environment. Each BMDS Element supports the M&S Program by providing HWIL representations ready for integration into the BMDS system-level framework to support full-envelope BMDS ground test, flight test, and training events based upon Agency and Warfighter needs.

Proving Missile Defense:

Working with the Services' Operational Test Agencies (OTA), with the support of the Director of Operational Test and Evaluation (DOT&E), MDA has 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 BMDS performance evaluation strategy is to develop models and simulations of the BMDS and compare their predictions to empirical data collected through comprehensive flight and ground testing to validate their accuracy, rather than physically testing all possible combinations of BMDS configurations, engagement conditions, and target phenomena. The BMDS test review determined how to validate our models and simulations so that our war fighting commanders have

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>
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confidence in the predicted performance of the BMDS, especially when those commanders consider employing the BMDS in ways other than originally planned or against threats unknown at this time.

The test plan review resulted in a Integrated Master Test Plan (IMTP) that 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 rigorously demonstrates the capabilities of the BMDS.

MiDAESS:

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the BMDS mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the Agency, centralize the acquisition of support services manpower in a more efficient manner and reduce Agency overhead cost. A&AS support includes engineering and technical services; studies, analyses, and evaluations; and management and professional services.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	255.987	318.800	0.000	318.800
Total Adjustments	0.000	255.987	318.800	0.000	318.800
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		255.987			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustment Detail	0.000	0.000	318.800	0.000	318.800

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY
0400: *Research, Development, Test & Evaluation, Defense-Wide*
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 ITEM NOMENCLATURE
PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*

Change Summary Explanation

Beginning in FY 2010, funding was transferred to this PE from PE 0603892C, Ballistic Missile Defense Aegis, per Congressional direction.

No FY 2011 data provided in PB10.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>				PROJECT MD09: <i>SM-3 Block IIA Co-Development</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD09: <i>SM-3 Block IIA Co-Development</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

The U.S./Japan Joint Cooperative Research (JCR) program conducted cooperative research in Ballistic Missile Defense. The research focused on the development of advanced missile technologies in four components of the SM-3 guided missile: sensor, advanced kinetic warhead, second stage propulsion and lightweight nosecone. In FY 2006, the JCR project concluded with the flight testing of the lightweight nosecone in Joint Control Test Vehicle-1 (JCTV-1).

In addition, the U.S. and Japan have a mutual interest in the evolutionary development of improvements to the SM-3. In FY 2006, the two countries signed a MOU for the co-development of an upgraded, 21-inch diameter SM-3 missile (SM-3 Blk IIA). The objective of the SCD project is the development and initial at-sea flight test of the SM-3 Blk IIA missile. The SM-3 Blk IIA missile will increase the area that can be defended by Aegis BMD and increase the probability of kill against a larger threat set. It will leverage enhanced capability provided by BMDS sensor upgrades. The SM-3 Blk IIA missile development will build upon established joint research investments by both the U.S. and Japan. The system analysis, system trade studies, and BMD system performance goals established in the U.S./Japan BMD Joint Analysis (JAWS) completed in March 2005 are the foundation for developing the SM-3 Blk IIA missile. Key technology improvements over the current SM-3 Blk IA missile planned for the SM-3 Blk IIA missile include a significant increase in velocity and range provided by a 21-inch diameter rocket motor propulsion stack, and increased seeker sensitivity and divert capability incorporated in an advanced kinetic warhead. Key component technologies to be developed under this Annex include, but are not limited to: Lightweight nosecone, advanced kinetic warhead, 21-inch second stage rocket motor, and 21-inch third stage rocket motor.

The U.S. and Japan will equitably share both work and cost.

The Scope of Work of the SCD project can be defined in three phases:

Phase I implements the SCD scope of work as it was defined in the original annex, taking the program through completion of the SDR. Aegis BMD will execute risk reduction efforts for the propulsion, nosecone, seeker and DACS development efforts and test plans, and conduct requirements definition for the SM-3 Blk IIA missile

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	PROJECT MD09: <i>SM-3 Block IIA Co-Development</i>
<p>configuration. Phase I will also initiate information exchange related to production and maintenance of the SM-3 Blk IIA missile and introduce the phased engineering approach. Upon completion of requirements definition, a schedule for development and testing, and work share and cost share for development and testing will be refined.</p> <p>Phase II will capture program changes as set out in the first planned amendment, and refine the scope of work from SDR to completion of the CDR. Aegis BMD will refine requirements and define the performance allocation and component configuration for the development and testing of the SM-3 Blk IIA missile, and both parties will design, fabricate, test, and evaluate the SM-3 Block IIA missile. Both parties will continue the information exchanges related to production and maintenance in Phase II.</p> <p>Phase III will capture program changes as set out in the second planned amendment, and refine 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.</p> <p>The SCD project will:</p> <ul style="list-style-type: none">Develop components for the SM-3 Blk IIA missile and integrate them into an All Up Round (AUR).21`` 2nd and 3rd stage components21`` noseconeAdvanced kinetic warheadAdvanced SeekerImproved Large Diameter Divert and Attitude Control System <p>Begin engineering of the Aegis Weapon System to exploit the capability of the SM-3 Blk IIA missile and use of threat track data from BMDS sensors.</p> <p>Integrate the SM-3 Blk IIA missile and VLS with Aegis ship systems</p> <p>Includes development of a light weight VLS canister Conduct test and evaluation using ground and flight tests SM-3 Blk IIA missile Aegis BMD ship systems Aegis BMD weapon system</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	PROJECT MD09: <i>SM-3 Block IIA Co-Development</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	PROJECT MD09: <i>SM-3 Block IIA Co-Development</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The SM-3 Cooperative Development program for the SM-3 Blk IIA missile will utilize a performance-based approach that ties program decision milestones to the performance of development prototypes, as well as Control Test Vehicle and Guidance 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.

If a decision is made to do so, the Land-Based SM-3 project will follow MDA's capability-based acquisition strategy that emphasizes testing, spiral development and evolutionary acquisition. The details of this plan will be approved in FY 2010.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

Competition will be used for procurement of any products or services in FY 2011, when appropriate.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	PROJECT MD09: <i>SM-3 Block IIA Co-Development</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SM-3 Blk IIA Development (SCD) SM-3 Blk IIA DEVELOPMENT - MISSILE MD09	SS/CPAF	RAYTHEON AZ	144.272	212.655		250.736		0.000		250.736	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - MISSILE - 2010145023908 MD09	TBD/TBD	NSWC/DD/VA VA	5.989	4.021		1.450		0.000		1.450	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT MD09	TBD/TBD	JHU/APL MD	6.845	8.281		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - 2010145023923 MD09	TBD/TBD	MIT/LL MA	2.566	0.876		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - 2010145023928 MD09	TBD/TBD	NSWC/PHD CA	5.989	0.502		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA	TBD/TBD	NSWC IH MD	5.133	0.076		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	PROJECT MD09: <i>SM-3 Block IIA Co-Development</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DEVELOPMENT - 2010145023934 MD09													
SM-3 BIK IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - 2010145023941 MD09	TBD/TBD	VARIOUS VARIOUS	3.457	3.706		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 BIK IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - AWS MD09	SS/CPAF	LOCKHEED MARTIN NJ	0.000	12.500		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 BIK IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT MD09	TBD/TBD	BAE MD	0.000	11.070		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 BIK IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - 2010145023956 MD09	TBD/TBD	SEG CA	0.000	2.300		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 BIK IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - MISSILE MD09	TBD/TBD	VARIOUS VA, MD, NJ	0.000	0.000		22.200		0.000		22.200	Continuing	Continuing	Continuing
SM-3 BIK IIA Development (SCD)	SS/CPIF	LOCKHEED MARTIN	0.000	0.000		15.625		0.000		15.625	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	PROJECT MD09: <i>SM-3 Block IIA Co-Development</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SM-3 BLK IIA DEVELOPMENT - AWS MD09		MOORESTOWN, NJ											
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - AWS - 2010145063238 MD09	C/CPIF	LOCKHEED MARTIN BALTIMORE, MD	0.000	0.000		2.100		0.000		2.100	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - AWS - 2010145063242 MD09	TBD/TBD	PEO IWS MINNEAPOLIS, MN	0.000	0.000		18.600		0.000		18.600	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - AWS - 2010145063245 MD09	TBD/TBD	VARIOUS MD, VA	0.000	0.000		6.550		0.000		6.550	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - T&E MD09	TBD/TBD	VARIOUS MD, VA, CA	0.000	0.000		1.539		0.000		1.539	Continuing	Continuing	Continuing
Subtotal			174.251	255.987		318.800		0.000		318.800			

Remarks

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	PROJECT MD09: <i>SM-3 Block IIA Co-Development</i>
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Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	PROJECT MD09: <i>SM-3 Block IIA Co-Development</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Remarks NA													
			Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract			
Project Cost Totals			174.251	255.987	318.800	0.000	318.800						

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	PROJECT MD09: <i>SM-3 Block IIA Co-Development</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
SM-3 Blk IIA System Design Review (SDR)	■																											
SM-3 Blk IIA Preliminary Design Review (PDR)													■															
SM-3 Blk IIA Critical Design Review (CDR)																	■											

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	PROJECT MD09: <i>SM-3 Block IIA Co-Development</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
SM-3 Blk IIA System Design Review (SDR)	1	2009	1	2009
SM-3 Blk IIA Preliminary Design Review (PDR)	1	2012	1	2012
SM-3 Blk IIA Critical Design Review (CDR)	1	2013	1	2013

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	Continuing	Continuing
MD10: <i>Precision Tracking Space System (PTSS)</i>	0.000	0.000	64.716	0.000	64.716	119.322	178.793	337.438	466.016	Continuing	Continuing
MD40: <i>Program-Wide Support</i>	0.000	0.000	2.253	0.000	2.253	4.529	6.007	10.922	16.936	Continuing	Continuing

Note

Space-based missile defense sensors are required in the Ballistic Missile Defense System to successfully overcome the adversaries' future ballistic missile capabilities. Additionally, space-based sensors offer on-demand, geographically independent, persistent coverage with no need for Indications and Warning, enabling earlier intercept opportunities. With the successful launch of the two Space Tracking and Surveillance System (STSS) demonstration spacecraft on September 25, 2009, the agency has assets on-orbit to inform the design and operation of the Precision Tracking Space System (PTSS) prototype. The Precision Tracking Space System is a new start in FY 2011.

A. Mission Description and Budget Item Justification

The FY 2011 program is balanced, reflecting the goals of the current Missile Defense Program: Continue a defense of the territory of the United States against rogue nation ballistic missile threats, Enhance missile defense to defend our deployed forces, allies, and friends against regional threats, Prove our Ballistic Missile Defense System works before making production decisions, Deliver reliable, high quality, and fiscally sustainable missile defense products, and develop future missile defense capabilities that are adaptable and responsive to intelligence based judgments including defeating large missile raid sizes of all ranges early in their flight.

The best way to dissuade, deter, and defeat ballistic 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 missile defense capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide both the best sensor information on the enemy missile's location and track as well as a more diverse and effective set of weapon options for the Combatant Commander to defeat the attack - all connected by a unifying command, control, battle management and communication system. As a result, an effort funded in a Program Element may be critical to the success of efforts in other Program Elements - we refer to these connections as "interdependencies." Throughout the budget justification material, we have attempted to highlight interdependencies in order to fully explain the relationship between different parts of the proposed program.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>
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Our submission reflects the greater emphasis on defense of U.S. forces, allies, and friends from regional threats posed by thousands of short- and medium-range ballistic missiles. The most cost-effective missile defense architecture is one that emphasizes intercepts of a threat missile in the early phases of flight. The BMDS sensors can observe early intercepts to determine if a second or third intercept attempt is necessary. Additionally, intercepting earlier in the flight forces the threat to deploy countermeasures early, decreasing their effectiveness.

As the Department shifts focus to address the looming threat of regional forces in large numbers, we've aligned our sensors' investments with these objectives. Our systems engineering and architecture work uncovered gaps in our ability to 1) address large raid sizes, and 2) intercept the enemy early in his trajectory when the enemy is most vulnerable - assess - then reengage if necessary.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	66.969	0.000	66.969
Total Adjustments	0.000	0.000	66.969	0.000	66.969
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustment Detail	0.000	0.000	66.969	0.000	66.969

Change Summary Explanation

In FY10 the MDA Engineering and Advanced Technology Directorates will conduct requisite system architecture studies and system engineering to define space-born sensor system capability needs that will provide the system engineering foundation for the FY11 new start.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>

No FY 2011 data provided in PB10.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING</i> <i>SPACE SYSTEM</i>				PROJECT MD10: <i>Precision Tracking Space System</i> <i>(PTSS)</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD10: <i>Precision Tracking Space System (PTSS)</i>	0.000	0.000	64.716	0.000	64.716	119.322	178.793	337.438	466.016	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

The Precision Tracking Space System (PTSS) is a new start in FY 2011.

A. Mission Description and Budget Item Justification

This Program Element encompasses and funds the development of space-borne sensor systems. As threats expand and mature, the need for continuously available sensors and faster interceptors supports investment in a Precision Tracking Space System development beginning in FY 2011. Lessons learned from the two demonstration spacecraft currently on orbit, will guide our decisions on the development of a fiscally sustainable, continuously available, operational precision track space system constellation.

The greatest hedge against missile defense threats of greatest concern, regional MRBMs and IRBMs, remains a highly available early missile tracking capability from space. A goal of this effort is to prove the effectiveness of a Precision Tracking Space System by developing, launching and operating a set of prototypes by FY 2014. The Precision Tracking Space System prototype will demonstrate early, precise, real-time tracking of ballistic missiles. This capability significantly improves BMDS performance and the associated functionalities, when approved, will be captured in future BMDS Integrated Build documentation.

In the near term, planned terrestrial (surface and airborne) sensor network will be augmented with precision tracking from space. Precision Tracking Space System avoids some of the challenges of terrestrial sensors.

- Eliminates the need for host nation agreements.
- Does not require transport to theater or limit our operational flexibility.
- Limits impacts of weather effects (clouds for airborne, crosswinds and icing, rain for radar).
- Robust to surprise - can deal with threats arising from unexpected locations or adversaries.
- Lowers operation and maintenance costs.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	PROJECT MD10: <i>Precision Tracking Space System (PTSS)</i>
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Observes deep launches.

Precision Tracking Space System supports essential BMDS functions by:

- Continuously observing the regional ballistic missile threat in post-boost.
- Sending fire-control quality tracks to interceptors - enabling full engagement of the raid.
- Tracking large raids of nearly simultaneously launched missiles - enabling full engagement of the raid.
- Providing radiometric data supporting challenging post-boost detection requirements, object classification, and hit/kill assessments.
- Adding infrared-based tracking to the existing radio frequency sensors in the architecture.

Goals for the Precision Tracking Space System are:

- Develop an operational, end-to-end, missile tracking capability from space focusing on regional MRBMs and IRBMs.
- Begin the operational approach by developing and testing a space system prototype and integrated ground system with BMDS to precisely track missiles with a sufficient Quality of Service (QOS) (that is, sufficient accuracy and low enough latency) to enable Command and Control, Battle Management and Communications (C2BMC) to provide sensor data to BMDS interceptors to defeat large raids of theater and regional threats.
- Establish the technical and programmatic foundation for procuring the operational system.
- Develop space qualified technology to hedge against future missile threat growth.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Precision Tracking Space System See Description Below <i>FY 2009 Accomplishments:</i> NA	0.000	0.000	64.716	0.000	64.716

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	PROJECT MD10: <i>Precision Tracking Space System (PTSS)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Allocate requirements, interface controls, and operations concepts, for the end-to-end system. Deliver on-orbit prototype(s) in less than 51 months. Award contracts to industry for joint government, defense lab, and industry for Systems Engineering and Integration during Precision Tracking Space System prototyping (i.e. bring industry in early). Compete operational system procurement upon successful completion of integration, verification and validation of the prototype satellite(s). FY 2011 OCO Plans: NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	64.716	0.000	64.716

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	PROJECT MD10: <i>Precision Tracking Space System (PTSS)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	PROJECT MD10: <i>Precision Tracking Space System (PTSS)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>											
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

MDA's FY 2011 budget submission reflects an emphasis on early intercept research and development. The acquisition strategy to conduct this technology effort consists of three focus areas.

First, Precision Tracking Space System will leverage the technical expertise of Federally Funded Research and Development Centers, University Affiliated Research Centers, National and DoD Laboratories. A national lab team will develop the PTSS prototype
 Second, PTSS Precision Tracking Space System will involve industry early in the laboratory-led prototype phase awarding up to 5 contracts to join the PTSS Integrated System Engineering Team.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	PROJECT MD10: <i>Precision Tracking Space System (PTSS)</i>
<p>Third, the operational acquisition results from a competitively awarded contract with industry and founded on a fly-before-you-buy philosophy. The prototype effort is planned to define the system performance and industry will focus on cost-effective manufacturability.</p> <p>MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.</p> <p><u>E. Performance Metrics</u> NA</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	PROJECT MD10: <i>Precision Tracking Space System (PTSS)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Precision Tracking Space System System Definition MD10	Various/ Various	Various Various	0.000	0.000		25.407		0.000		25.407	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	PROJECT MD10: <i>Precision Tracking Space System (PTSS)</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Precision Tracking Space System Risk Reduction MD10	Various/ Various	Various Various	0.000	0.000		33.179		0.000		33.179	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		58.586		0.000		58.586			

Remarks
NA

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Precision Tracking Space System MDA Civilians MD10	TBD/TBD	MDA Various	0.000	0.000		1.522		0.000		1.522	Continuing	Continuing	Continuing
Precision Tracking Space System OGA Civilians MD10	TBD/TBD	NRL Various	0.000	0.000		0.348		0.000		0.348	Continuing	Continuing	Continuing
Precision Tracking Space System Travel and Transportation MD10	TBD/TBD	MDA Various	0.000	0.000		0.130		0.000		0.130	Continuing	Continuing	Continuing
Precision Tracking Space System	Various/ Various	Various Various	0.000	0.000		4.130		0.000		4.130	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	PROJECT MD10: <i>Precision Tracking Space System (PTSS)</i>
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Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Support Services MD10													
Subtotal			0.000	0.000		6.130		0.000		6.130			

Remarks
NA

Project Cost Totals	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
		0.000	0.000	64.716	0.000	64.716		

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	PROJECT MD10: <i>Precision Tracking Space System (PTSS)</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Space Tracking and Surveillance System Demonstration Tests and Planned Mission Life				■	■	■	■	■	■	■	■	■																
Precision Tracking Space System Prototype Initiation									■																			
Industry as part of Precision Tracking Space System Prototype Integrated Systems Engineering Team (ISET)									■	■	■	■	■	■	■	■	■											
Prototype Concept Development									■	■	■	■																
Prototype System Design Review										■																		
Prototype Preliminary Design Review												■																
Prototype Critical Design Review																■												
Prototype Independent Verification & Validation																				■								
Prototype Launch																											■	
Precision Tracking Space System Operational System Development & Deployment																					■	■	■	■	■	■	■	■

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	PROJECT MD10: <i>Precision Tracking Space System (PTSS)</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Space Tracking and Surveillance System Demonstration Tests and Planned Mission Life	4	2009	4	2011
Precision Tracking Space System Prototype Initiation	1	2011	1	2011
Industry as part of Precision Tracking Space System Prototype Integrated Systems Engineering Team (ISET)	1	2011	1	2013
Prototype Concept Development	1	2011	4	2011
Prototype System Design Review	2	2011	2	2011
Prototype Preliminary Design Review	4	2011	4	2011
Prototype Critical Design Review	1	2013	1	2013
Prototype Independent Verification & Validation	2	2014	2	2014
Prototype Launch	1	2015	1	2015
Precision Tracking Space System Operational System Development & Deployment	1	2013	4	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING</i> <i>SPACE SYSTEM</i>	PROJECT MD40: <i>Program-Wide Support</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>MD40: Program-Wide Support</i>	0.000	0.000	2.253	0.000	2.253	4.529	6.007	10.922	16.936	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support See Description Below <i>FY 2009 Accomplishments:</i> NA <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA	0.000	0.000	2.253	0.000	2.253

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING</i> <i>SPACE SYSTEM</i>	PROJECT MD40: <i>Program-Wide Support</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	2.253	0.000	2.253

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
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• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING</i> <i>SPACE SYSTEM</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604883C: <i>PRECISION TRACKING</i> <i>SPACE SYSTEM</i>	PROJECT MD40: <i>Program-Wide Support</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	Continuing	Continuing
MD67: <i>Airborne Infrared (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	Continuing	Continuing

Note

Airborne Infrared Sensor program is a new start for FY 2011.

For all Ballistic Missile Defense System Level Test Schedule information, please refer to the Ballistic Missile Defense System Level Test Schedule.

A. Mission Description and Budget Item Justification

The best way 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 (C2BMC). 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 BMD capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide both the best sensor information on the enemy missile's location and track as well as a more diverse and effective set of weapon options for the Combatant Commander to defeat the attack -- all connected by a unifying C2BMC system. As a result, an effort funded in a Program Element may be critical to success of efforts in other Program Elements -- we refer to these connections as ``interdependencies.`` Throughout the budget justification material, we have attempted to highlight interdependencies in order to fully explain the relationship between different parts of the proposed program.

Our submission reflects the greater emphasis on defense of U.S. forces, allies, and friends from regional threats posed by thousands of short- and medium-range ballistic missiles. The most cost-effective missile defense architecture is one that emphasizes intercepts of a threat missile in the early phases of flight. BMDS sensors can observe early intercepts the opportunity to shoot, assess, and shoot again, minimizing the need for costly salvos. Additionally, engaging earlier will serve to mitigate threat countermeasure effectiveness.

As the Department shifts focus to address the looming threat of regional forces in large numbers, we aligned our technology investments with these objectives. Our systems engineering and architecture work uncovered gaps in our ability to 1) address large raid sizes, and 2) intercept the enemy early in his trajectory when the enemy is most vulnerable - assess - then reengage if necessary. We demonstrated the ability of infrared sensors carried aboard Navy Reaper unmanned aerial

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systems to observe ballistic missiles in flight at long distance during the ``Stellar Daggers`` test in Hawaii and the Delta II launch in California. The impressive results of these tests lead us to believe airborne sensors can be an effective component of the Ballistic Missile Defense System as early as 2015.

Our technology development effort proves the capabilities needed to achieve early intercepts by conducting a series of ground and flight tests in FY 2010 - 2012, which allow a thorough operational assessment and proof of capability. These demonstrations incrementally prove the key functions of an airborne infrared sensor: acquisition of a threat based on a cue from Overhead Persistent Infrared satellites; tracking of a threat throughout its flight; generation of a 2-dimensional track prediction of the threat`s flight path based on a single airborne sensor; fusing multiple 2-dimensional tracks into a 3-dimensional track with sufficient accuracy to launch an interceptor; and delivering this information through the C2BMC system to the shooter.

The Phased Adaptive Approach (PAA) was developed in response to the rapid proliferation of short and medium range ballistic missiles in Iran and the threat they pose to U.S. Allies and partners, as well as to U.S. deployed personnel and their accompanying families in the Middle East and in Europe. By leveraging recent advances in sensor and interceptor technologies, the United States will aggressively counter this growing regional threat with a more powerful and agile system. The United States is pursuing a four phased approach which will provide a more effective missile defense capability for defense of NATO territories and enhance U.S. homeland defense, it will be complementary of and interoperable with those being developed by NATO, be applicable in other theaters around the world, and will be more adaptable and flexible in order to counter threat advances and provide increased defended areas over time. The initial phase includes the deployment of current and proven missile defense, including the sea-based Aegis Weapons System, the SM-3 interceptor (Block IA), and sensors such as the forward-based Army Navy/Transportable Radar Surveillance system (AN/TPY-2). Subsequent phases will be implemented based on technical maturity, appropriate testing, and threat driven requirements. Airborne Infrared Sensors are planned as a Phase 2 capability for the Phased Adaptive Approach and the associated functionality will be captured in future BMDS Integrated Build documentation when approved.

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	111.671	0.000	111.671
Total Adjustments	0.000	0.000	111.671	0.000	111.671
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustment Detail	0.000	0.000	111.671	0.000	111.671

Change Summary Explanation

No FY 2011 data provided in PB10.

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	PROJECT MD67: <i>Airborne Infrared (ABIR)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD67: <i>Airborne Infrared (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	Continuing	Continuing
Quantity of RDT&E Articles	0	0	1	0	1	0	0	0	0		

Note

A. Mission Description and Budget Item Justification

Tracking enemy ballistic missile raids with airborne sensors forward in the theater closes the gap between the enemy's launch and our first track. Depending on the range of the threat, this could increase our battle space by hundreds of seconds and give us the ability to shoot, look, then shoot again. This significantly improves the probability that our Ballistic Missile Defense System will successfully engage the threat and defeat it.

In FY 2010 we took the first steps in exploring this nascent capability. In October, we began assessing platform and sensor alternatives with MIT's Lincoln Laboratory and our partners at the Joint Integrated Air and Missile Defense Organization. This effort will point the way to the vehicle most suited to fill this role among a group of candidates including the currently deployed MQ-9 Reaper and RQ-4 Global Hawk. At the same time, we're engaging with Joint Forces Command and the Combatant Commanders (COCOM) to develop a concept of operations for adding this mission to the Nation's unmanned aerial systems fleet. Armed with the results of the alternatives assessment, we will work with industry, the Combatant Commanders and the services to modify and test the chosen platform and sensor combination.

Meanwhile we're executing an experimental plan that leverages existing platforms and sensors through a series of knowledge points targeted at proving the capability. These knowledge points include proving sensor performance, target auto tracking, raid handling capacity, secure communications and system Quality of Service (QoS) (that is, data of sufficient accuracy and low enough latency) to enable Command and Control, Battle Management and Communications (C2BMC) and BMDS interceptors to complete ballistic missile engagements. Our development and test plan progresses from computer-in-the-loop to hardware-in-the-loop experiments to incrementally verify and validate functionality. These experiments culminate in Aegis intercept flight tests using primarily airborne sensors for fire control at the Pacific Missile Range Facility in Hawaii in the summer of 2012. This testing, interspersed with regular campaigns in theater, lead to an operationally useful architecture as early as 2015.

Goals for Airborne Infrared Sensor program

Develop and test prototypes that integrate with the operational layers of the BMDS to provide precise early missile track information with a sufficient Quality of Service of Command and Control, Battle Management and Communications (C2BMC) and sensor data for engaging theater, regional, and strategic threats.

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Prove the ability of airborne sensors to execute early intercept of regional ballistic missiles.
Deliver knowledge to enable acquisition decisions to procure and field an operational system.

We will employ Knowledge Points to execute our airborne sensors development and test plan that leverages existing platform and sensor systems resulting in an experimental capability in FY 2012 and an operational capability in FY 2015.

Knowledge Points

- Verify sensor field of view.
- Verify sensor performance.
- Verify sensor auto tracking capability.
- Verify 3-D tracking performance.
- Assess raid handling capability.
- Verify track quality.
- Launch interceptor on Airborne Infrared sensor tracks.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ABIR	0.000	0.000	105.671	0.000	105.671
See Description Below					
<i>FY 2009 Accomplishments:</i>					
<i>FY 2010 Plans:</i>					
<i>FY 2011 Base Plans:</i>					
Modify sensors					
Demonstrate sensor field of regard					
Deliver software to experiments` software/hardware in the loop and platforms					
Deliver System Engineering Modeling and Simulation drops					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	PROJECT MD67: <i>Airborne Infrared (ABIR)</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Deliver 1 platform and ground station Demonstrate Sensor Performance Demonstrate Target Auto Tracking Functionality Demonstrate 3-Dimensional Tracking Performance Demonstrate Multiple Target Tracking Functionality Demonstrate software functionality in hardware in the loop testing Demonstrate airborne sensors risk reduction capability BMDS and targets of opportunity flight testing <i>FY 2011 OCO Plans:</i> NA						
ABIR Fielding See Description Below <i>FY 2009 Accomplishments:</i> <i>FY 2010 Plans:</i> <i>FY 2011 Base Plans:</i> Site planning and associated designs required for the FY 2015 fielding of Airborne Infrared assets. <i>FY 2011 OCO Plans:</i> NA		0.000	0.000	6.000	0.000	6.000
Accomplishments/Planned Programs Subtotals		0.000	0.000	111.671	0.000	111.671

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	PROJECT MD67: <i>Airborne Infrared (ABIR)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

MDA's fiscal year FY 2010 budget submission reflected an emphasis on early intercept research and development. The acquisition strategy to conduct this technology development effort consists of three focus areas. First, leverage the technical expertise of Federally Funded Research and Development Centers and University Applied Research Centers. Second, continue to leverage relevant existing contracts within the limits of Competition and Contracting Act taking into account contractor past performance, scope, ceiling and period of performance. Third, for new technology initiatives, seek industry solutions via the Advanced Technology Broad Agency Announcement and competitive procurements.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	PROJECT MD67: <i>Airborne Infrared (ABIR)</i>
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Product Development (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ABIR Airborne Infrared Sensors MD67	Various/ Various	Various Various	0.000	0.000		57.800		0.000		57.800	76.300	134.100	134.100
Subtotal			0.000	0.000		57.800		0.000		57.800	76.300	134.100	134.100

Remarks
NA

Support (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ABIR Research MD67	TBD/TBD	MIT/LL Lexington, MA	0.000	0.000		20.971		0.000		20.971	33.500	54.471	54.400
ABIR Fielding Planning & Design MD67	TBD/TBD	TBD TBD	0.000	0.000		6.000		0.000		6.000	0	6.000	0
Subtotal			0.000	0.000		26.971		0.000		26.971	33.500	60.471	54.400

Remarks
NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	PROJECT MD67: <i>Airborne Infrared (ABIR)</i>
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Test and Evaluation (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ABIR Testing MD67	Various/ Various	Various Various	0.000	0.000		21.200		0.000		21.200	32.100	53.300	53.300
Subtotal			0.000	0.000		21.200		0.000		21.200	32.100	53.300	53.300

Remarks
Airborne Infrared Sensor Program support for the Missile Defense Agency Integrated Master Test Plan execution equates to : FY 2011 \$11.789M, FY 2012 \$8.998M, FY 2013 \$10.686M, FY 2014 \$13.986M, FY 2015 \$7.9M.

Management Services (\$ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ABIR Program Management MD67	Various/ Various	MDA MIT/LL	0.000	0.000		5.700		0.000		5.700	15.100	20.800	20.800
Subtotal			0.000	0.000		5.700		0.000		5.700	15.100	20.800	20.800

Remarks
NA

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		0.000	0.000	111.671	0.000	111.671	157.000	268.671	262.600

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency							DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>			R-1 ITEM NOMENCLATURE PE 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>			PROJECT MD67: <i>Airborne Infrared (ABIR)</i>			
	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks NA									

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	PROJECT MD67: <i>Airborne Infrared (ABIR)</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Knowledge Points 1&2 - Verify sensor field of view and performance (Demonstrate airborne sensor risk reduction)									■																			
Knowledge Point 3 - Verify auto tracking capability (Demonstrate airborne sensor risk reduction)										■																		
Knowledge Point 4 - Verify 3-D tracking performance (Demonstrate airborne sensor risk reduction)											■																	
Knowledge Point 5 - Assess raid handling capability (Demonstrate airborne sensor risk reduction)												■																
Knowledge Point 6 - Verify ABIR track quality (Demonstrate airborne sensor risk reduction)													■															
Knowledge Point 7 - Launch on ABIR (Demonstrate airborne sensor risk reduction)															■													
Early Intercept Test Schedule information: refer to the Ballistic Missile Defense System Level Test Schedule									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Modify long lead sensors 1									■																			
Modify long lead sensors 2												■																
Deliver software build to experiments software/hardware in the loop and platforms FY 2011									■	■	■	■																
										■																		

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	PROJECT MD67: <i>Airborne Infrared (ABIR)</i>
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Deliver software build to experiments software/hardware in the loop and platforms																												
Deliver software build to experiments software/hardware in the loop and platforms FY 2012-2015												■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Deliver platform and ground station 1												■																
Deliver platform and ground station 2													■															
Deliver platform and ground station 3															■													
Deliver platform and ground station 4																						■						
Deliver platform and ground station 5																											■	
Demonstrate software functionality in the hardware loop test									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
System Engineering (Modeling & Simulation Drops)									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
System Engineering 1 (Modeling & Simulation Drop 4)										■																		
System Engineering 2 (Modeling & Simulation Drop 5)											■																	
System Engineering 3 (Modeling & Simulation Drop 6)												■																
Acquisition procurement milestone to procure operational assets for fielding in FY2015																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	PROJECT MD67: <i>Airborne Infrared (ABIR)</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Knowledge Points 1&2 - Verify sensor field of view and performance (Demonstrate airborne sensor risk reduction)	1	2011	1	2011
Knowledge Point 3 - Verify auto tracking capability (Demonstrate airborne sensor risk reduction)	2	2011	2	2011
Knowledge Point 4 - Verify 3-D tracking performance (Demonstrate airborne sensor risk reduction)	3	2011	3	2011
Knowledge Point 5 - Assess raid handling capability (Demonstrate airborne sensor risk reduction)	4	2011	4	2011
Knowledge Point 6 - Verify ABIR track quality (Demonstrate airborne sensor risk reduction)	1	2012	1	2012
Knowledge Point 7 - Launch on ABIR (Demonstrate airborne sensor risk reduction)	3	2012	3	2012
Early Intercept Test Schedule information: refer to the Ballistic Missile Defense System Level Test Schedule	1	2011	4	2015
Modify long lead sensors 1	1	2011	1	2011
Modify long lead sensors 2	4	2011	4	2011
Deliver software build to experiments software/hardware in the loop and platforms FY 2011	1	2011	4	2011
Deliver software build to experiments software/hardware in the loop and platforms	2	2011	2	2011
Deliver software build to experiments software/hardware in the loop and platforms FY 2012-2015	1	2012	4	2015
Deliver platform and ground station 1	3	2011	3	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	PROJECT MD67: <i>Airborne Infrared (ABIR)</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Deliver platform and ground station 2	3	2012	3	2012
Deliver platform and ground station 3	3	2013	3	2013
Deliver platform and ground station 4	3	2014	3	2014
Deliver platform and ground station 5	3	2015	3	2015
Demonstrate software functionality in the hardware loop test	1	2011	4	2015
System Engineering (Modeling & Simulation Drops)	1	2011	4	2015
System Engineering 1 (Modeling & Simulation Drop 4)	2	2011	2	2011
System Engineering 2 (Modeling & Simulation Drop 5)	3	2011	3	2011
System Engineering 3 (Modeling & Simulation Drop 6)	4	2011	4	2011
Acquisition procurement milestone to procure operational assets for fielding in FY2015	2	2012	2	2012

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605502C: <i>Small Business Innovative Research BMDO</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
ZX45: <i>Small Business Innovative Research (SBIR)</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788

Note

NA

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 technologies that can also be commercialized. The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs will develop new dual-use technologies for possible future MDA BMDS needs. Dual-use means that the technologies will also be judged on their potential for future private sector investment both as a vehicle for reducing development time and cost, unit costs of new MDA BMDS technologies, and as a route to national economic growth through new commercial products. MDA will conduct the competition and will award and manage the contracts with assistance from our executing agents.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	124.788	0.000	0.000	0.000	0.000
Total Adjustments	124.788	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	124.788	0.000			
• Other Adjustment Detail	0.000	0.000	0.000	0.000	0.000

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R-1 Line Item #151

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY
0400: *Research, Development, Test & Evaluation, Defense-Wide*
BA 6: *RDT&E Management Support*

R-1 ITEM NOMENCLATURE
PE 0605502C: *Small Business Innovative Research BMDO*

Change Summary Explanation

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605502C: <i>Small Business Innovative Research BMDO</i>	PROJECT ZX45: <i>Small Business Innovative Research (SBIR)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>ZX45: Small Business Innovative Research (SBIR)</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NA

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 technologies that can also be commercialized. The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs will develop new dual-use technologies for possible future MDA BMDS needs. Dual-use means that the technologies will also be judged on their potential for future private sector investment both as a vehicle for reducing development time and cost, unit costs of new MDA BMDS technologies, and as a route to national economic growth through new commercial products. MDA will conduct the competition and will award and manage the contracts with assistance from our executing agents.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Unknown See Description Below <i>FY 2009 Accomplishments:</i> Awarded 151 Phase Is (~\$100K each) and 92 Phase IIs (including mods to existing Phase IIs) (average award ~\$860K).	111.418	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605502C: <i>Small Business Innovative Research BMDO</i>	PROJECT ZX45: <i>Small Business Innovative Research (SBIR)</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Phase I Selections were in the following 9 research areas: C2BMC, Directed Energy, Insensitive Munitions/Safety, Information Assurance, Interceptor Technology, Manufacturing and Producibility, Modeling Simulation and Phenomenology, Radar Technology and Space Technology.</p> <p>Phase II Selections were in the following 10 research areas: Airborne Component Technology, Discrimination, Information Assurance, Integration (C2BMC), Interceptor Technology, Manufacturing Process, Modeling & Simulation, Radar Systems Technology, Safety/Insensitive Munitions and Space Technology.</p> <p>Selected 28 awards for the SBIR Phase II Transition Program (\$11M), leveraging \$12M of matching, non-SBIR funding from entities such as Aerojet, Air Force, Army, Boeing, L3, Lockheed Martin, MDA, Navy, Northrop Grumman, and Raytheon.</p> <p><i>FY 2010 Plans:</i> NA</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
Unknown - Two See Description Below		13.370	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605502C: <i>Small Business Innovative Research BMDO</i>	PROJECT ZX45: <i>Small Business Innovative Research (SBIR)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2009 Accomplishments:</i> Awarded 25 Phase Is (~\$100K each). The Phase I selections were in the following 4 Research Areas: Interceptor Technology, Manufacturing and Producibility, Radar Systems Technology and Space Technology.</p> <p><i>FY 2010 Plans:</i> NA</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	124.788	0.000	0.000	0.000	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605502C: <i>Small Business Innovative Research BMDO</i>	PROJECT ZX45: <i>Small Business Innovative Research (SBIR)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603884C: <i>Ballistic Missile Defense Sensors</i>											
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605502C: <i>Small Business Innovative Research BMDO</i>	PROJECT ZX45: <i>Small Business Innovative Research (SBIR)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>											
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901585C: <i>Pentagon Reservation</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
ZX42: <i>Pentagon Reservation Maintenance Reserve Fund (PRMRF)</i>	20.146	19.709	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	39.855
MD42: <i>Pentagon Reservation Maintenance Reserve Fund (PRMRF)</i>	0.000	0.000	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	20.482

Note

NA

A. Mission Description and Budget Item Justification

This DoD directed Program Element started in FY01 to separately identify costs for the Pentagon Reservation Maintenance Reserve Fund (PRMRF). The PRMRF finances the following: real property operation and maintenance costs of the Pentagon and Federal Office Building Two, Pentagon reservation security, and associated parking areas.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901585C: <i>Pentagon Reservation</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	19.667	19.709	0.000	0.000	0.000
Current President's Budget	20.146	19.709	20.482	0.000	20.482
Total Adjustments	0.479	0.000	20.482	0.000	20.482
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.479	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustment Detail	0.000	0.000	20.482	0.000	20.482

Change Summary Explanation

FY 2009 increase is due to MDA adjustments.

No FY 2011 data provided in PB10.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901585C: <i>Pentagon Reservation</i>	PROJECT ZX42: <i>Pentagon Reservation Maintenance Reserve Fund (PRMRF)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
ZX42: <i>Pentagon Reservation Maintenance Reserve Fund (PRMRF)</i>	20.146	19.709	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	39.855
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

This DoD directed Program Element started in FY01 to separately identify costs for the Pentagon Reservation Maintenance Reserve Fund (PRMRF). The PRMRF finances the following: real property operation and maintenance costs of the Pentagon and Federal Office Building Two (FOB-2), Pentagon reservation security, and associated parking areas.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
PRMRF	20.146	19.709	0.000	0.000	0.000
See Description Below					
<i>FY 2009 Accomplishments:</i> This effort provides funding for real property operation costs to include maintenance and facility support costs associated with the Missile Defense Agency occupying Federal Office Building Two.					
<i>FY 2010 Plans:</i> NA					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901585C: <i>Pentagon Reservation</i>	PROJECT ZX42: <i>Pentagon Reservation Maintenance Reserve Fund (PRMRF)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> NA					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	20.146	19.709	0.000	0.000	0.000

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901585C: <i>Pentagon Reservation</i>	PROJECT ZX42: <i>Pentagon Reservation Maintenance Reserve Fund (PRMRF)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901585C: <i>Pentagon Reservation</i>	PROJECT ZX42: <i>Pentagon Reservation Maintenance Reserve Fund (PRMRF)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603912C: <i>BMD European Comm Support</i>											
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901585C: <i>Pentagon Reservation</i>	PROJECT MD42: <i>Pentagon Reservation Maintenance Reserve Fund (PRMRF)</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD42: <i>Pentagon Reservation Maintenance Reserve Fund (PRMRF)</i>	0.000	0.000	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	20.482
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

This DoD directed Program Element started in FY01 to separately identify costs for the Pentagon Reservation Maintenance Reserve Fund (PRMRF). The PRMRF finances the following: real property operation and maintenance costs of the Pentagon and Federal Office Building Two (FOB-2), Pentagon reservation security, and associated parking areas.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Unknown	0.000	0.000	20.482	0.000	20.482
See Description Below					
<i>FY 2009 Accomplishments:</i> NA					
<i>FY 2010 Plans:</i> NA					
<i>FY 2011 Base Plans:</i> NA					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901585C: <i>Pentagon Reservation</i>	PROJECT MD42: <i>Pentagon Reservation Maintenance Reserve Fund (PRMRF)</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	20.482	0.000	20.482

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901585C: <i>Pentagon Reservation</i>	PROJECT MD42: <i>Pentagon Reservation Maintenance Reserve Fund (PRMRF)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>			R-1 ITEM NOMENCLATURE PE 0901585C: <i>Pentagon Reservation</i>				PROJECT MD42: <i>Pentagon Reservation Maintenance Reserve Fund (PRMRF)</i>				
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901598C: <i>Management Headquarters-MDA</i>	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441
D. Acquisition Strategy											
E. Performance Metrics											
NA											

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901598C: <i>Management Headquarters-MDA</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441
ZX38: <i>Management Headquarters</i>	87.151	52.403	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	139.554
MD38: <i>Management Headquarters</i>	0.000	0.000	29.754	0.000	29.754	29.421	29.974	30.567	31.171	Continuing	Continuing

Note

In concert with the ongoing efforts to reduce Agency infrastructure and with the mandate of the Base Re-Alignment and Closure Commission, the funding amounts within this PE for FY10 and out are based on MDA reducing its presence in the National Capital region in preparation for the move to a consolidated campus on Redstone Arsenal in Huntsville, Alabama, with costs decreasing to reflect anticipated savings as a result of the consolidation.

A. Mission Description and Budget Item Justification

As prescribed by DoD Directive 5100.73, Major Headquarters Activities, signed by the Deputy Secretary of Defense on 13 May 1999, this Program Element funds costs associated with the operation of the headquarters and headquarters activities of the Missile Defense Agency. This project funds the following basic areas: Salaries and benefits for government civilian personnel assigned to the Agency headquarters, training, professional development, and travel for Agency personnel, rents, supplies and services for Agency facilities, facility support functions, and specialized headquarters contract support.

This PE also funds personnel that would implement the initiatives and processes that have been introduced in the Weapon Systems Acquisition Reform Act of 2009. This Act, introduced by senators Levin and McCain, notes the key to successful acquisition programs is getting things right from the start with sound systems engineering, cost-estimating, and developmental testing early in the program cycle.

Personnel funded from the PE will successfully implement these Acquisition Reform initiatives and processes that will minimize future cost overruns, schedule delays, and performance problems in MDA acquisition programs by focusing acquisition and procurement program management on emphasizing systems engineering; more effective upfront planning and management of technology risk, make trade-offs between cost, schedule and performance early in the program cycle.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901598C: <i>Management Headquarters-MDA</i>
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B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	81.174	57.403	0.000	0.000	0.000
Current President's Budget	87.151	52.403	29.754	0.000	29.754
Total Adjustments	5.977	-5.000	29.754	0.000	29.754
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		-5.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	5.977	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustment Detail	0.000	0.000	29.754	0.000	29.754

Change Summary Explanation

FY 2010 decrease of \$5.000 million reflects Congressional Directed Reductions.

No FY 2011 data provided in PB10.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901598C: <i>Management Headquarters-MDA</i>	PROJECT ZX38: <i>Management Headquarters</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
ZX38: <i>Management Headquarters</i>	87.151	52.403	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	139.554
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In concert with the ongoing efforts to reduce Agency infrastructure and with the mandate of the Base Re-Alignment and Closure Commission, the funding amounts within this PE for FY10 and out are based on MDA reducing its presence in the National Capital region in preparation for the move to a consolidated campus on Redstone Arsenal in Huntsville, Alabama, with costs decreasing to reflect anticipated savings as a result of the consolidation.

A. Mission Description and Budget Item Justification

As prescribed by DoD Directive 5100.73, Major Headquarters Activities, signed by the Deputy Secretary of Defense on 13 May 1999, this Program Element funds costs associated with the operation of the headquarters and headquarters activities of the Missile Defense Agency. This project funds the following basic areas: Salaries and benefits for government civilian personnel assigned to the Agency headquarters, training, professional development, and travel for Agency personnel, rents, supplies and services for Agency facilities, facility support functions, and specialized headquarters contract support.

This PE also funds personnel that would implement the initiatives and processes that have been introduced in the Weapon Systems Acquisition Reform Act of 2009. This Act, introduced by senators Levin and McCain, notes the key to successful acquisition programs is getting things right from the start with sound systems engineering, cost-estimating, and developmental testing early in the program cycle.

Personnel funded from the PE will successfully implement these Acquisition Reform initiatives and processes that will minimize future cost overruns, schedule delays, and performance problems in MDA acquisition programs by focusing acquisition and procurement program management on emphasizing systems engineering; more effective upfront planning and management of technology risk, make trade-offs between cost, schedule and performance early in the program cycle.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries See Description Below	31.417	21.581	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>		R-1 ITEM NOMENCLATURE PE 0901598C: <i>Management Headquarters-MDA</i>		PROJECT ZX38: <i>Management Headquarters</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>								
<p>Rents, Supplies and Services</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Provides funds required to operate the MDA headquarters physical plant and related operational costs. Includes lease costs for commercial space, as well as utility and communication expenses at both commercial sites and Federal Office Building 2 (FOB-2). Rent expenses for MDA use of FOB-2 is included in the Pentagon Reservation Maintenance Reserve Fund. Also includes expenses for HVAC operations and maintenance, alarm systems, minor facilities maintenance, Metro transit subsidies, key leadership transportation, expendable supplies, postage and copier service/maintenance. ;</p> <p><i>FY 2010 Plans:</i> NA</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>				17.096	14.295	0.000	0.000	0.000
<p>Facility Support</p> <p>See Description Below</p>				13.423	6.411	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901598C: <i>Management Headquarters-MDA</i>	PROJECT ZX38: <i>Management Headquarters</i>
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	87.151	52.403	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901598C: <i>Management Headquarters-MDA</i>	PROJECT ZX38: <i>Management Headquarters</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>											
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901598C: <i>Management Headquarters-MDA</i>	PROJECT ZX38: <i>Management Headquarters</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>			66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: <i>Small Business Innovative Research BMDO</i>	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901598C: <i>Management Headquarters-MDA</i>	PROJECT MD38: <i>Management Headquarters</i>
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD38: <i>Management Headquarters</i>	0.000	0.000	29.754	0.000	29.754	29.421	29.974	30.567	31.171	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

As prescribed by DoD Directive 5100.73, Major Headquarters Activities, signed by the Deputy Secretary of Defense on 13 May 1999, this Program Element funds costs associated with the operation of the headquarters and headquarters activities of the Missile Defense Agency. This project funds the following basic areas: Salaries and benefits for government civilian personnel assigned to the Agency headquarters, training, professional development, and travel for Agency personnel, and specialized headquarters contract support.

This PE also funds personnel that would implement the initiatives and processes that have been introduced in the Weapon Systems Acquisition Reform Act of 2009. This Act, introduced by senators Levin and McCain, notes the key to successful acquisition programs is getting things right from the start with sound systems engineering, cost-estimating, and developmental testing early in the program cycle.

Personnel funded from the PE will successfully implement these Acquisition Reform initiatives and processes that will minimize future cost overruns, schedule delays, and performance problems in MDA acquisition programs by focusing acquisition and procurement program management on emphasizing systems engineering; more effective upfront planning and management of technology risk, make trade-offs between cost, schedule and performance early in the program cycle.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries See Description Below	0.000	0.000	19.886	0.000	19.886

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>		R-1 ITEM NOMENCLATURE PE 0901598C: <i>Management Headquarters-MDA</i>		PROJECT MD38: <i>Management Headquarters</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2011 Base Plans:</i> NA <i>FY 2011 OCO Plans:</i> NA								
Specialized HQ Contract Support See Description Below <i>FY 2009 Accomplishments:</i> Augments government civilian staff performing Agency-wide headquarters functions within host office throughout MDA. These support vehicles are organized into three general categories: Workforce Management, Office of the Chief of Staff, and Legislative Affairs/Communications/General Counsel. <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> NA <i>FY 2011 OCO Plans:</i> NA				0.000	0.000	6.872	0.000	6.872
Accomplishments/Planned Programs Subtotals				0.000	0.000	29.754	0.000	29.754

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901598C: <i>Management Headquarters-MDA</i>	PROJECT MD38: <i>Management Headquarters</i>
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: <i>Ballistic Missile Defense System Interceptor</i>	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: <i>BMD AEGIS</i>	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: <i>MULTIPLE KILL VEHICLE</i>	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: <i>BMD C2BMC</i>	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: <i>BMD HERCULES</i>	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901598C: <i>Management Headquarters-MDA</i>	PROJECT MD38: <i>Management Headquarters</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: <i>DIRECTED ENERGY RESEARCH</i>	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: <i>REGARDING TRENCH</i>	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: <i>SEA BASED X-BAND RADAR (SBX)</i>	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: <i>BMD EUROPEAN INTERCEPTOR SITE</i>	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: <i>BMD EUROPEAN MIDCOURSE RADAR</i>	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: <i>BMD European Comm Support</i>	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: <i>ISRAELI COOPERATIVE</i>	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: <i>LAND-BASED SM-3</i>	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: <i>Aegis SM-3 BLOCK IIA CO-DEVELOPMENT</i>	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0901598C: <i>Management Headquarters-MDA</i>	PROJECT MD38: <i>Management Headquarters</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0605502C: <i>Small Business Innovative Research BMDO</i>											
• 0901585C: <i>Pentagon Reservation</i>	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337

D. Acquisition Strategy

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

E. Performance Metrics

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