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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: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				PE 0603890C: Ballistic Missile Defense Enabling Programs							
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	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
YX24: Systems Engineering & Integration	107.835	98.684	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	206.519
MD24: System Engineering & Integration	0.000	0.000	124.040	0.000	124.040	155.241	144.571	157.903	167.762	Continuing	Continuing
YX28: Intelligence & Security	20.007	17.789	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	37.796
MD28: Intelligence & Security	0.000	0.000	15.905	0.000	15.905	15.711	15.992	16.276	16.360	Continuing	Continuing
YX29: Producibility and Manufacturing Technology	40.805	44.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	84.837
MD29: Producibility & Manufacturing Technology	0.000	0.000	36.575	0.000	36.575	33.659	36.523	37.287	38.065	Continuing	Continuing
YX30: BMD Information Management Systems	103.676	105.536	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	209.212
MD30: BMD Information Management Systems	0.000	0.000	111.829	0.000	111.829	92.926	94.821	94.132	93.315	Continuing	Continuing
YX31: Modeling & Simulation	90.523	48.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	138.655
MD31: Modeling & Simulation	0.000	0.000	64.623	0.000	64.623	120.904	120.634	122.531	124.937	Continuing	Continuing
YX32: Quality, Safety, and Mission Assurance	24.674	31.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	55.683
MD32: Quality, Safety, and Mission Assurance	0.000	0.000	32.881	0.000	32.881	33.094	30.326	30.885	31.219	Continuing	Continuing
ZX40: Program-Wide Support	15.256	13.569	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	28.825
MD40: Program-Wide Support	0.000	0.000	16.916	0.000	16.916	17.138	14.878	14.857	17.141	Continuing	Continuing

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Note In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Projects YX24, YX28, YX29, YX30, YX31, and YX32 for FY 2009-FY 2010 are now captured in Projects MD24, MD28, MD29, MD30, MD31, and MD32 for FY2011-FY2015. For FY2011-FY2015, Ballistic Missile Defense System (BMDS) Engineering Technology Protection and Standards (Anti-Tamper, Engineering Manufacturing Readiness Level (EMRL) Assessments, Commonality and Standards) was transferred from Producibility and Manufacturing Technology (MD29) to Systems Engineering & Integration (MD24). For FY2011-FY2015, Ballistic Missile Defense (BMDS) Capability Assessment (BCA) Integrated Master Test Plan (IMTP) was transferred from Test and Targets (MD04) to Systems Engineering & Integration (MD24). The FY2011 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 Ballistic Missile Defense System (BMDS) continues to be to defend the United States, our deployed forces, allies, and friends against all ranges of enemy ballistic missiles in all phases of flight, with greater emphasis on defense of U.S. forces, allies, and friends from regional threats posed by short- and medium-range ballistic missiles. 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 United States Allies and partners, as well as to United States 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 United States 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. The Ballistic Missile Defense (BMD) System Enabling Programs provide the Missile Defense Agency with the critical processes needed to integrate stand-alone missile defense systems into a layered BMDS to achieve cost- and operational-efficiencies, while improving protection performance with increased defended area and		

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PE 0603890C: *Ballistic Missile Defense Enabling Programs*

minimizing force structure costs. The Enabling Programs, embedded within a single program element, bring common program management and engineering functions up to the MDA level, saving manpower and cost and ensuring commonality in key areas. As an example, BMDS level System Engineering and Integration ensures that the BMD System level performance trades can occur across the legacy Service systems and new BMDS and Service Components ensuring capability improvements through BMDS level integration of the Unifying Missile Defense Functions (UMDF). These programs enable the BMD system to operate in an integrated, secure, and technologically collaborative capacity, in terms of both equipment and proficiency. Specifically, the Enabling Programs evaluate the methodology, threat, manufacturing maturity, technical safeguards, and mission assurance effectiveness independently, but also simultaneously assess whether the BMD System is able to maintain its integrity and superiority with advances in technology development, and function as an integrated system.

The MDA Enabling Programs are:

- Systems Engineering and Integration
- Modeling and Simulation Engineering
- Producibility and Manufacturing Technology
- Quality, Safety, and Mission Assurance
- Intelligence and Security
- Information Management Systems

Systems Engineering and Integration leads the integration of BMDS Element and Component capabilities to provide the Warfighter with the capability to defend the United States and its friends and allies from ballistic missile attacks. Systems Engineering develops integrated BMDS capability improvements such as early intercept through BMDS level control of system requirements and allocating those requirements to the Element and Component levels. As adversaries become increasingly sophisticated in their use of countermeasures, the Systems Engineering role includes designing integrated discrimination capabilities to optimize system performance against the evolving threat. Similarly, as missile defense technologies continually advance and the threat changes, Modeling and Simulation evaluates the BMDS Components` accuracy, efficiency and overall system performance. Producibility and Manufacturing provides crosscutting assessments to ensure the production equipment and processes being used for the BMD System are technologically mature, while applying common approaches and best value engineering principals across the BMDS. Quality, Safety, and Mission Assurance has the distinct cradle-to-grave role of providing the safety requirements throughout design, manufacturing and test processes as well as during system operation to achieve a safe and reliable BMD System. Intelligence and Security provides the adversary data necessary for the development of the BMDS common threat. Accurate and timely threat data is necessary to enable technologically advanced system solutions and system

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performance predictions. Security is also provided as an Enabling Program to apply the same level of system capability protection across the entire BMDS. Information management is vital to the efficient operation and safeguarding of all information from development to fielding new BMDS capabilities.

(YX24 & MD24) SYSTEMS ENGINEERING AND INTEGRATION (SE&I)

The Systems Engineering and Integration (SE&I) mission is to define, manage, and integrate all engineering development for the Ballistic Missile Defense System (BMDS). SE&I activities provide the technical expertise, tools, and facilities to develop an integrated, layered BMDS in a five-phased approach: 1) Systems engineering planning/concept development; 2) design and specification; 3) horizontal integration of software and hardware; 4) test integration, verification and model validation; and 5) operational assessments to support fielding. SE&I provides top-down, overall architectural direction through collaborative system engineering processes to ensure the BMDS functions are integrated in a cost and operationally efficient manner. SE&I includes the Countermeasures/Counter-Countermeasures (CM/CCM) program which develops feasible engineering concepts and designs to avert BMDS performance degradation when an adversary deploys system countermeasures. SE&I also includes Engineering and Manufacturing Readiness Level (EMRL) assessment to ensure missile defense technologies are ready for production and anti-tamper efforts to ensure BMDS assets are suitable for international fielding, whether for US defense, or for defense of Allies and Friends. Together with Modeling and Simulation and Test and Evaluation, SE&I focuses on defining test objectives and executing test campaigns aimed at anchoring BMDS-level models and simulation with critical data to prove Ballistic Missile Defense performance.

Systems Engineering and Integration Program Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS):

Systems Engineering and Integration processes, expertise, tools and facilities are required to achieve an integrated BMDS and develop the warfighters` capability, both in equipment and operations. The Systems Engineering process is highly collaborative, using close cooperation with weapons, sensors, command and control, battle management and communications elements and components. This ensures the unity of effort in the development of subsystems and architecture designs to deliver system-level capabilities. The Combatant Commanders are involved in all phases of the Systems Engineering and Integration process, providing input to influence design and develop components to improve reliability, operational availability, maintainability and life-cycle affordability. Systems Engineering products optimize system-level performance and ensure that system assessments are based on a rigorous test and verification program that builds confidence among our stakeholders in the assessed capabilities.

SE&I Major Program Goals:

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Engineer the integrated and layered BMD System and prove Ballistic Missile Defense performance
Verify and Assess through testing the BMD System performance and capabilities
Perform analysis of alternatives
Create future BMD System Architectural options
Identify manufacturing risks using Engineering and Manufacturing Readiness Level (EMRL) assessments to analyze the maturity of BMDS

(YX31 & MD31) MODELING AND SIMULATION ENGINEERING (M&S)

The mission of the Modeling and Simulation (M&S) program is to engineer and deliver validated, integrated simulation solutions for the primary uses of Ballistic Missile Defense System (BMDS) Performance Assessment and Ground Test, with additional capability to support BMDS-Element integration, missile defense wargames and exercises (national and international), BMDS training, and BMDS concept analysis. In this role, M&S provides cost-effective and proactive tools to assess the fielded capabilities of the BMDS, analyzes and fosters accelerated integration of Element and component capability into the BMDS, and is a valuable training and planning tool for warfighting Concept of Operations and missile defense planning. This is in line with the MDA's BMDS performance assessment strategy, which 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.

Modeling and Simulation (M&S) activities support all phases of BMDS element and component development, including development of modifications to the element and component programs' subsystem designs, flight test missions, ground tests, wargames, exercises, and performance assessments. Models and simulations are tailored to the specific needs of a component in its current phase of development, ranging from low-to-medium fidelity analyses supporting concept definitions studies, to high-fidelity models used to support engineering development or testing, and are integrated into the BMD Digital Simulations Architecture. Digital simulations support Program Assessment events, which provide critical system level performance data 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 (V&V) process, including reviewing coding and specifications, and comparing analyses against actual flight test results. Planning support is required to assist in V&V plan development, test execution, analysis for V&V reports and program office M&S certification. The Digital End-to-End simulation of the BMDS requires a Performance Assessment Integrated V&V Plan and Report (at both element and system level), and a Performance Assessment system level Accreditation Plan and Report.

Modeling and Simulation Program Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS):

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Modeling and Simulation`s distinct capabilities are spread throughout the BMDS elements and provide the Warfighter with a range of assessment capabilities at the system and Element level. Accredited system-level models and simulations anchored to real-world events provide an accurate and comprehensive assessment of the BMDS. In addition, by anchoring these models and simulations with empirical flight and ground test data collected in accordance with test objectives defined by SE&I, Modeling and Simulation can provide the confidence that the BMDS will perform as predicted, without physically testing every possible condition that could occur. Future developments will focus on the model and simulation framework, BMDS element models and threat and environmental models to support anchoring. This approach ensures that the BMDS has the effectiveness and efficiency to meet the Warfighter`s needs.

Modeling and Simulation Program Major Program Goals:

Reduce integration lead times, mitigate schedule risk and enable higher tempo of Performance Assessment, Test and Fielding Events through rigorous M&S Requirements Engineering continue product line development, sustainment, maintenance and product support for:

- Extended Air Defense Simulation (EADSIM)
- Missile Defense Space warning Tool (models validated space-borne assets of BMDS)
- Threat Modeling Simulation System
- BMD International Simulation

(YX29 & MD29) PRODUCIBILITY AND MANUFACTURING TECHNOLOGY

The Producibility and Manufacturing Directorate`s ultimate goal is to help develop an effective and affordable missile defense system. To achieve this goal, Producibility and Manufacturing is helping to build and maintain a strong missile defense industrial base. Producibility and manufacturing conducts numerous industry days dedicated to small business companies to explain where value-added work opportunities exist across the BMDS. The Producibility and Manufacturing Directorate improves the design, integration, and assembly of the components used by the Ballistic Missile Defense Elements through producibility efforts that include, Design For Manufacturing and Assembly (DFMA), supply chain gap analysis, and changes to environmental laws and regulations. Producibility and Manufacturing conducts Industrial Capability Assessments (ICAs) across the BMDS Industrial Base in order to identify production gaps created by material supplier changes, loss of

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<p>manufacturing base, and movement of United States production overseas. From these assessments, we will develop a gap analysis which focuses on methods that can be used to support our United States original equipment manufacturers (OEMs), their supplier base, and other organizations that produce end items for the BMDS. This project funds a number of key investment areas: 1) Power Systems, 2) Radiation Hardening (Rad Hard), 3) Manufacturing Process Improvements, 4) Electro-Optics/Infrared (EO/IR), 5) Radar and RF, 6) Propulsion, and 7) Advanced Materials and Structures. In each of these key investment areas, Producibility and Manufacturing conducts projects that provide key component and subsystem capabilities that ;we will incorporate into the applicable BMDS Element.</p> <p>Producibility and Manufacturing Technology Program Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS):</p> <p>Producibility and Manufacturing provides crosscutting BMDS manufacturing risk assessments, industrial capability assessments, and near term (1-3 year) producibility enhancements. Common, integrated programs across the BMDS Elements are provided to ensure mature industrial manufacturing capabilities are available to the programs through risk reduction, cost reduction/avoidance, and performance enhancement. Producibility and Manufacturing furthers efforts in commonality and spreads best practices for producibility and manufacturing across the BMDS Elements by cooperatively funding and leveraging efforts.</p> <p>Producibility and Manufacturing Technology Program Major Program Goals:</p> <p>Producibility and Manufacturing will help develop an effective and affordable missile defense system by building and maintaining a strong missile defense industrial base.</p> <p>Producibility and Manufacturing plans to demonstrate the producibility and manufacturability of sensor subsystems/components in a flight experiment planned for FY 2010. This flight experiment will involve a maneuverable sensor with a radiation tolerant telescope, and a next generation Inertial Measurement Unit (IMU). The flight experiment will utilize common power and data bus interfaces in order to demonstrate the methodology to achieve commonality.</p> <p>To improve engineering and manufacturing readiness of BMDS sensor systems, Producibility and Manufacturing is investing in the next generation of sensor technologies. For BMDS kill vehicles Producibility and Manufacturing has developed a strategy for incorporating lower cost materials and subsystems/components (cryocoolers, focal plane arrays, telescope materials) to improve missile affordability and performance. For ground-based sensors, Producibility and Manufacturing is investing in technologies to improve the performance and reliability of sensor components while reducing component costs.</p> <p>Producibility and Manufacturing is investing in Divert and Attitude Control System components and material development in order to reduce manufacturing lead times and improve system performance. The materials development/characterization program will provide the next generation of high temperature composites/insulators and ablative components for rocket motors and engines. Component and subsystem risk reduction testing will demonstrate improvements in technical and manufacturing readiness of these components for missile defense applications.</p>		

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Miniaturization and radiation hardening of next generation inertial measurement units are needed for missile defense applications. Producibility and Manufacturing is maturing technologies to enable miniature, radiation hardened IMUs for interceptors and satellites.

(YX32 & MD32) QUALITY, SAFETY AND MISSION ASSURANCE (QSMA)

The MDA Quality, Safety, and Mission Assurance Directorate is responsible for MDA system-wide quality, safety, and mission assurance. Quality, Safety, and Mission Assurance maintains an agency-wide perspective to ensure both program and system Mission Assurance requirements are met to achieve a capable BMDS. Quality, Safety, and Mission Assurance provides practical and robust safety, quality and mission assurance policy, guidance, expertise and assistance to the BMDS and all Elements. Each MDA program has direct Quality, Safety, and Mission Assurance support to ensure that quality, safety and mission assurance is addressed at all times. In addition, Quality, Safety, and Mission Assurance provide the program elements and their prime contractors, sub-contractors, and suppliers direct onsite support to meet emergent or surge safety requirements. Support includes experienced technical, non-advocate oversight on the design, development, test, manufacturing, integration and operations of critical facilities and suppliers.

Quality, Safety, and Mission Assurance Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS):

Quality, Safety and Mission Assurance efforts enable the development, testing and fielding of an effective, reliable, and safe missile defense capability. To ensure the BMDS can meet its performance, quality, safety, and mission assurance requirements, quality, safety and mission assurance principles and disciplines are being standardized and applied throughout each element and the entire BMDS. Implementation and maintenance of these principles and disciplines are essential to providing an effective war-fighting capability. There are over 27 MDA Assurance Representatives (MARs) located throughout the United States at major Government and supplier sites. MARs provide Defense Contract Management Agency (DCMA) and supplier's direct access to MDA and provide unfettered program insight to the MDA Director through weekly reporting.

Quality, Safety and Mission Assurance Major Program Goals:

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Improve Supplier / Contractor reliability through a comprehensive quality, safety and mission assurance Quality, Safety, and Mission Assurance program that employ Agency wide requirements for design, test, manufacturing, quality, safety and sustainment; provides on-site support to ensure compliance to imposed requirements, and maintains a comprehensive audit program to police overall Supplier performance.

Provide Agency leadership a non-advocate, independent organization that promotes industry best practices in Agency and Supplier operations.

(YX28 & MD28) INTELLIGENCE AND SECURITY

This project funds three specific areas: 1) The Intelligence Requirements Division which provides a single integrated mission area focus that interfaces with the Intelligence Community to acquire collection and analysis of data on foreign threat missiles. MDA uses this information to provide support to the Ballistic Missile Defense System (BMDS) architecture design, testing, modeling and wargaming to reduce risk and improve system performance; 2) Counterintelligence Division, which conducts defensive counterintelligence activities to detect, identify, assess, exploit, penetrate, degrade and counter or neutralize Foreign Intelligence and Security Service collection efforts, other intelligence activities, espionage, sabotage, sedition, subversion, assassination, and international terrorist activities directed against the MDA, its personnel, information, material, facilities, and activities worldwide; and 3) BMDS Security Assessment and Certification Directorate, which develops a comprehensive picture of the Information Assurance/Computer Network Defense architecture at all levels of BMDS. Together, these efforts provide critical information regarding threat ballistic missile system capabilities (Intelligence); protection of personnel and activities from espionage and terrorism through active and passive activities (Counterintelligence); and BMDS system vulnerabilities (BMDS Information Assurance Functional Manager).

Intelligence and Security Program Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS):

1) Intelligence: The MDA Intelligence Requirements Division acts as a clearing house for MDA's requirements for the Intelligence Community collection, analysis and production. The MDA Intelligence Requirements Division acts as agent for quality control and dissemination of Intelligence Community products for all properly cleared Government and contractor personnel and provides feedback to the Intelligence Community on subsequent questions, issues and other needs resulting from Intelligence Community reporting. The intelligence process begins when the Intelligence Community collects and analyzes data on foreign threat missiles. Resulting threats and threat changes are given to the BMDS System Engineer who uses the threats to develop and change the BMDS. Through this activity, threat data is provided to support BMDS architecture design, testing, modeling, and wargaming. This information reduces the risk and improves system performance. It enables MDA Program Managers to achieve a sufficiently accurate understanding of the threat environment to respond to relevant capabilities of immediate importance, make

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informed decisions and invest limited resources on countering the most significant aspects of potential adversary capabilities. Other aspects of the Intelligence Program are designed to gain access to, and leverage, unique, Intelligence Community developed, owned and operated capabilities for the benefit and advocacy of the Missile Defense Community. Many are highly classified and require both access and expertise to exploit. The program supports the overarching MDA objectives of BMDS on Alert, continuing evolutionary development, and enhanced BMDS capabilities.

2) Counterintelligence: Pursuant to DoD Directive O-5240.2 , MDA`s Counterintelligence Division conducts defensive counterintelligence activities including Technical Surveillance Countermeasures and counterintelligence in Cyberspace activities to detect, identify, assess, exploit, penetrate, degrade and counter or neutralize Foreign Intelligence and Security Service collection efforts, other intelligence activities, espionage, sabotage, sedition, subversion, ssassination, and international terrorist activities directed against the MDA, its personnel, information, material, facilities, and activities worldwide.

3) BMDS Information Assurance: This division is responsible for executing the mission of the BMDS Information Assurance Functional Manager and enhancing the cyber infrastructure of the MDA BMDS. In this capacity, the division fulfills the DoD policy mandated role of the Information Assurance Manager and the BMDS Information System Security Engineering lead for Information Assurance/Computer Network Defense development activities, responsible for the Information Assurance/Computer Network Defense posture of BMDS. This division is responsible for assisting the BMDS to manage and deploy Information Assurance/Computer Network Defense requirements and solutions to fulfill DoD and Warfighter mandates, while enhancing the robustness and resilience of the cyber infrastructure. To fulfill this role, the division works in concert with Information Assurance Engineers and Information Assurance Managers to obtain a comprehensive picture of the overall Information Assurance/Computer Network Defense architecture at all levels of the BMDS, then influence the design by 1) identifying and developing Enabling Standards and Requirements to implement Defense-in-Depth within planned development cycles (Builds); 2) providing oversight, coordination and management of key information assurance management processes, technical requirements development, and policy-mandated responsibilities; 3) providing contract acquisition support to BMDS Elements ensuring Information Assurance is addressed throughout the procurement process, and; 4) interfacing with the Intelligence Community to define cyber security threats relevant to the BMDS.

Intelligence and Security Program Major Program Goals:

Ensure the Intelligence Community understands, accurately and timely fulfills MDA`s current and future prioritized intelligence requirements; broker BMDS test support collection requirements with the intelligence community and that MDA`s intelligence needs and finished intelligence requirements are understood while ensuring the intelligence community is involved in technical interchange meetings, etc. Continue the federated approach to supporting MDA by leveraging available national and DoD Counterintelligence resources to ensure counterintelligence products and services are fully integrated into all RDT&E programs and activities to protect

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classified information and critical technologies and to support and protect MDA and BMDS personnel, facilities, information and activities from threats posed by Foreign Intelligence and Security Service, terrorism and criminal activities. Consistently, comprehensively and definitively define information assurance for Continental United States (CONUS) and non-CONUS based on BMDS assets. Define Information Assurance/Computer Network Defense and cyber security infrastructure intelligence requirements to focus Intelligence Community collection, analysis and production to target MDA BMDS vulnerabilities; definitive and incorporate information assurance into the systems engineering process.

(YX30 & MD30) BMD INFORMATION MANAGEMENT SYSTEMS

The MDA Director has established a multi-year strategy to realign and consolidate information technology resources that directly support our mission, test, and administrative systems. This strategy is designed to achieve secure systems that provide greater efficiency and effectiveness in compliance with Federal mandates and DoD policies. The BMD Information Management Systems project includes all aspects of Information Technology.

BMD Information Management Systems Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS):

The BMD Information Management Systems project integrates and supports every aspect of the BMD System (BMDS) by providing a secure and reliable Information Management/Information Technology (IM/IT) infrastructure and services necessary to enable the BMDS Elements and operators to collaborate and share information which is essential to accomplishing the complex integrated BMDS mission.

BMD Information Management Systems Major Program Goals:

Provide 8 hours a day, 5 days a week operational support to critical day-to-day Information Technology requirements for Agency missions
Ensure MDA mission, test and administrative systems are operated securely in accordance with DoD Information Assurance Certification and Accreditation policies.

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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	402.778	369.145	0.000	0.000	0.000
Current President's Budget	402.776	358.751	402.769	0.000	402.769
Total Adjustments	-0.002	-10.394	402.769	0.000	402.769
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		-10.394			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	6.014	0.000			
• SBIR/STTR Transfer	-6.016	0.000			
• Other Adjustment Detail	0.000	0.000	402.769	0.000	402.769

Change Summary Explanation

The FY2009 decrease of \$2 thousand is due to SBIR/STTR transfer and MDA reprogramming.

The FY2010 difference is due to Congressional Directed Reductions and Total Adjustments.

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
YX24: <i>Systems Engineering & Integration</i>	107.835	98.684	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	206.519
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 planned for FY 2011- FY 2015 is captured in Project MD24.

A. Mission Description and Budget Item Justification

Systems Engineering and Integration's (SE&I) goals are to continue the development and improvement of the integrated Ballistic Missile Defense System and to prove the effectiveness of the system. The Agency will perform the analysis and engineering trades to support the Quadrennial Defense Review (QDR), the Ballistic Missile Defense Review, and policy decisions on European Ballistic Missile Defense. Our engineering focus will shift to enhancing regional Ballistic Missile Defense and providing system improvements to enable earlier Ballistic Missile Defense engagements. The SE&I provides analysis, decision-making and planning activities for real-world operations in support of the White House, Joint Staff, Military Services, North Atlantic Treaty Organization (NATO), Combatant Commanders (Military Utility Assessment), Operational Test Agencies, Director of Operational Test and Evaluation, Allies, and others. The SE&I is the single team that leads and executes this process and applies its technical expertise, tools, and facilities in a collaborative effort that cuts across many disciplines and specialties to realize this goal and also assists in the Quadrennial Defense Review (QDR) and Ballistic Missile Defense Review development.

Regional Defense: 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. SE&I will play an integral in European Phased Adaptive Approach development by providing Ballistic Missile Defense System functional requirements and documenting them in Capability Planning Specifications for specific phases, defining test objectives to demonstrate regional defense performance, and verifying and assessing the capability of each European Phased Adaptive Approach phase.

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<p>SE&I Quality of Service: The systems engineering process which defines required system-wide Ballistic Missile Defense behavior, supports and evaluates Element and component system designs, and assesses and verifies system capability across the entire Ballistic Missile Defense System, involves five-phases: 1) Systems engineering planning/concept development; 2) design and specification; 3) integration 4) test and verification and assessment; and 5) operational integration (fielding). To provide context for the design process we: define the adversary capabilities and operating environments that could be used to defeat or degrade the Ballistic Missile Defense System; identify where performance gaps exist in Ballistic Missile Defense System capabilities; and determine what improvements are required to close those gaps. It is critically important that we provide requirements for top-down, overall architectural direction for system development and assessment in compliance with those requirements that ensure the Ballistic Missile Defense System functions as a seamless fully integrated system. To accomplish this, Ballistic Missile Defense System capabilities are matured using by developing system ``builds``. Each system build progresses through a series of rigorous requirements, design, and management review boards with pre-defined entrance and exit criteria. These events take place at both the system and element level. SE&I also stays focused on opportunities to insert and integrate high-payoff advanced technologies over time to: upgrade system components (sensors, weapons, and Command and Control, Battle Management, and Communications); improve Ballistic Missile Defense System overall performance; expand our protection coverage; increase military utility; and improve effectiveness against increasingly sophisticated and proliferating threats. The SE&I process provides requirements which other Ballistic Missile Defense System programs and elements depend upon to achieve successful integration.</p> <p>Products: Fundamental to the SE&I approach is development, coordination, and dissemination of fully vetted products at each stage of the SE&I process. These products document and communicate key information such as: technical goals and objectives, design trades and resulting decisions; design and interface requirements; integration plans and schedules; test objectives aimed at collecting the data needed to anchor models and simulations, assessment and test results and fielding plans. Ballistic Missile Defense Systems Engineering provides significant and thorough guidance through the Ballistic Missile Defense System Description Document and Ballistic Missile Defense System Specifications for elements to design, build, integrate and test Ballistic Missile Defense System components. These products optimize performance at the system level and further ensure that the assessment of the designed Ballistic Missile Defense System is based on sufficient ground and flight testing. System Engineering monitors element and component compliance with Ballistic Missile Defense System level requirements through a series of requirements and design reviews both at the system and element levels. The Ballistic Missile Defense System Interface Control Documents (SICDs), the Capability Assessment Plan (CAP), the Modeling and Simulation Master Plan, and the Master Integration Plan provide additional guidance to the Ballistic Missile Defense System elements and components. System engineering has the key role in Ballistic Missile Defense System test development through the development and use of the Critical Engagement Conditions (CEC). The Critical Engagement Conditions ensure that the focus of the Ballistic Missile Defense System testing is on the data necessary not only to show proper system operation, but also to provide solid validation, verification and assessment data for digital simulations of the Ballistic Missile Defense System. These models along with a rigorous test and verification process will inform fielding decisions and operations. A brief description of some of the remaining, but as essential, System Engineering products follows:</p> <p>Adversary Capabilities Document (ACD) - provides an engineering threat reference that details overall feasible threat space and representative Systems including countermeasures</p>		

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<p>Concept Descriptions (CDs) - describe a proposed concept to enhance the Ballistic Missile Defense System in sufficient detail for evaluation</p> <p>Achievable Capabilities List (ACL) - a determination based on technology maturity, affordability, and emerging threat assessments of what capabilities desired by the warfighter are achievable</p> <p>Capability Planning Specification (CPS) - documents the preliminary requirements for new programs and specific upgrades for the system</p> <p>Adversary Data Package (ADP) - provides common and consistent threat data including countermeasures to drive Ballistic Missile Defense System weapon system designs, ground and flight tests, digital simulations, and pre-mission analysis.</p> <p>Analysis Guidance Document (AGD) - sets common analysis scenarios for system/element/component assessments and evaluations</p> <p>Element/Component Characterization for Analysis (E/CCA) - a database of system-level performance parameters that ensure correct and consistent medium fidelity analysis inputs across the Agency</p> <p>System Engineering Assessment Report (SEAR) - annual end-of-year report on progress toward achieving capability objectives</p> <p>Collaboration: SE&I's disciplined engineering process consists of setting technical objectives and goals, understanding the threat, exploring alternative system design concepts, performing design trades to inform the selection and implement the best design, verifying that the specified design is properly built, integrated and fielded, and then assessing how well the system meets performance goals. This occurs in a collaborative engineering environment in close partnership with key stakeholders such as the Element developers, Combatant Commands, and international partners. Systems Engineering and Integration further collaborates with the Director for Operations on the system content and activities described in the Ballistic Missile Defense System Master Plan (BMP).</p> <p>Unifying Missile Defense Functions: MDA has identified a set of Unifying Missile Defense Functions (UMDFs), which focus on key capabilities necessary to increase the effectiveness of the Ballistic Missile Defense 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 Unifying Missile Defense Function 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). Unifying Missile Defense Functions are implemented across the Ballistic Missile Defense System 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.</p> <p>New Technologies: We ensure that as new capabilities such as early intercept and precision tracking from space are added to the Ballistic Missile Defense System, the SE&I process remains focused on overall Ballistic Missile Defense System mission objectives and desired system performance. As these new capabilities are defined and requirements are allocated to the sensor, weapon and Command and Control, Battle Management, and Communications elements, a cadre of Ballistic Missile Defense System engineers works concurrently with the elements to produce the most effective solutions. When the capabilities are mature, we evaluate their readiness</p>		

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<p>for production using an engineering tool known as Engineering and Manufacturing Readiness Level (EMRL) assessment, so that risks are understood in advance of production decisions. We also develop anti-tamper approaches so that Ballistic Missile Defense System assets can be fielded outside the United States.</p> <p>Ballistic Missile Defense System Level Testing: The best way to dissuade the proliferation of ballistic missiles and deter their employment is through compelling testing and demonstration of integrated ballistic missile defense capabilities--weapons, sensors, and command and control, battle management and communications. Integrated Ballistic Missile Defense capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide the most accurate track of the enemy missile 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 and Control, Battle Management, and Communications system. For example, integrating autonomous missile defense elements greatly expands the area protected and increases the protection levels without incurring additional force structure costs. In conjunction with the Director for Test, Systems Engineering and Integration supplies test objectives, critical engagement conditions, and empirical measurement events, and collaborates on the Integrated Master Test Plan (IMTP) to ensure the test program gathers the data necessary to anchor models and simulations used to predict Ballistic Missile Defense System performance.</p> <p>System Pre- and Post-Flight Reconstruction: SE&I will support System Pre-Flight predictions for system level flight tests using the test framework set up with the Ballistic Missile Defense System 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 hardware in the loop and/or a Digital Modeling and Simulation Environment to replicate the day of flight for the Ballistic Missile Defense System 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 and empirical measurement events back to the real world event. System Post-Flight Reconstruction is used for validation (anchoring) of models and simulations.</p> <p>Interdependencies: 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 Ballistic Missile Defense capabilities can result in an effort funded in one Program Element being critical to success of efforts in other Program Elements, referring to these connections as ``interdependencies``. Throughout the budget justification material, we have attempted to highlight System Engineering`s interdependencies with the MDA directorates and the Ballistic Missile Defense System elements and components in order to explain fully the relationship between different parts of the proposed program.</p> <p>SE&I Major Program Goals:</p> <p>Engineer the integrated and layered Ballistic Missile Defense System and prove Ballistic Missile Defense performance</p>		

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Provide system-level support to the Elements for definition, design, and integration of the Unifying Missile Defense Functions

Provide technical direction to Element and Component developers

Develop the Adversary Threat Capability documentation

Produce controlling specifications and analysis to drive the Ballistic Missile Defense System design

Lead collaborative and cross- Element and -Component engineering

Provide technical support for the Operational Ballistic Missile Defense System

Provide engineering development for an International Global Ballistic Missile Defense

Verify and Assess through testing the Ballistic Missile Defense System performance and capabilities

Develop Ballistic Missile Defense System performance metrics and critical factors and identify critical engagement conditions

Support Ballistic Missile Defense System testing and Modeling and Simulation by defining test objectives necessary to develop test campaigns to anchor Ballistic Missile Defense System-level models and simulations

Identify Ballistic Missile Defense System capabilities and limitations

Perform analysis of alternatives

Provide detailed analysis to support MDA Leadership and US policy decisions

Create future Ballistic Missile Defense System architectural options

Develop architecture frameworks and operational concepts for emerging capabilities such as early intercept

Establish technical roadmaps focusing on unified missile defense functions

Develop functional requirements, define test objectives, and verify and assess capabilities for the Phased Adaptive Approach

Establish and enforce design and construction standards

Identify manufacturing risks using Engineering and Manufacturing Readiness Level assessments to analyze the maturity of Ballistic Missile Defense System Element and component manufacturing processes

Develop anti-tamper approaches to enable international fielding of the Ballistic Missile Defense System

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Future Concepts and Planning	24.707	5.254	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
See Description Below					
<p><i>FY 2009 Accomplishments:</i> Ballistic Missile Defense System Future Concepts and Planning conducted the first step of the SE&I process and directed the enterprise-wide lethality program, which ensured lethality, post-engagement assessment (miss/hit/kill assessment), collateral effects (such as debris) and consequences (identified for use by other agencies to determine management/mitigation strategies) ;were accounted for throughout the SE&I process. Lethality requirements were detailed in the Design and Specification documents, verified through system level test and verification objectives, and assessed as part of the Ballistic Missile Defense System performance assessment process.</p> <p>Developed architecture options for the Ballistic Missile Defense System European Capability Developed/updated top level capability descriptions and Capability Planning Specifications for future Ballistic Missile Defense System capabilities Executed the approved Corporate Lethality Plan Worked with the technology development community to ensure technology investments were prioritized and aligned to address Ballistic Missile Defense System-level capability needs Developed Sensor Quality of Service data for various Ballistic Missile Defense System Capabilities Continued to update the Systems Engineering Plan to be consistent with current policy</p> <p><i>FY 2010 Plans:</i> Provide updates to the Ballistic Missile Defense System Description Document for new capabilities, including the Phased Adaptive Approach phases Develop and update Capability Planning Specifications for the Phased Adaptive Approach phases Conduct a System Concept Review for Phased Adaptive Approach Maintain the Systems Engineering Plan Execute the approved Agency Lethality Plan Update Technical Objectives and Goals (TOG) measurement standards</p>					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>The Blue Team, comprised of Ballistic Missile Defense System, element, and component technical experts, performed integrated performance and risk assessments of the Ballistic Missile Defense System against the projected adversary capabilities and conceptual countermeasures, identified and characterized counter-countermeasure options to mitigate Ballistic Missile Defense System risks posed by these adversary capabilities and countermeasures, and performed the system-level engineering required to identify the Ballistic Missile Defense System baseline changes to implement and integrate the options into the operational system baseline. An independent team of senior experts, the White Team, reviewed the adversary capabilities and conceptual countermeasures posed by the Black Team and risk assessments and mitigation approaches presented by the Blue Team; presents their independent assessments of performance risks associated with countermeasures to the MDA Director; and recommended priorities for MDA investments in counter-countermeasures that have a strong potential to mitigate these risks. This effort has been highly successful in previous years, allowing funds to be diverted to concentrate on implementation of Ballistic Missile Defense System Capability improvements.</p> <p>Completed the discrimination and lethality enhancement study of changes to the Ballistic Missile Defense System Technical Baseline and engineering trades to enhance existing Ballistic Missile Defense System integrated system discrimination capabilities</p> <p>Continued characterization of adversary countermeasures capabilities and phenomenology related to design, employment, and performance of countermeasures to Multiple Kill Vehicles and forward-based radars</p> <p>Completed study on the lethality of multiple kill vehicles and potential advanced discrimination techniques to improve Ballistic Missile Defense System lethality</p> <p><i>FY 2010 Plans:</i> Initiate assessment of Ballistic Missile Defense System capabilities in regional engagement scenarios against short to intermediate range adversary ballistic missiles</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>Conduct assessments of Ballistic Missile Defense System performance against projected adversary capabilities and conceptual countermeasures to the Ballistic Missile Defense System Discrimination Architecture posed by the Black Team to identify and evaluate performance risks and gaps Provide independent assessments and recommendations to the MDA Director on the Ballistic Missile Defense System Discrimination Architecture being pursued to achieve robust performance against adversary countermeasures and regional engagements</p> <p><i>FY 2011 Base Plans:</i> The program content in this project is reported under Project MD24 in PB11.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>BMDS Design and Specifications See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Ballistic Missile Defense System Design and Specification conducted the second phase of the SE&I process, using the data developed during the Planning process, and collaborative engineering with Elements and components to develop the functional, performance, interface, and design suitability requirements documented in the integrated Ballistic Missile Defense System Specification and Ballistic Missile Defense System Interface Control Documents (SICDs). Using standard, commercially available system engineering tools, Design and Specification developed, defined and specified in collaboration with the Ballistic Missile Defense System elements and components the detailed Ballistic Missile Defense System design, including functional decomposition and allocation; timing, error, and performance requirements; specialty engineering design constraints and considerations; information and data exchange requirements; and Ballistic Missile Defense System core technical standards identification. Both trade studies and performance analysis must be conducted and</p>		12.376	21.505	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>managed by SE&I at the Ballistic Missile Defense System level to ensure the proper Ballistic Missile Defense System design architecture and specifications across the various Element and Components. The Ballistic Missile Defense System design architecture, Ballistic Missile Defense System Specifications, and Ballistic Missile Defense System Interface Control Documents provide a common, executable set of requirements and design parameters to direct Element design and component specification development that drive the detailed design and integration across the participating Elements. The Design and Specification activities are then culminated in the System/Subsystem Requirements Review to ensure technical execution and understanding to realize the integrated Ballistic Missile Defense System reflected in the Ballistic Missile Defense System design. The Design and Specification efforts support the detailed engineering needed to realize the Unifying Missile Defense Functions to increase the effectiveness of the Ballistic Missile Defense System through the integration of MDA developed capabilities.</p> <p>Refocused Integrated Build C and D on regional conflicts Conducted Design Review to clarify function interrelationships among Ballistic Missile Defense System Element program content Conducted the initial System/Subsystem Requirements Review for Integrated Build D Continued technical evaluation of emerging adversary characteristics to be included within the Adversary Data Package Developed updates for the Ballistic Missile Defense System Description Document and the Ballistic Missile Defense System Specification to document build content approved for design initiation or refinement and integration into the Ballistic Missile Defense System Conducted engineering analyses and performed trade studies for system design and implementation products to include Ballistic Missile Defense System Specification and Ballistic Missile Defense System Interface Control Documents. Provided updated requirements - Target Capabilities Specification, Information Exchange Requirements and Design Parameters Experiments</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>Provided requirements traceability and certification guidance and conducted detailed System/Element requirements reconciliation to resolve technical disconnects and ensure common System/Element requirements understanding and intent</p> <p><i>FY 2010 Plans:</i> Support System Design Review following Element Preliminary Design Reviews to review the maturity of the technical baseline and plans for integration, test and verification prior to execution Perform technical evaluation of emerging adversary characteristics to be included within future Adversary Data Packages Develop revised Ballistic Missile Defense System Description Document, Ballistic Missile Defense System Specification, and Ballistic Missile Defense System Interface Control Documents to document build content approved for design initiation or refinement and integration into the Ballistic Missile Defense System and concepts demonstrating the most potential for improving Ballistic Missile Defense System effectiveness and integrate them into Ballistic Missile Defense System program planning Conduct engineering analyses and perform trade studies for system design and implementation products to include Ballistic Missile Defense System Specification and Ballistic Missile Defense System Interface Control Documents Provide updated requirements traceability and certification guidance and conducted detailed System/Element requirements reconciliation to resolve technical disconnects and ensure common System/Element requirements understanding and intent</p> <p><i>FY 2011 Base Plans:</i> The program content in this project is reported under Project MD24 in PB11.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>								
Integration and Assessment See Description Below				24.976	22.801	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></p> <p>Integration and Assessment conducted the third, fourth and fifth phase of the SE&I process to prove Missile Defense works: 3) horizontal integration of software and hardware; 4) test integration, verification and model validation; and 5) operational assessments to facilitate fielding.</p> <p>Horizontal integration of software and hardware described those system engineering activities and events required to structure and test new functionality as an integrated, seamless, end-to-end Ballistic Missile Defense capability composed of Elements and components working together to effect simultaneous ballistic missile defense engagements. SE&I built a time-phased Master Integration Plan that defined integration phases for incremental Ballistic Missile Defense System capabilities and allocates the functionality and performance requirements captured in the Ballistic Missile Defense System Description Document and Ballistic Missile Defense System Specification to those integration phases. These bundled sets of capability with their associated model data validation requirements then became the basis for defining the required test program in the Integrated Master Test Plan and Ballistic Missile Defense System Level Testing. Part of the horizontal integration phase is participation in Element level design reviews to ensure Ballistic Missile Defense System specifications ;were being properly implemented. In addition SE&I conducted routine program execution and technical reviews with MDA leadership to review the status of developing the required hardware and software and making it available to enable integrated system testing.</p> <p>The Ballistic Missile Defense System performance evaluation strategy is to develop models and simulations of the Ballistic Missile Defense System 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 Ballistic Missile Defense System configurations, engagement conditions, and target phenomena. In the test integration, verification and model validation phase, Engineering studies and analysis enable the allocation of test requirements to individual test events, design of test architectures, and generation of appropriate scenarios for ground</p>					

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B. Accomplishments/Planned Program (\$ in Millions)					
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO
<p>and flight tests to collect the required model validation data. SE&I also works with the Services` Operational Test Agencies (OTA), with the support of the Director of Operational Test and Evaluation (DOT&E), to incorporate operational test requirements under development to ensure the incremental capability to be transferred to the warfighter will be operationally effective, suitable, and survivable. SE&I incorporates these requirements into a database and tracks sufficiency of data collected during each test event. Shortfalls in data collections are identified and reallocated to future test events until all identified model validation data is collected. Suitability data to enable Reliability, Availability and Maintainability (RAM) assessments is collected through a Joint Reliability and Maintainability Engineering Team (JRMET) and quarterly data scoring boards with the Elements so that the warfighting commanders have confidence in the predicted performance of the Ballistic Missile Defense System.</p> <p>During the test planning and execution phase, SE&I provides the needed system engineering assistance to the Test organization by ensuring tests are appropriately planned, test objectives are developed, critical engagement conditions and empirical measurement events are identified, test scenarios are certified, and ground test models are accredited for use. SE&I performs test configuration management, assesses test risks, and tracks anomalies occurring in pre-mission ground testing. SE&I review all test incident reports generated during test and analysis and tracks and reports progress toward resolution until closed. SE&I engineers and analysts collect and analyze data required for system verification, assessment and model validation.</p> <p>Performance Verification ensures the ``as built`` system is compliant with the system specification and assesses performance of the delivered capability. The verification is accomplished in two ways. First all system specification requirements are allocated and traced to equivalent specifications at the MDA element and component level. Then when the element or component verification activity is complete, the result is rolled up and reported at the system level. When all allocated shalls are verified, the system specification is verified. Second, performance requirements are allocated to performance assessments (PA) events which assess Element and System performance against a specified set of</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX24: <i>Systems Engineering & Integration</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>realistic threat scenarios and environments. The performance assessment events use performance models which were verified, validated and accredited using the data collected by the test program.</p> <p>In the final engineering phase, SE&I uses a compilation of flight tests, ground tests, performance assessments and other analyses as described in the Capability Assessment Plan to perform a technical assessment of the incrementally delivered capability and provides an a system engineering assessment report summarizing the verification and assessment activities. Together with the Military Utility Assessments and operational test and evaluation assessments, the Warfighter obtains technical knowledge of the system`s capabilities that facilitates development and deployment decisions by the Department of Defense. This assessment activity links the warfighting community and the Systems Engineering team and provides sustaining engineering and analytical services for configuration management, operations and sustainment of Ballistic Missile Defense System capabilities before, during and after transition of fielded capability.A permanent on-site presence in the Warfighter Support Center enhances our ability to provide Joint Functional Component Command-Integrated Missile Defense (JFCC-IMD) quick responses to Ballistic Missile Defense System operational capability questions. Additionally, the transition of an available defensive capability to the Warfighter is facilitated by advocating user-requested changes and modifications to the designed system through the Prioritized Capabilities List, Modification and Fielding Request Lists and the Warfighter Involvement Process.</p> <p>Provided system-level engineering inputs to integration task forces charged with facilitating the design, integration, test and fielding of cross-cutting integrating capabilities (e.g., Concurrent Test, Training, and Operation, Discrimination Capability Engineering, and Engage on System Track) Updated the Master Integration Plan (MIP) to incorporate changes in planned Ballistic Missile Defense System capability deliveries, and the Planning Allocation Matrix (PAM) tool to support 2009-2015 integration, test, assessment, and verification activities Published an end-of-year System Engineering Assessment Report (SEAR) of Ballistic Missile Defense System performance demonstrated in Ballistic Missile Defense System-level testing and analyses</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)																	
<table border="1"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%;">FY 2009</th> <th style="width: 10%;">FY 2010</th> <th style="width: 10%;">FY 2011 Base</th> <th style="width: 10%;">FY 2011 OCO</th> <th style="width: 10%;">FY 2011 Total</th> </tr> </thead> <tbody> <tr> <td> <p>Performed test configuration management, assessed test risks, and tracked and resolved anomalies occurring in ground testing thereby reducing flight test risks</p> <p>Finalized the development of the System Specifications and associated interface requirements for Ballistic Missile Defense System Integrated Build D capabilities</p> <p>Defined test objectives and provided scenario support for all system level test events, including identification of critical engagement conditions and empirical measurement events</p> <p><i>FY 2010 Plans:</i></p> <p>Provide system-level engineering inputs to Integration Task Forces charged with facilitating the design, integration, test and fielding of cross-cutting integrating capabilities (e.g., Concurrent Test, Training, and Operation, Discrimination Capability Engineering, and Engage on System Track)</p> <p>Update the Master Integration Plan (MIP) to incorporate any changes in planned delivery of Ballistic Missile Defense System content, and the Planning Allocation Matrix (PAM) tool to support 2010-2015 integration, test, assessment, and verification activities</p> <p>Perform test configuration management, assess test risks, and track and resolve anomalies occurring in ground testing in order to reduce flight test risks</p> <p>Provide engineering inputs for Integrated Master Test Plan updates</p> <p>Define test objectives and provide scenario support for all system level test events, to include identification of critical engagement conditions and empirical measurements events</p> <p>Define and execute required performance assessments to support Capability Delivery Readiness Reviews and incremental capability deliveries</p> <p>Conduct integration, provide test execution support, and verify European Phased Adaptive Approach capabilities</p> <p><i>FY 2011 Base Plans:</i></p> <p>The program content in this project is reported under Project MD24 in PB11.</p> </td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	<p>Performed test configuration management, assessed test risks, and tracked and resolved anomalies occurring in ground testing thereby reducing flight test risks</p> <p>Finalized the development of the System Specifications and associated interface requirements for Ballistic Missile Defense System Integrated Build D capabilities</p> <p>Defined test objectives and provided scenario support for all system level test events, including identification of critical engagement conditions and empirical measurement events</p> <p><i>FY 2010 Plans:</i></p> <p>Provide system-level engineering inputs to Integration Task Forces charged with facilitating the design, integration, test and fielding of cross-cutting integrating capabilities (e.g., Concurrent Test, Training, and Operation, Discrimination Capability Engineering, and Engage on System Track)</p> <p>Update the Master Integration Plan (MIP) to incorporate any changes in planned delivery of Ballistic Missile Defense System content, and the Planning Allocation Matrix (PAM) tool to support 2010-2015 integration, test, assessment, and verification activities</p> <p>Perform test configuration management, assess test risks, and track and resolve anomalies occurring in ground testing in order to reduce flight test risks</p> <p>Provide engineering inputs for Integrated Master Test Plan updates</p> <p>Define test objectives and provide scenario support for all system level test events, to include identification of critical engagement conditions and empirical measurements events</p> <p>Define and execute required performance assessments to support Capability Delivery Readiness Reviews and incremental capability deliveries</p> <p>Conduct integration, provide test execution support, and verify European Phased Adaptive Approach capabilities</p> <p><i>FY 2011 Base Plans:</i></p> <p>The program content in this project is reported under Project MD24 in PB11.</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX24: <i>Systems Engineering & Integration</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						
Systems Assessment and Analysis See Description Below <i>FY 2009 Accomplishments:</i> Systems Assessment and Analysis produced analyses for all phases of the systems engineering process. It ;was the only analytic team looking across system/element/product programs to support the Ballistic Missile Defense System architecture and systems engineering process with force-on-force effectiveness analyses, identification of system level gaps and shortfalls to defeat adversary capabilities, formulation of system alternatives and their relative contributions, engineering trade studies, Warfighter/war-game analysis support and rapid responses to senior Department (MDA Director/Deputy Director, Defense Secretary) and external (State Department, National Security Council) questions and scenarios. Further, Ballistic Missile Defense System Assessment and Analysis provided engineering and analysis for new capability definitions, Ballistic Missile Defense System Specifications, and Test Planning and Certification; developed threat scenarios; and accomplished trade studies for Element and system-level reviews, such as Technical Interchange Meetings (TIMs), System Requirement Reviews (SRR) and Sub System Readiness Reviews (SSRR). The Systems Assessment and Analysis team is responsible for maintaining and updating the Ballistic Missile Defense System Effectiveness Metric Standard (EMS), which defines requirements and recommendations for methodologies and practices used in the computation and presentation of performance effectiveness metrics. It also updated and maintained the Element/Component Characterizations for Analysis (E/CCA), a database of system-level performance parameters that ensure correct and consistent analysis inputs. The Systems Assessment and Analysis team also provided the MDA Director with the technical basis and rationale for developing and balancing the integrated, layered Ballistic Missile Defense System.		14.710	20.296	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>Conducted over 500 system level performance analyses to support Ballistic Missile Defense System Architecture and Systems Engineering; responded to Warfighter requests; and addressed questions from the Executive Branch, Legislative Branch, and delegations from international partners</p> <p>Developed over 1,400 separate documents and briefings (including 174 Department of Defense, 21 Congressional, 18 other country, 5 Executive Branch)</p> <p>Updated the Element/Component Characterizations for Analysis (E/CCA)</p> <p>Completed an update and revision of the Effective Metric Standard (EMS) necessary for systematic presentation of alternatives to MDA senior leaders and the Combatant Commanders</p> <p><i>FY 2010 Plans:</i></p> <p>Continue to conduct system level performance analysis to support Ballistic Missile Defense System Architecture and Systems Engineering</p> <p>Predict performance for each Phased Adaptive Approach phase as input to System architecture and design efforts</p> <p>Update the Element/Component Characterizations for Analysis (E/CCA)</p> <p>Continue to maintain the Effective Metric Standard (EMS) necessary for systematic presentation of alternatives to MDA senior leaders and the Combatant Commanders</p> <p>Provide independent engineering technical assessments in Ballistic Missile Defense System and Element programs to examine critical areas as designated by the Director for Engineering</p> <p><i>FY 2011 Base Plans:</i></p> <p>The program content in this project is reported under Project MD24 in PB11.</p> <p><i>FY 2011 OCO Plans:</i></p> <p>NA</p>										
Program Management										
16.747 11.163 0.000 0.000 0.000										

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B. Accomplishments/Planned Program (\$ in Millions)										
See Description Below										
<p><i>FY 2009 Accomplishments:</i> Program Management provides overall program operations support to the Missile Defense Agency Systems Engineering and Integration (SE&I) program to include planning, programming, budgeting and execution system (PPBES) support, contract management, Congressional and Inspector General responses and correspondence, information and document management, policy and procedures, security, and government human relations functions. In addition, manages 2086 MDA Baselines (Development, Operational) and provide configuration control support for Ballistic Missile Defense System Headquarters level.</p> <p>Developed Ballistic Missile Defense System solutions to special projects (North Korean Launch Operations) Responded to Congressional, Inspector General, and Department of Defense actions Implemented consistent task management across all programs and contracts including performance indicators and regular reporting Provided project/program management and control for all SE&I Maintained Master Schedule for Systems Engineering products and coordinated with the overall MDA Integrated Program Policy Performed Contracting Officer's Representative functions for all project support functions including contract cost oversight Maintained information library of all official engineering documents and briefings Managed personnel and MDA site and information security Directed development of engineering core competencies within the workforce</p> <p><i>FY 2010 Plans:</i> Develop Ballistic Missile Defense System solutions to special projects Respond to Congressional, Inspector General, and Department of Defense actions</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>Implement consistent task management across all programs and contracts including performance indicators and regular reporting Provide project/program management and control for all SE&I Maintain Master Schedule for System Engineering products and coordinate with the overall MDA Integrated Program Policy Perform contracting officer`s representative functions for all project support functions including contract cost oversight Maintain information library of all official engineering documents and briefings Direct development of engineering core competencies within the workforce</p> <p><i>FY 2011 Base Plans:</i> The program content in this project is reported under Project MD24 in PB11.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>International See Description Below</p> <p><i>FY 2009 Accomplishments:</i> International System Engineering identified potential technical opportunities to strengthen/improve the globalization of the US Ballistic Missile Defense System through collaborative international partnerships. International Systems Engineering also provided technical content and analyses to facilitate international discussions led by the MDA Deputy for International Affairs, integrated and interoperable with North Atlantic Treaty Organization. Technical analyses enable both the US and foreign partners to understand existing system capabilities, architectural performance, operational concepts, identification of potential opportunities for collaboration; and to also discuss, develop, and execute program plans supporting more effective defenses to defeat adversary capabilities.</p>		0.651	0.657	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>Conducted discussions with new partners in the Middle East to support policy development and acquisition decisions given their growing interest in ballistic missile defense</p> <p>Continued to support ongoing UK Sea Base, Japan, North Atlantic Treaty Organization Missile Defense Study, and future tasking stemming from the 2009 North Atlantic Treaty Organization Summit</p> <p>Investigated planning for at sea test of UK`s Type 45 destroyer and its Sampson Radar as a long range search and track asset.</p> <p>Continued discussions with European partners on international flight test cooperation, architecture studies and analyses, and lethality/consequence of intercept issues</p> <p>Continued to support US-Japan systems integration projects through leadership of the Technical Sub-Group, participation in the Standard Missile 3 (SM-3) Cooperative Development (SCD) and execution of Joint System Analyses</p> <p>Initiated discussions with Republic of Korea about conduct of a Joint Program Analysis focused on improved missile defense of the Korean peninsula</p> <p>Conducted Joint Systems Analysis Program with Japan, focused upon Japan defense and US homeland defense contributions</p> <p><i>FY 2010 Plans:</i></p> <p>Conduct discussions with Gulf nations interested in population, critical asset and force protection from adversary ballistic missiles</p> <p>Continue discussions with France, United Kingdom, Netherlands and other European nations on cooperation in future international flight tests, architectural studies and analyses, and lethality/ consequence of intercept issues</p> <p>Examine opportunities to improve Ballistic Missile Defense System capabilities through International collaboration</p> <p>Continue to support US-Japan systems integration projects through leadership of the Technical Sub-Group, participation in the Standard Missile 3 (SM-3) Cooperative Development and execution of Joint System Analyses</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> The program content in this project is reported under Project MD24 in PB11.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>								
<p>Threat</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Threat Systems Engineering provides critical inputs to the planning, design and specification, integration and implementation, and test verification and assessment phases of the systems engineering process. The Threat team uses intelligence community data to define adversary missile capabilities and directly supports the development of the Ballistic Missile Defense System Description Document and System Specification. Common threat engineering produces common and consistent adversary trajectory and signature data to enable Ballistic Missile Defense 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 Ballistic Missile Defense System ground tests, flight tests, digital simulations, and pre-mission analysis activities. Common Threat is also used to develop the Ballistic Missile Defense System Description Document and Ballistic Missile Defense System Specification, and support European and Russian cooperative activities, North Korean and Iranian pre- and post-flight launch analysis, and the enhanced Israeli Interceptor program. Threat systems engineering also develops scenarios for system and element utilization for compliance and assessment evaluations of Ballistic Missile Defense System capability to defend homeland, deployed forces, and friends and allies (including the European Phased Adaptive Approach).</p>				11.668	15.223	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>Developed an agency-wide Common Threat baseline to provide data for Ballistic Missile Defense System design, verification, and assessment</p> <p>Completed the Build D Adversary Data Package update to document adversary missile capabilities and characterizations consistent with projected threat environment for the Ballistic Missile Defense System</p> <p>Produced all the threat data required to enable Ballistic Missile Defense System Ground Test ;04 (GT-04), Ballistic Missile Defense System Performance Assessment 10 (PA-10), Fiscal Year 2009 war games and exercises, and the implementation of Improved Ballistic Missile Defense System discrimination</p> <p>Produced scenario data for Element and Component design and assessment for Ballistic Missile Defense System Integrated Build D, Aegis BMD 5.1, and Far Term Sea-Based Terminal</p> <p>Developed threat data for special projects</p> <p>Validated that Ballistic Missile Defense System test targets for FTM-15, FTG-06, and FTT-10a are threat representative</p> <p><i>FY 2010 Plans:</i></p> <p>Maintain and update the agency-wide common and consistent Ballistic Missile Defense System threat to provide data for future Ballistic Missile Defense System design, verification, and assessment</p> <p>Continue to update adversary missile capabilities and characterizations consistent with projected threat environment for the Ballistic Missile Defense System Builds</p> <p>Produce all the threat data required to enable Ballistic Missile Defense System Ground Tests (GTX-04b and GTX-04c), Ballistic Missile Defense System Performance Assessment 2009 and 2010 (PA-09 and PA-10), and Fiscal Year 2010 war games and exercises as documented in the Ballistic Missile Defense System Integrated Master Test Plan</p> <p>Produce scenario data for Element and Component design and assessment for Ballistic Missile Defense System Build D updates, including all phases of the European Phased Adaptive Approach</p> <p>Develop threat data for special 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
Validate that Ballistic Missile Defense System test targets for IFTM-03, FTG-06, and FTT-11/12 are threat representative <i>FY 2011 Base Plans:</i> The program content in this project is reported under Project MD24 in PB11. <i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	107.835	98.684	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

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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 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX24: <i>Systems Engineering & Integration</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

The execution of program activities is a collaborative effort involving subject matter experts composed of Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), System Engineering and Technical Assistance (SETA), and Industry. This combination of resources forms an integrated team to accomplish the necessary engineering for the Ballistic Missile Defense System. In addition, extensive involvement by the major defense contractors responsible for the development of the Ballistic Missile Defense System, Elements, and major components is required. Countermeasure/Counter-Countermeasure initiatives will be executed by various labs and industry contractors through the MDA Advanced Systems directorate and Ballistic Missile Defense System Element Program Offices.

E. Performance Metrics

N/A

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX24: <i>Systems Engineering & Integration</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			
Future Concepts and Planning Industry YX24	TBD/CPAF	Boeing VA	29.691	3.152	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Future Concepts and Planning CSS-1 YX24	TBD/CPFF	CSC VA	8.137	0.841	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Future Concepts and Planning CSS-2 YX24	TBD/CPFF	Cobham VA	8.486	0.841	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Future Concepts and Planning FFRDC/ UARC-1 YX24	TBD/TBD	MIT/LL MA	0.988	0.210	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Future Concepts and Planning FFRDC/ UARC-2 YX24	TBD/TBD	JHU/APL VA	0.988	0.210	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
	TBD/TBD	IDA VA	1.000	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

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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			
Future Concepts and Planning FFRDC/ UARC-3 YX24													
Countermeasures/ Counter-Countermeasures (CM/ CCM) Industry YX24	TBD/CPAF	Boeing VA	11.579	0.607		0.000		0.000		0.000	Continuing	Continuing	Continuing
Countermeasures/ Counter-Countermeasures (CM/ CCM) CSS-1 YX24	TBD/CPFF	CSC VA	8.855	0.464		0.000		0.000		0.000	Continuing	Continuing	Continuing
Countermeasures/ Counter-Countermeasures (CM/ CCM) CSS-2 YX24	TBD/CPFF	Cobham VA	8.855	0.464		0.000		0.000		0.000	Continuing	Continuing	Continuing
Countermeasures/ Counter-Countermeasures (CM/ CCM) FFRDC/UARC-1 YX24	TBD/TBD	IDA VA	1.362	0.071		0.000		0.000		0.000	Continuing	Continuing	Continuing
Countermeasures/ Counter-Countermeasures (CM/ CCM) FFRDC/UARC-2 YX24	TBD/TBD	SNL CA	0.681	0.036		0.000		0.000		0.000	Continuing	Continuing	Continuing
Countermeasures/ Counter-	TBD/TBD	DSTL UK	2.724	0.143		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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX24: <i>Systems Engineering & Integration</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			
Countermeasures (CM/CCM) UK Mod YX24													
BMDS Design and Specifications Industry YX24	TBD/CPAF	Boeing VA	17.518	13.830	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Design and Specifications CSS-1 YX24	TBD/CPFF	CSC VA	1.412	2.375	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Design and Specifications CSS-2 YX24	TBD/CPFF	Cobham VA	1.397	2.428	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Design and Specifications FFRDC/UARC-1 YX24	TBD/TBD	Aerospace CA	0.350	0.000	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Design and Specifications FFRDC/UARC-2 YX24	TBD/TBD	JHU-APL VA	0.984	0.417	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Design and Specifications FFRDC/UARC-3 YX24	TBD/TBD	MIT-LL MA	0.413	0.718	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Design and Specifications FFRDC/UARC-4 YX24	TBD/TBD	MITRE NJ	0.184	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Design and Specifications Other DOD YX24	TBD/TBD	NSWC IN	2.000	1.737	Apr 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			
Integration and Assessment Industry YX24	TBD/CPAF	Boeing VA	18.510	8.665	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Integration and Assessment CSS-1 YX24	TBD/CPFF	CSC VA	12.227	5.700	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Integration and Assessment CSS-2 YX24	TBD/CPFF	Cobham VA	13.285	6.156	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Integration and Assessment FFRDC/ UARC-1 YX24	TBD/TBD	Aerospace CA	2.017	0.912	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Integration and Assessment FFRDC/ UARC-2 YX24	TBD/TBD	JHU-APL VA	1.383	0.684	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Integration and Assessment FFRDC/ UARC-3 YX24	TBD/TBD	MIT-LL MA	0.579	0.228	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Integration and Assessment FFRDC/ UARC-4 YX24	TBD/TBD	SNL CA	0.883	0.456	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Assessment and Analysis Industry YX24	TBD/CPAF	Boeing VA	14.143	9.742	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Assessment and Analysis CSS-1 YX24	TBD/CPFF	CSC VA	7.662	5.277	Apr 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			
Systems Assessment and Analysis CSS-2 YX24	TBD/CPFF	Cobham VA	7.662	5.277	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
International CSS YX24	TBD/CPFF	Cobham VA	0.103	0.053		0.000		0.000		0.000	Continuing	Continuing	Continuing
International FFRDC/UARC YX24	TBD/TBD	JHU-APL VA	1.219	0.604		0.000		0.000		0.000	Continuing	Continuing	Continuing
Threat Industry YX24	TBD/CPAF	Boeing VA	9.104	6.650	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Threat CSS-1 YX24	TBD/CPFF	CSC VA	2.038	1.489	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Threat CSS-2 YX24	TBD/CPFF	Cobham VA	1.154	0.843	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Threat FFRDC/UARC-1 YX24	TBD/TBD	JHU-APL VA	1.409	1.029	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Threat FFRDC/UARC-2 YX24	TBD/TBD	MIT-LL MA	0.739	0.540	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Threat FFRDC/UARC-3 YX24	TBD/TBD	SNL CA	0.852	0.623	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Threat CSS-3 YX24	TBD/CPFF	Schafer VA	5.542	4.049	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			208.115	87.521		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			
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			
Program Management CSS-1 YX24	TBD/CPFF	CSC VA	5.118	1.786	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Program Management CSS-2 YX24	TBD/CPFF	Cobham VA	17.272	6.028	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Program Management CSS-3 YX24	TBD/CPFF	Paradigm VA	0.957	0.335	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Program Management FFRDC/UARC-1 YX24	TBD/TBD	Aerospace VA	5.118	1.786	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Program Management FFRDC/UARC-2 YX24	TBD/TBD	JHU-APL VA	0.960	0.335	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Program Management FFRDC/UARC-3 YX24	TBD/TBD	MITRE VA	1.599	0.558	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Program Management FFRDC/UARC-4 YX24	TBD/TBD	USU-SDL VA	0.960	0.335	Apr 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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX24: <i>Systems Engineering & Integration</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			31.984	11.163		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	240.099	98.684		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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX24: <i>Systems Engineering & Integration</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
Capability Assessment Plan (CAP) / Update - FY2009		■																										
Capability Assessment Plan (CAP) / Update - FY2010							■																					
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2009				■																								
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2010								■																				
BMD System Interface Control Documents (SICD) - FY2009	■																											
BMD System Interface Control Documents (SICD) - FY2010							■																					
Master Integration Plan (MIP) - FY2009		■																										
Master Integration Plan (MIP) - FY2010							■																					
Adversary Data Package (ADP) - FY2009	■																											
Adversary Data Package (ADP) - FY2010							■																					
Deliver Special Studies Report				■																								
System Engineering Assessment Report (SEAR) - FY2009	■																											
System Engineering Assessment Report (SEAR) - FY2010							■																					
BMD System Description Document (BMD S-DD) - FY2009	■																											

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX24: <i>Systems Engineering & Integration</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 Description Document (BMD S-DD) - FY2010						■																						
Incremental Capability Delivery Support												■																
Provide Independent Assessments to MDA - FY2009				■																								
Provide Independent Assessments to MDA - FY2010												■																
BMD System Specification (BMD SS) - FY2009	■																											
BMD System Specification (BMD SS) - FY2010							■																					
Element Preliminary Design Reviews							■																					
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2009		■																										
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2010							■																					
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2009				■																								
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2010												■																
Subsystem Requirements Review		■																										
Deliver Engineering Change Plans for CCM Improvements - FY2009				■																								

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX24: <i>Systems Engineering & Integration</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 Engineering Change Plans for CCM Improvements - FY2010								■																				
PAA Capability Planning Specifications (CPS) - FY2010								■																				
PAA System Concept Review (SCR)					■																							

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX24: <i>Systems Engineering & Integration</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Capability Assessment Plan (CAP) / Update - FY2009	2	2009	2	2009
Capability Assessment Plan (CAP) / Update - FY2010	2	2010	2	2010
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2009	4	2009	4	2009
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2010	4	2010	4	2010
BMD System Interface Control Documents (SICD) - FY2009	1	2009	1	2009
BMD System Interface Control Documents (SICD) - FY2010	2	2010	2	2010
Master Integration Plan (MIP) - FY2009	2	2009	2	2009
Master Integration Plan (MIP) - FY2010	2	2010	2	2010
Adversary Data Package (ADP) - FY2009	1	2009	1	2009
Adversary Data Package (ADP) - FY2010	1	2010	1	2010
Deliver Special Studies Report	4	2009	4	2009
System Engineering Assessment Report (SEAR) - FY2009	1	2009	1	2009
System Engineering Assessment Report (SEAR) - FY2010	1	2010	1	2010
BMD System Description Document (BMD S-DD) - FY2009	1	2009	1	2009
BMD System Description Document (BMD S-DD) - FY2010	2	2010	2	2010
Incremental Capability Delivery Support	4	2010	4	2010
Provide Independent Assessments to MDA - FY2009	4	2009	4	2009
Provide Independent Assessments to MDA - FY2010	4	2010	4	2010

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Event	Start		End	
	Quarter	Year	Quarter	Year
BMD System Specification (BMD SS) - FY2009	1	2009	1	2009
BMD System Specification (BMD SS) - FY2010	1	2010	1	2010
Element Preliminary Design Reviews	2	2010	2	2010
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2009	2	2009	2	2009
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2010	2	2010	2	2010
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2009	4	2009	4	2009
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2010	4	2010	4	2010
Subsystem Requirements Review	2	2009	2	2009
Deliver Engineering Change Plans for CCM Improvements - FY2009	4	2009	4	2009
Deliver Engineering Change Plans for CCM Improvements - FY2010	4	2010	4	2010
PAA Capability Planning Specifications (CPS) - FY2010	4	2010	4	2010
PAA System Concept Review (SCR)	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
<i>MD24: System Engineering & Integration</i>	0.000	0.000	124.040	0.000	124.040	155.241	144.571	157.903	167.762	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 YX24 for FY 2009 - FY 2010 is now captured in Project MD24 for FY 2011 - FY 2015.

For FY 2011, BMDS Engineering Technology Protection and Standards (Anti-Tamper, Engineering Manufacturing Readiness Level Assessments, Commonality and Standards) was transferred from Producibility and Manufacturing Technology (MD29) to Systems Engineering and Integration (MD24).

For FY 2011 - FY 2015, the Ballistic Missile Defense System (BMDS) Capability Assessment (BCA) Integrated Master Test Plan (IMTP) was transferred from Test and Targets (MD04) to Systems Engineering & Integration (MD24).

A. Mission Description and Budget Item Justification

Systems Engineering and Integration's (SE&I) goals are to continue the development and improvement of the integrated Ballistic Missile Defense System and to prove the effectiveness of the system. The Agency will perform the analysis and engineering trades to support the Quadrennial Defense Review (QDR), the Ballistic Missile Defense Review, and policy decisions on European Ballistic Missile Defense. Our engineering focus will shift to enhancing regional Ballistic Missile Defense and providing system improvements to enable earlier Ballistic Missile Defense engagements. The SE&I provides analysis, decision-making and planning activities for real-world operations in support of the White House, Joint Staff, Military Services, North Atlantic Treaty Organization, Combatant Commanders (Military Utility Assessment), Operational Test Agencies, Director of Operational Test and Evaluation, Allies, and others. The SE&I is the single team that leads and executes this process and applies its technical expertise, tools, and facilities in a collaborative effort that cuts across many disciplines and specialties to realize this goal.

Regional Defense: 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 North Atlantic Treaty Organization territories and enhance U.S. homeland defense, it will be complementary of and interoperable with those being developed by North Atlantic Treaty Organization, be

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<p>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. SE&I will play an integral in European Phased Adaptive Approach development by providing Ballistic Missile Defense System functional requirements and documenting them in Capability Planning Specifications for specific phases, defining test objectives to demonstrate regional defense performance, and verifying and assessing the capability of each European Phased Adaptive Approach phase.</p> <p>SE&I Process: The systems engineering process which defines required system-wide Ballistic Missile Defense behavior, supports and evaluates Element and component system designs, and assesses and verifies system capability across the entire Ballistic Missile Defense System, involves five-phases: 1) Systems engineering planning/concept development; 2) design and specification; 3) integration 4) test and verification and assessment; and 5) operational integration (fielding). To provide context for the design process SE&I: defines the adversary capabilities and operating environments that could be used to defeat or degrade the Ballistic Missile Defense System; identifies where performance gaps exist in Ballistic Missile Defense System capabilities; and determines what improvements are required to close those gaps. SE&I provides requirements for top-down, overall architectural direction for system development and assessment in compliance with those requirements that ensure the Ballistic Missile Defense System functions as a seamless fully integrated system. To accomplish this, Ballistic Missile Defense System capabilities are matured using system `builds`. Each system build progresses through a series of rigorous requirements, design, and management review process with pre-defined entrance and exit criteria. These events take place at both the system and element level. SE&I also stays focused on opportunities to insert and integrate high-payoff advanced technologies over time to: upgrade system components (sensors, weapons, and C2BMC); improve Ballistic Missile Defense System overall performance; expand our protection coverage; increase military utility; and improve effectiveness against increasingly sophisticated and proliferating threats. The SE&I process provides requirements which other Ballistic Missile Defense System programs and elements depend upon to achieve successful integration.</p> <p>Products: Fundamental to the SE&I approach is development, coordination, and dissemination of fully vetted products at each stage of the SE&I process. These products document and communicate key information such as: technical goals and objectives, design trades and resulting decisions; design and interface requirements; integration plans and schedules; test objectives aimed at collecting the data needed to anchor models and simulations, assessment and test results and fielding plans. Ballistic Missile Defense Systems Engineering provides significant and thorough guidance through the Ballistic Missile Defense System Description Document and Ballistic Missile Defense System Specifications for elements to design, build, integrate and test Ballistic Missile Defense System components. These products optimize performance at the system level and further ensure that the assessment of the designed Ballistic Missile Defense System is based on sufficient ground and flight testing. System Engineering monitors element and component compliance with Ballistic Missile Defense System level requirements through a series of requirements and design reviews both at the system and element levels. The Ballistic Missile Defense System Interface Control Documents (SICDs), the Capability Assessment Plan (CAP), the Modeling and Simulation Master Plan, and the Master Integration Plan provide additional guidance to the Ballistic Missile Defense System elements and components. System engineering has the key role in Ballistic Missile Defense System test design and development through the use of the Critical Engagement Conditions (CEC). The critical engagement conditions ensure that the focus of the Ballistic Missile Defense System testing is on the data necessary not only to show proper system operation, but also to provide solid validation, verification and assessment data for digital simulations of the Ballistic Missile Defense</p>		

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<p>System. These models along with a rigorous test and verification process will inform fielding decisions and operations. A brief description of some of the remaining, but as essential, System Engineering products follows:</p> <p>Adversary Capabilities Document (ACD) - provides an engineering threat reference that details overall feasible threat space and representative Systems including countermeasures Concept Descriptions (CDs) - describe a proposed concept to enhance the Ballistic Missile Defense System in sufficient detail for evaluation Achievable Capabilities List (ACL) - a determination based on technology maturity, affordability, and emerging threat assessments of what capabilities desired by the warfighter are achievable Capability Planning Specification (CPS) - documents the preliminary requirements for new programs and specific upgrades for the system Adversary Data Package (ADP) - provides common and consistent threat data including countermeasures to drive Ballistic Missile Defense System weapon system designs, ground and flight tests, digital simulations, and pre-mission analysis Analysis Guidance Document (AGD) - sets common analysis scenarios for system/element/component assessments and evaluations Element/Component Characterizations for Analysis (E/CCA) - a database of system-level performance parameters that ensure correct and consistent medium fidelity analysis inputs across the Agency System Engineering Assessment Report (SEAR) - annual end-of-year report on progress toward achieving capability objectives</p> <p>Collaboration: SE&I's disciplined engineering process consists of setting technical objectives and goals, understanding the threat, exploring alternative system design concepts, performing design trades to inform the selection and implement the best design, verifying that the specified design is properly built, integrated and fielded, and then assessing how well the system meets performance goals. This occurs in a collaborative engineering environment in close partnership with key stakeholders such as the Element developers, Combatant Commands, and international partners. Systems Engineering and Integration further collaborates with the Director for Operations on the system content and activities described in the Ballistic Missile Defense System Master Plan (BMP).</p> <p>Unifying Missile Defense Functions: MDA has identified a set of Unifying Missile Defense Functions (UMDFs), which focus on key capabilities necessary to increase the effectiveness of the Ballistic Missile Defense 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 Unifying Missile Defense Function 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). Unifying Missile Defense Functions are implemented across the Ballistic Missile Defense System 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.</p>		

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<p>New Technologies: SE&I ensures that as new capabilities such as early intercept and precision tracking from space are added to the Ballistic Missile Defense System and the SE&I process remains focused on overall Ballistic Missile Defense System mission objectives and desired system performance. As these new capabilities are defined and requirements are allocated to the sensor, weapon and Command and Control Battle Management Communications elements, a cadre of Ballistic Missile Defense System engineers works concurrently with the elements to produce the most effective solutions. When the capabilities are mature, we evaluate their readiness for production using an engineering tool known as Engineering and Manufacturing Readiness Level (EMRL) assessment, so that risks are understood in advance of production decisions. We also develop anti-tamper approaches so that Ballistic Missile Defense System assets can be fielded outside the United States.</p> <p>Ballistic Missile Defense System Level Testing: The best way to dissuade the proliferation of ballistic missiles and deter their employment is through compelling testing and demonstration of integrated ballistic missile defense capabilities--weapons, sensors, and command and control, battle management and communications. Integrated Ballistic Missile Defense capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide the most accurate track of the enemy missile 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 and Control, Battle Management, and Communications system. For example, integrating autonomous missile defense elements greatly expands the area protected and increases the protection levels without incurring additional force structure costs. In conjunction with the Director for Test, Systems Engineering and Integration supplies test objectives, critical engagement conditions, and empirical measurement events, and collaborates on the Integrated Master Test Plan (IMTP) to ensure the test program gathers the data necessary to anchor models and simulations used to predict Ballistic Missile Defense System performance.</p> <p>System Pre- and Post-Flight Reconstruction: SE&I will support System Pre-Flight predictions for system level flight tests using the test framework set up with the Ballistic Missile Defense System 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 the collected data and data management plan will support System Post-Flight Reconstruction (SPFR) objectives. System Post-Flight Reconstruction will use a hardware in the loop and/or a Digital Modeling and Simulation Environment to replicate the day of flight for the Ballistic Missile Defense System 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 and empirical measurement events back to the real world event. System Post-Flight Reconstruction is used for validation (anchoring) of models and simulations.</p> <p>Interdependencies: 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 Ballistic Missile Defense capabilities can result in an effort funded in one Program Element being critical to success of efforts in other Program Elements, referring to these connections as `interdependencies`. Throughout the budget justification material, we have attempted to highlight System Engineering`s interdependencies with the MDA directorates and the Ballistic Missile Defense System elements and components in order to explain fully the relationship between different parts of the proposed program.</p>		

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<p>SE&I Major Program Goals:</p> <p>Engineer the integrated and layered Ballistic Missile Defense System and prove Ballistic Missile Defense performance</p> <p>Provide system-level support to the Elements for definition, design, and integration of the Unifying Missile Defense Functions</p> <p>Provide technical direction to Element and Component developers</p> <p>Develop the Adversary Threat Capability documentation</p> <p>Produce controlling specifications and analysis to drive the Ballistic Missile Defense System design</p> <p>Lead collaborative and cross- Element and -Component engineering</p> <p>Provide technical support for the Operational Ballistic Missile Defense System</p> <p>Provide engineering development for an International Global Ballistic Missile Defense</p> <p>Verify and Assess through testing the Ballistic Missile Defense System performance and capabilities</p> <p>Develop Ballistic Missile Defense System performance metrics and identify critical engagement conditions</p> <p>Support Ballistic Missile Defense System testing and Modeling and Simulation by defining test objectives necessary to develop test campaigns to anchor Ballistic Missile Defense System-level models and simulations</p> <p>Identify Ballistic Missile Defense System capabilities and limitations</p> <p>Perform analysis of alternatives</p> <p>Provide detailed analysis to support MDA Leadership and US policy decisions</p> <p>Create future Ballistic Missile Defense System architectural options</p> <p>Develop architecture frameworks and operational concepts for emerging capabilities such as early intercept</p> <p>Establish technical roadmaps focusing on unified missile defense functions</p> <p>Develop functional requirements, define test objectives, and verify and assess capabilities for the Phased Adaptive Approach</p> <p>Establish and enforce design and construction standards</p> <p>Identify manufacturing risks using Engineering and Manufacturing Readiness Level assessments to analyze the maturity of Ballistic Missile</p> <p>Defense System Element and component manufacturing processes</p> <p>Develop anti-tamper approaches to enable international fielding of the Ballistic Missile Defense System</p>		

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Integration and Assessment See Description Below <i>FY 2009 Accomplishments:</i> The program content in this project was previously reported under Project YX24 in PB10. <i>FY 2010 Plans:</i> The program content in this project was previously reported under Project YX24 in PB10. <i>FY 2011 Base Plans:</i> Integration and Assessment conducts the third, fourth and fifth phase of the SE&I process to prove Missile Defense works: 3) horizontal integration of software and hardware; 4) test integration, verification and model validation; and 5) operational assessments to facilitate fielding. Horizontal integration of software and hardware describes those system engineering activities and events required to structure and test new functionality as an integrated, seamless, end-to-end Ballistic Missile Defense capability composed of Elements and components working together to effect simultaneous ballistic missile defense engagements. SE&I builds a time-phased Master Integration Plan that defines integration phases for incremental Ballistic Missile Defense System capabilities and allocates the functionality and performance requirements captured in the Ballistic Missile Defense System Description Document and Ballistic Missile Defense System Specification to those integration phases. These bundled sets of capability with their associated model data validation requirements then become the basis for defining the required test program in the Integrated Master Test Plan and Ballistic Missile Defense System Level Testing. Part of the horizontal integration phase is participation in Element level design reviews to ensure Ballistic Missile Defense System specifications are being properly implemented. In addition, SE&I conducts routine program execution and technical reviews	0.000	0.000	41.489	0.000	41.489

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B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>with MDA leadership to review the status of developing the required hardware and software and making it available to enable integrated system testing.</p> <p>The Ballistic Missile Defense System performance assessment strategy is to develop models and simulations of the Ballistic Missile Defense System 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 Ballistic Missile Defense System configurations, engagement conditions, and target phenomena. In the test integration, verification and model validation phase, Engineering studies and analysis enable the allocation of test requirements to individual test events, design of test architectures, and generation of appropriate scenarios for ground and flight tests to collect the required model validation data. SE&I also works with the Services' Operational Test Agencies (OTA), with the support of the Director of Operational Test and Evaluation (DOT&E), to incorporate operational test requirements under development to ensure the incremental capability to be transferred to the warfighter will be operationally effective, suitable, and survivable. SE&I incorporates these requirements into a database and tracks sufficiency of data collected during each test event. Shortfalls in data collections are identified and reallocated to future test events until all identified model validation data is collected. Suitability data to enable Reliability, Availability and Maintainability (RAM) assessments is collected through a Joint Reliability and Maintainability Engineering Team (JRMET) and quarterly data scoring boards with the Elements so that the warfighting commanders have confidence in the predicted performance of the Ballistic Missile Defense System.</p> <p>During the test planning and execution phase, SE&I provides the needed system engineering assistance to the Test organization by ensuring tests are appropriately planned, test objectives are developed, critical engagement conditions and empirical measurement events are identified, test scenarios are certified, and ground test models are accredited for use. SE&I performs test configuration management, assesses test risks, and tracks anomalies occurring in pre-mission ground testing. SE&I review all test incident reports generated during test and analysis and tracks and reports</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>progress toward resolution until closed. SE&I engineers and analysts collect and analyze data required for system verification, assessment and model validation.</p> <p>Performance Verification ensures the `as built` system is compliant with the system specification and assesses performance of the delivered capability. The verification is accomplished in two ways. First all system specification requirements are allocated and traced to equivalent specifications at the MDA element and component level. When the element or component verification activity is complete, the result is rolled up and reported at the system level and when all allocated specification shalls are verified, the system specification is verified. Second, performance requirements are allocated to performance assessments (PA) events which assess Element and System performance against a specified set of realistic threat scenarios and environments. The performance assessment events use performance models which are verified, validated and accredited using the data collected by the test program.</p> <p>In the final engineering phase, SE&I uses a compilation of flight tests, ground tests, performance assessments and other analyses as described in the Capability Assessment Plan to perform a technical assessment of the incrementally delivered capability and provides a system engineering assessment report summarizing the verification and assessment activities. Together with the Military Utility Assessments and Operational Test and Evaluation assessments, the Warfighter obtains knowledge of the system`s capabilities that facilitates development and deployment decisions by the Department of Defense. This assessment activity links the warfighting community and the Systems Engineering team and provides sustaining engineering and analytical services for configuration management, operations and sustainment of Ballistic Missile Defense System capabilities. A permanent on-site presence in the Warfighter Support Center enhances the Agency`s ability to provide Joint Functional Component Command-Integrated Missile Defense (JFCC-IMD) quick responses to Ballistic Missile Defense System operational capability questions. Additionally, the transition of an available defensive capability to the Warfighter is facilitated by advocating user-requested 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>and modifications to the designed system through the Prioritized Capabilities List, Modification and Fielding Request Lists and the Warfighter Involvement Process.</p> <p>Update the Master Integration Plan (MIP) to incorporate changes in planned delivery of Ballistic Missile Defense System content</p> <p>Provide engineering inputs for Integrated Master Test Plan updates using the Planning Allocation Matrix (PAM) tool to identify integration, test, assessment, and verification activities</p> <p>Provide SE&I test configuration management, risk assessment, and anomaly and test incident report review, assessment and closure to enable execution of the ground and flight test program</p> <p>Allocate and track Critical Engagement Condition (CEC) and Empirical Measurement Events (EME) data requirements and sufficiency for ground and flight tests in accordance with the Integrated Master Test Plan</p> <p>Define test objectives and evaluation criteria for all system level test events</p> <p>Design and certify scenarios for Ground Test Events to meet required data collection and satisfy SE&I, Operational Test Agencies and Warfighter objectives</p> <p>Collect Ballistic Missile Defense System Suitability Data through the Joint Reliability and Maintainability Engineering Team (JRMET) Data Scoring Boards</p> <p>Define and execute required performance assessments to support incremental capability deliveries</p> <p>Update Ballistic Missile Defense System verification status monthly</p> <p>Provide system-level engineering inputs to Integration Task Forces charged with facilitating the design, integration, test and fielding of cross-cutting integrating capabilities (e.g., Concurrent Test, Training and Operations; Discrimination Capability Engineering; and Engage on Ballistic Missile Defense System Track)</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
BMDS Design and Specifications		0.000	0.000	26.843	0.000	26.843

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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> The program content in this project was previously reported under Project YX24 in PB10.</p> <p><i>FY 2010 Plans:</i> The program content in this project was previously reported under Project YX24 in PB10.</p> <p><i>FY 2011 Base Plans:</i> Ballistic Missile Defense System Design and Specification conducts the second phase of the SE&I process, using the data developed during the Planning process, and collaborative engineering with Elements and components to develop the functional performance, interface, and design suitability requirements documented in the integrated Ballistic Missile Defense System Specification and Ballistic Missile Defense System Interface Control Documents (SICDs). Using standard, commercially available system engineering tools, Design and Specification develops, defines and specifies in collaboration with the Ballistic Missile Defense System elements and components the detailed Ballistic Missile Defense System design, including functional decomposition and allocation; timing, error, and performance requirements; specialty engineering design constraints and considerations; information and data exchange requirements; and Ballistic Missile Defense System core technical standards identification. Both trade studies and performance analysis ;is managed by SE&I at the Ballistic Missile Defense System level to ensure the proper Ballistic Missile Defense System design architecture and specifications across the various Elements and Components. The Ballistic Missile Defense System design architecture, Ballistic Missile Defense System Specifications, and System Interface Control Documents provide a common, executable set of requirements and design parameters to direct Element design and component specification development that drive the detailed design and integration across the participating Elements. The Design and Specification activities are then culminated in System/Subsystem Requirements Reviews to ensure technical execution and understanding to realize Ballistic Missile Defense System Integration. ; Design and Specification</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>efforts support the detailed engineering needed to realize Unifying Missile Defense Functions ;and increase the effectiveness of the Ballistic Missile Defense System. ;</p> <p>Conduct Engineering Reviews for MDA Engineering:</p> <p>Conduct Ballistic Missile Defense System/Subsystem Design Review following Element Requirement Reviews to review the maturity of the technical baseline at both the System/Subsystem level and plans for integration, test and verification prior to execution</p> <p>Continue technical evaluation of emerging adversary characteristics to be included within future Adversary Data Packages</p> <p>Develop updates to Ballistic Missile Defense System Description Document, Ballistic Missile Defense System Specification, and Ballistic Missile Defense System Interface Control Documents to document build content approved for design, development ;and integration into the Ballistic Missile Defense System</p> <p>Conduct engineering analyses and perform trade studies for system design and ;development products to include Ballistic Missile Defense System Specification and Ballistic Missile Defense System Interface Control Documents</p> <p>Provide updated requirements traceability and certification guidance and conduct detailed System/ Element requirements reconciliation to resolve technical disconnects and ensure common System/ Element requirements interpretation.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
Threat See Description Below		0.000	0.000	21.837	0.000	21.837

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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> The program content in this project was previously reported under Project YX24 in PB10.</p> <p><i>FY 2010 Plans:</i> The program content in this project was previously reported under Project YX24 in PB10.</p> <p><i>FY 2011 Base Plans:</i> Threat Systems Engineering provides critical inputs to the planning, design and specification, integration and implementation, and test verification and assessment phases of the systems engineering process. The Threat Systems Engineering team uses intelligence community data to define adversary missile capabilities and directly supports the development of the Ballistic Missile Defense System Description Document and System Specification. Within the Threat team, the Common Threat engineering group produces common and consistent adversary trajectory and signature data to enable Ballistic Missile Defense System and sub-system concept and requirements definition, design, verification, and assessment. Common Threat data is contained in the Adversary Capability Document and Adversary Data Packages and drives Ballistic Missile Defense System ground tests, flight tests, digital simulations, and pre-mission analysis activities. Common Threat data is also used to develop the Ballistic Missile Defense System Description Document and Ballistic Missile Defense System Specification and support European and Russian cooperative activities, North Korean and Iranian pre- and post-flight launch analysis, and the enhanced Israeli Interceptor program. Threat Systems Engineering also develops scenarios for system and element utilization for compliance and assessment evaluations of Ballistic Missile Defense System capability to defend homeland, deployed forces, and friends and allies (including the ;Phased Adaptive Approach).</p> <p>Maintain and update the agency-wide common and consistent Ballistic Missile Defense System threat to provide data for future Ballistic Missile Defense System design, verification, and assessment Update adversary missile capabilities and characterizations consistent with projected threat environment for the Ballistic Missile Defense System Builds</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>Produce all the threat data required to enable Ballistic Missile Defense System Ground Tests, Flight Tests, Ballistic Missile Defense System Performance Assessment 2012, and FY 2011 war games and exercises (e.g., AR-04X), as documented in the Ballistic Missile Defense System Integrated Master Test Plan</p> <p>Produce scenario data for Element and Component design and assessment for Ballistic Missile Defense System Build D updates, including all phases of the Phased Adaptive Approach</p> <p>Develop threat data for special projects</p> <p>Validate that Ballistic Missile Defense System test targets are threat representative</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Systems Assessment and Analysis</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> The program content in this project was previously reported under Project YX24 in PB10.</p> <p><i>FY 2010 Plans:</i> The program content in this project was previously reported under Project YX24 in PB10.</p> <p><i>FY 2011 Base Plans:</i> Systems Assessment and Analysis produces analyses for all phases of the systems engineering process. It is the only analytic team looking across system/element/product programs to support the Ballistic Missile Defense System architecture and systems engineering process with force-on-force effectiveness analyses, identification of system level gaps and shortfalls to defeat adversary capabilities, formulation of system alternatives and their relative contributions, engineering trade studies, Warfighter/war game analysis support and rapid responses to senior Department (MDA</p>		0.000	0.000	15.138	0.000	15.138

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B. Accomplishments/Planned Program (\$ in Millions)					
<p>Director/Deputy Director, Defense Secretary) and external (State Department, National Security Council) questions and scenarios. Further, Ballistic Missile Defense System Assessment and Analysis provides engineering and analysis for new capability definitions, Ballistic Missile Defense System Specifications, and Test Planning and Certification; develops threat scenarios, and accomplishes trade studies for Element and system-level reviews, such as Technical Interchange Meetings (TIMs), System Requirement Reviews (SRR) and Sub System Readiness Reviews (SSRR). The Systems Assessment and Analysis team is responsible for maintaining and updating the Ballistic Missile Defense System Effectiveness Metric Standard (EMS), which defines requirements and recommendations for methodologies and practices used in the computation and presentation of performance effectiveness metrics. It also updates and maintains the Element/Component Characterizations for Analysis (E/CCA), a database of system-level performance parameters that ensure correct and consistent analysis inputs. The Systems Assessment and Analysis team also provides the MDA Director with the technical basis and rationale for developing and balancing the integrated, layered Ballistic Missile Defense System.</p> <p>Conduct system level performance analysis to support Ballistic Missile Defense System Architecture and Systems Engineering</p> <p>Predict performance for each ;Phased Adaptive Approach phase as input to System architecture and design effort</p> <p>Update the Element/Component Characterizations for Analysis (E/CCA)</p> <p>Maintain the Effective Metric Standard (EMS) necessary for systematic presentation of alternatives to MDA senior leaders and the Combatant Commanders</p> <p>Provide independent engineering technical assessments in Ballistic Missile Defense System and Element programs to examine critical areas as designated by the Director for Engineering</p> <p><i>FY 2011 OCO Plans:</i> NA</p>	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Future Concepts and Planning See Description Below <i>FY 2009 Accomplishments:</i> The program content in this project was previously reported under Project YX24 in PB10. <i>FY 2010 Plans:</i> The program content in this project was previously reported under Project YX24 in PB10. <i>FY 2011 Base Plans:</i> Ballistic Missile Defense System Future Concepts and Planning conducts the first step of the SE&I process and directs the enterprise-wide lethality program, which ensures lethality, post-engagement assessment (miss/hit/kill assessment), collateral effects (such as debris) and consequences (identified for use by other agencies to determine management/mitigation strategies) are accounted for throughout the SE&I process. Lethality requirements are detailed in the Design and Specification documents, verified through system level test and verification objectives, and assessed as part of the Ballistic Missile Defense System performance assessment process. Maintain the System Engineering Plan Produce an updated Ballistic Missile Defense System Lethality Program Plan to encompass lethality assessment, collateral effects and consequences Integrate `Virtual Data Sets` into fast running MDA Modeling and Simulation Engineering lethality codes Complete United States/United Kingdom Numerical Test Bed benchmark testing that provides unique, threat representative, data points crucial in anchoring first principle and fast running codes. These codes in turn will be used to provide kill assessment and lethality information to Ballistic Missile Defense System end-to-end and Hardware in the Loop (HWIL) simulations. Without these data points,		0.000	0.000	3.192	0.000	3.192

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
there is risk of not providing quality simulations while backing up kill assessment assertions for system Sensors. <i>FY 2011 OCO Plans:</i> NA						
Knowledge Centers See Description Below <i>FY 2009 Accomplishments:</i> In 2008, the Missile Defense Agency established four Knowledge Centers in distinct program areas of: Command and Control Battle Management and Communication (C2BMC), Interceptor, Space, and Sensors. The Knowledge Centers function as advisory resources on the potential technical risks to all Missile Defense Agency program elements, and identify and propose associated mitigation strategies in their respective domain. Additionally, the Knowledge Centers share technical lessons learned and work with the Director for Engineering to help foster development of the tehcnical workforce and share knowledge across the program elements. Performed more than 75 independent technical assessments, identified more than 50 technical risks and associated mitigation techniques and participated in or led more than 25 failure review teams in support of individual BMDS program offices Served as mentoring agents for incoming Missile Defense Agency interns and provided in-depth technical advice to Missile Defense Agency program office personnel in technical domains not readily available to them via existing sources <i>FY 2010 Plans:</i> Identify and mitigate element technical risk and serve as independent technical advisors to BMDS program offices		0.000	0.000	7.638	0.000	7.638

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Increase technical mentoring of new Missile Defense Agency staff, to include development and presentation of BMDS technical lectures and coursework Provide support and leadership to failure review teams and other independent technical assessment activities</p> <p><i>FY 2011 Base Plans:</i> Identify and mitigate Element technical risk and serve as independent technical advisors to the BMDS program offices Increase technical mentoring of new Missile Defense Agency staff, to include development and presentation of BMDS technical lectures and coursework Provide support and leadership to failure review teams and other independent technical assessment activities</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>BMDS Capability Assessment (BCA) Team See Description Below</p> <p><i>FY 2009 Accomplishments:</i> The program content in this project was previously reported under Project YX04 in PB10.</p> <p><i>FY 2010 Plans:</i> The program content in this project was previously reported under Project YX04 in PB10.</p>		0.000	0.000	4.043	0.000	4.043

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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 BMDS Capability Assessment (BCA) Team conducts non-advocate assessments of the BMDS performance and fielding readiness, investigates BMDS performance issues, and proposes mitigation plans.</p> <p>Update the non-advocate assessment of the BMDS performance and fielding readiness and investigate BMDS performance issues and propose mitigation plans Support data collection in the development of the IMTP to anchor BMDS models Assess of digitally reconstructed model fidelity and mission day events results Support digital Modeling and Simulation S-based Performance Assessment events where assessed models are utilized</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>BMDS Engineering Technology Protection and Standards</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> The program content in this project was previously reported under Project YX29 in PB10.</p> <p><i>FY 2010 Plans:</i> The program content in this project was previously reported under Project YX29 in PB10.</p> <p><i>FY 2011 Base Plans:</i> The BMDS Engineering Technology Protection and Standards consists of three individual programs; Ballistic Missile Defense System Anti-Tamper, Commonality and Design and Construction Standards, and Engineering Manufacturing Readiness Levels (EMRLs).</p>		0.000	0.000	2.860	0.000	2.860

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B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>The goal of the Ballistic Missile Defense System Anti-Tamper program is to provide protection against reverse engineering of Ballistic Missile Defense System critical technologies that are vulnerable to exploitation as a result of battlefield loss, Foreign Military Sales (FMS), or cooperative development efforts. Robust Anti-Tamper solutions support coalition warfare and extend the effective operational life of the Ballistic Missile Defense System. Current efforts involve leveraging Department of Defense (DoD) investment in retrofit technology to protect sensitive information.</p> <p>The goal of Commonality and Design and Construction Standards effort is to promote cost savings while maintaining a high level of mission assurance. This effort includes investigating commonality of avionics parts, subsystems, and architectures across MDA. Prime candidates for commonality are the GN&C (Guidance, Navigation, and Control) hardware designs and avionics systems for the various radiation hardened booster, kill vehicles, and space-based concepts under consideration. This effort also provides for the development of MDA Core Standards for GN&C and avionics systems that will foster common designs across the MDA programs. Specific standards under consideration for development are: MDA Common Power Bus, Common Data Bus, and Common Communications Standards. Additionally, this effort includes in-depth technical expertise for inertial technology and for continued support of the MDA Common Inertial Measurement Unit (IMU) program.</p> <p>Engineering Manufacturing Readiness Levels are used to assess the maturity of MDA development programs and to report readiness for transition to production in a standard format across all MDA Elements. The application of Engineering and Manufacturing Readiness Levels provides a means of evaluating the engineering and manufacturing maturity of the Ballistic Missile Defense System Elements, systems, and components by assessing the program or product against quantifiable criteria.</p> <p>Anti-Tamper:</p> <p>Evaluate software modification efforts to determine likely effectiveness against reverse engineering</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>Develop low/no power Anti-Tamper technologies to enable active response and sensing capabilities for the Ballistic Missile Defense System</p> <p>Evaluate performance of multiple integrated Anti-Tamper technologies</p> <p>Engineering and Manufacturing Readiness Levels (EMRLs):</p> <p>Apply Engineering and Manufacturing Readiness Levels as a means of evaluating the engineering and manufacturing maturity of the Ballistic Missile Defense System Elements, systems, and components by assessing the program or product against quantifiable criteria</p> <p>Use Engineering and Manufacturing Readiness Levels to assess the maturity of MDA development programs and to report readiness for transition to production in a standard format across all MDA Elements</p> <p>Commonality and Design and Construction Standards:</p> <p>Use Independent Research and Development (IR&D) Common Inertial Measurement Unit flight experiment prototypes for preparing radiation hardening assessment ground testing of low-rate initial production Common Inertial Measurement Units. This reduces risk for correlating data from in-flight performance of an unhardened prototype with the predicted performance of the hardened unit.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
Countermeasures/Counter-Countermeasures (CM/CCM) See Description Below		0.000	0.000	1.000	0.000	1.000

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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> The program content in this project was previously reported under Project YX24 in PB10.</p> <p><i>FY 2010 Plans:</i> The program content in this project was previously reported under Project YX24 in PB10.</p> <p><i>FY 2011 Base Plans:</i> The Countermeasures/Counter-countermeasures (CM/CCM) program conducts tailored system engineering to facilitate Ballistic Missile Defense System capability improvement and works collaboratively with the Threat Systems Engineering Team to synchronize and integrate adversary capability development efforts. These efforts ensure the representation of adversary capabilities is consistent with the MDA Adversary Capability Document. The Adversary Engineering efforts determine the range of feasible engineering approaches an adversary could use to defeat or degrade the Ballistic Missile Defense System, identifies gaps and risk in Ballistic Missile Defense System performance, and develops conceptual countermeasures to exploit these potential shortfalls. Adversary Engineering is performed by the Black Team. The Black Team develops countermeasures based on complete access to all technical and design data on the Ballistic Missile Defense System.</p> <p>The Blue Team, comprised of Ballistic Missile Defense System, element, and component technical experts, performs integrated performance and risk assessments of the Ballistic Missile Defense System against the projected adversary capabilities and conceptual countermeasures, identifies and characterizes counter-countermeasure options to mitigate Ballistic Missile Defense System risks posed by these adversary capabilities and countermeasures, and performs the system-level engineering required to identify the Ballistic Missile Defense System baseline changes to implement and integrate the options into the operational system baseline. An independent team of senior experts, the White Team, reviews the adversary capabilities and conceptual countermeasures posed by the Black Team, and risk assessments and mitigation approaches presented by the Blue Team; presents their independent assessments of performance risks associated with countermeasures to the MDA</p>					

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Director; and recommends priorities for MDA investments in counter-countermeasures that have a strong potential to mitigate these risks.					
Complete strategy for addressing missile threats in the presence of countermeasures for regional engagement scenarios					
Update integrated strategy for early intercept, regional/theater defense and midcourse defense					
<i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	124.040	0.000	124.040

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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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
• 0603888C: <i>Ballistic Missile Defense Test and Targets</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
• 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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Exhibit R-2A, RDT&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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</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>
• 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

SE&I services will be acquired by competitive means to the extent that is possible and practical.

The execution of program activities is a collaborative effort involving subject matter experts composed of Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), System Engineering and Technical Assistance (SETA), and Industry. This combination of resources forms an integrated team to accomplish the necessary engineering for the Ballistic Missile Defense System. In addition, extensive involvement by the major defense contractors responsible for the development of the Ballistic Missile Defense System, Elements, and major components is required. Countermeasure/Counter-Countermeasure initiatives will be executed by various labs and industry contractors through the MDA Advanced Systems directorate and Ballistic Missile Defense System Element Program Offices.

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Exhibit R-2A, RDT&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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</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 evaluation; and management and professional services.</p>		
<u>E. Performance Metrics</u> N/A		

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</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			
Integration and Assessment Industry MD24	C/CPAF	Boeing VA	0.000	0.000		2.999	Apr 2011	0.000		2.999	Continuing	Continuing	Continuing
Integration and Assessment CSS MD24	C/CPFF	CSC VA	0.000	0.000		2.357	Apr 2011	0.000		2.357	Continuing	Continuing	Continuing
Integration and Assessment CSS - 2009876330489 MD24	C/CPFF	Cobham CA	0.000	0.000		1.214	Apr 2011	0.000		1.214	Continuing	Continuing	Continuing
Integration and Assessment FFRDC/ UARC MD24	TBD/TBD	Aerospace CA	0.000	0.000		0.071	Oct 2010	0.000		0.071	Continuing	Continuing	Continuing
Integration and Assessment FFRDC/ UARC - 2009876330497 MD24	TBD/TBD	JHU APL VA	0.000	0.000		0.286	Apr 2011	0.000		0.286	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			
Integration and Assessment FFRDC/ UARC - 2009876330502 MD24	TBD/TBD	MIT-LL MA	0.000	0.000		0.071	Apr 2011	0.000		0.071	Continuing	Continuing	Continuing
Integration and Assessment FFRDC/ UARC - 2009876330508 MD24	TBD/TBD	SNL CA	0.000	0.000		0.143	Apr 2011	0.000		0.143	Continuing	Continuing	Continuing
BMDS Design and Specifications Industry MD24	C/CPAF	Boeing VA	0.000	0.000		17.216	Apr 2011	0.000		17.216	Continuing	Continuing	Continuing
BMDS Design and Specifications CSS MD24	C/CPFF	CSC VA	0.000	0.000		1.379	Apr 2011	0.000		1.379	Continuing	Continuing	Continuing
BMDS Design and Specifications CSS - 2009876311542 MD24	C/CPFF	Cobham CA	0.000	0.000		4.832	Apr 2011	0.000		4.832	Continuing	Continuing	Continuing
BMDS Design and Specifications FFRDC/ UARC - 2009855511195 MD24	TBD/TBD	MIT/LL MA	0.000	0.000		1.074	Apr 2011	0.000		1.074	Continuing	Continuing	Continuing
BMDS Design and Specifications Other DoD MD24	TBD/TBD	NSWC IN	0.000	0.000		1.000	Apr 2011	0.000		1.000	Continuing	Continuing	Continuing
BMDS Design and Specifications FFRDC MD24	TBD/TBD	LLNL CA	0.000	0.000		1.342	Apr 2011	0.000		1.342	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			
Threat Industry MD24	C/CPAF	Boeing VA	0.000	0.000		8.492	Apr 2011	0.000		8.492	Continuing	Continuing	Continuing
Threat CSS MD24	C/CPFF	CSC VA	0.000	0.000		2.208	Apr 2011	0.000		2.208	Continuing	Continuing	Continuing
Threat CSS - 2009876348723 MD24	C/CPFF	Cobham CA	0.000	0.000		4.076	Apr 2011	0.000		4.076	Continuing	Continuing	Continuing
Threat FFRDC/UARC MD24	TBD/TBD	JHU APL VA	0.000	0.000		0.340	Apr 2011	0.000		0.340	Continuing	Continuing	Continuing
Threat FFRDC/UARC - 2009876348731 MD24	TBD/TBD	MIT-LL MA	0.000	0.000		1.019	Apr 2011	0.000		1.019	Continuing	Continuing	Continuing
Threat FFRDC/UARC - 2009876348736 MD24	TBD/TBD	SNL CA	0.000	0.000		0.849	Apr 2011	0.000		0.849	Continuing	Continuing	Continuing
Systems Assessment and Analysis Industry MD24	C/CPAF	Boeing VA	0.000	0.000		4.458	Apr 2011	0.000		4.458	Continuing	Continuing	Continuing
Systems Assessment and Analysis CSS MD24	C/CPFF	CSC VA	0.000	0.000		3.268	Apr 2011	0.000		3.268	Continuing	Continuing	Continuing
Systems Assessment and Analysis CSS - 2009876376622 MD24	C/CPFF	Cobham CA	0.000	0.000		3.268	Apr 2011	0.000		3.268	Continuing	Continuing	Continuing
Systems Assessment and Analysis FFRDC/UARC MD24	TBD/TBD	Aerospace VA	0.000	0.000		0.028	Oct 2010	0.000		0.028	Continuing	Continuing	Continuing
Systems Assessment and Analysis FFRDC/	TBD/TBD	MITRE VA	0.000	0.000		1.032	Jan 2011	0.000		1.032	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			
UARC - 2009876376631 MD24													
Systems Assessment and Analysis FFRDC/UARC - 2009876376636 MD24	TBD/TBD	JHU-APL VA	0.000	0.000		0.877	Apr 2011	0.000		0.877	Continuing	Continuing	Continuing
Systems Assessment and Analysis CSS - (ISERG & TAST) MD24	C/CPFF	Vanguard VA	0.000	0.000		1.740		0.000		1.740	Continuing	Continuing	Continuing
Systems Assessment and Analysis CSS MD24	C/CPFF	STS, LLC VA	0.000	0.000		0.467		0.000		0.467	Continuing	Continuing	Continuing
Future Concepts and Planning Industry MD24	C/CPAF	Boeing VA	0.000	0.000		1.468	Apr 2011	0.000		1.468	Continuing	Continuing	Continuing
Future Concepts and Planning CSS MD24	C/CPFF	Cobham CA	0.000	0.000		0.830	Apr 2011	0.000		0.830	Continuing	Continuing	Continuing
Future Concepts and Planning FFRDC/UARC MD24	TBD/TBD	SNL CA	0.000	0.000		0.447	Apr 2011	0.000		0.447	Continuing	Continuing	Continuing
Future Concepts and Planning FFRDC/UARC MD24	TBD/TBD	LLNL CA	0.000	0.000		0.447	Apr 2011	0.000		0.447	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC MD24	TBD/TBD	Aerospace CA	0.000	0.000		1.681		0.000		1.681	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20091295307334 MD24	TBD/TBD	JHU APL VA	0.000	0.000		1.223		0.000		1.223	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			
Knowledge Centers FFRDC/UARC - 20091295307338 MD24	TBD/TBD	Draper MA	0.000	0.000		0.458		0.000		0.458	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20091295307342 MD24	TBD/TBD	GTRI GA	0.000	0.000		0.611		0.000		0.611	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20091295307347 MD24	TBD/TBD	JPL CA	0.000	0.000		0.458		0.000		0.458	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20091295307352 MD24	TBD/TBD	MIT/LL MA	0.000	0.000		0.992		0.000		0.992	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20091295307356 MD24	TBD/TBD	MITRE VA	0.000	0.000		0.840		0.000		0.840	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20091295307359 MD24	TBD/TBD	ORNL TN	0.000	0.000		0.458		0.000		0.458	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20091295307364 MD24	Various/ Various	Various VA	0.000	0.000		0.917		0.000		0.917	Continuing	Continuing	Continuing
BMDS Engineering Technology Protection and Standards Anti-Tamper Support MD24	TBD/TBD	NSWC Crane IN	0.000	0.000		1.000		0.000		1.000	Continuing	Continuing	Continuing
BMDS Engineering Technology Protection	C/CPFF	DRC, Cobham CA	0.000	0.000		1.510		0.000		1.510	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			
and Standards CSS/ Travel MD24													
BMDS Engineering Technology Protection and Standards Commonality and Standards MD24	C/CPFF	DRAPER MA	0.000	0.000		0.350		0.000		0.350	Continuing	Continuing	Continuing
Countermeasures/ Counter-Countermeasures (CM/ CCM) CSS MD24	C/CPFF	CSC VA	0.000	0.000		0.250	Apr 2011	0.000		0.250	Continuing	Continuing	Continuing
Countermeasures/ Counter-Countermeasures (CM/CCM) CSS - 2009876285863 MD24	C/CPFF	Cobham CA	0.000	0.000		0.390	Apr 2011	0.000		0.390	Continuing	Continuing	Continuing
Countermeasures/ Counter-Countermeasures (CM/ CCM) FFRDC/UARC MD24	TBD/TBD	IDA VA	0.000	0.000		0.180	Apr 2011	0.000		0.180	Continuing	Continuing	Continuing
Countermeasures/ Counter-Countermeasures (CM/ CCM) FFRDC/UARC - 2009876285872 MD24	TBD/TBD	MIT-LL MA	0.000	0.000		0.180	Apr 2011	0.000		0.180	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		80.796		0.000		80.796			

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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
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			
Integration and Assessment BMDS Level Testing MD24	C/CPAF	Boeing VA	0.000	0.000		15.720	Apr 2011	0.000		15.720	Continuing	Continuing	Continuing
Integration and Assessment BMDS Level Testing - 20098275381727 MD24	C/CPFF	CSC VA	0.000	0.000		12.085	Apr 2011	0.000		12.085	Continuing	Continuing	Continuing
Integration and Assessment BMDS Level Testing - 20098275381733 MD24	C/CPFF	Cobham CA	0.000	0.000		6.543	Apr 2011	0.000		6.543	Continuing	Continuing	Continuing
Threat BMDS Level Testing MD24	C/CPAF	Boeing VA	0.000	0.000		2.766	Apr 2011	0.000		2.766	Continuing	Continuing	Continuing
Threat BMDS Level Testing - 20098275411963 MD24	C/CPFF	CSC VA	0.000	0.000		0.728	Apr 2011	0.000		0.728	Continuing	Continuing	Continuing
	C/CPFF	Cobham	0.000	0.000		1.359	Apr 2011	0.000		1.359	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			
Threat BMDS Level Testing - 20098275411967 MD24		CA											
BMDS Capability Assessment (BCA) Team FFRDC/UARC MD24	TBD/TBD	Aerospace CA	0.000	0.000		0.578		0.000		0.578	Continuing	Continuing	Continuing
BMDS Capability Assessment (BCA) Team FFRDC/UARC - 20091295498991 MD24	TBD/TBD	MIT/LL MA	0.000	0.000		0.578		0.000		0.578	Continuing	Continuing	Continuing
BMDS Capability Assessment (BCA) Team FFRDC/UARC - 20091295498998 MD24	TBD/TBD	MITRE VA	0.000	0.000		0.578		0.000		0.578	Continuing	Continuing	Continuing
BMDS Capability Assessment (BCA) Team FFRDC/UARC - 20091295499003 MD24	TBD/TBD	JHU APL VA	0.000	0.000		0.578		0.000		0.578	Continuing	Continuing	Continuing
BMDS Capability Assessment (BCA) Team FFRDC/UARC - 20091295499009 MD24	TBD/TBD	DRAPER MA	0.000	0.000		0.577		0.000		0.577	Continuing	Continuing	Continuing
BMDS Capability Assessment (BCA) Team FFRDC/UARC - 20091295499014 MD24	TBD/TBD	LLNL CA	0.000	0.000		0.577		0.000		0.577	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			
BMDS Capability Assessment (BCA) Team FFRDC/UARC - 20091295499023 MD24	TBD/TBD	GTRI GA	0.000	0.000		0.577		0.000		0.577	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		43.244		0.000		43.244			

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	0.000	124.040	0.000	124.040		

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>			PROJECT MD24: <i>System Engineering & Integration</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</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
Adversary Data Package (ADP) - FY2011									█																			
Adversary Data Package (ADP) - FY2012													█															
Adversary Data Package (ADP) - FY2013																	█											
Adversary Data Package (ADP) - FY2014																					█							
Adversary Data Package (ADP) - FY2015																									█			
BMD System Description Document (BMD S-DD) - FY2012													█															
BMD System Description Document (BMD S-DD) - FY2014																					█							
BMD System Design Review - FY2011													█															
BMD System Design Review - FY2012																	█											
BMD System Design Review - FY2013																					█							
BMD System Design Review - FY2014																									█			
BMD System Design Review - FY2015																												
BMD System Interface Control Documents (SICD) - FY2012																	█											
BMD System Interface Control Documents (SICD) - FY2014																									█			
BMD System Specification (BMD SS) - FY2012																	█											
BMD System Specification (BMD SS) - FY2014																									█			

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</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
Capability Assessment Plan (CAP) / Update - FY2011									■																			
Capability Assessment Plan (CAP) / Update - FY2012													■															
Capability Assessment Plan (CAP) / Update - FY2013															■													
Capability Assessment Plan (CAP) / Update - FY2014																			■									
Capability Assessment Plan (CAP) / Update - FY2015																											■	
Element Preliminary Design Reviews - FY2011									■																			
Element Preliminary Design Reviews - FY2012													■															
Element Preliminary Design Reviews - FY2013															■													
Element Preliminary Design Reviews - FY2014																			■									
Element Preliminary Design Reviews - FY2015																											■	
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2011									■																			
													■															

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</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
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2012																												
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2013															■													
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2014																			■									
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2015																										■		
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2011											■																	
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2012														■														
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2013																												
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2014																												
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2015																												■
Incremental Capability Delivery Support - FY2011												■																
Incremental Capability Delivery Support - FY2012																												

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</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
Incremental Capability Delivery Support - FY2013																												
Incremental Capability Delivery Support - FY2014																				■								
Incremental Capability Delivery Support - FY2015																											■	
Master Integration Plan (MIP) - FY2011												■																
Master Integration Plan (MIP) - FY2012														■														
Master Integration Plan (MIP) - FY2013																												
Master Integration Plan (MIP) - FY2014																												
Master Integration Plan (MIP) - FY2015																												■
Provide Independent Assessments to MDA - FY2011																												
Provide Independent Assessments to MDA - FY2012																												
Provide Independent Assessments to MDA - FY2013																												
Provide Independent Assessments to MDA - FY2014																												
Provide Independent Assessments to MDA - FY2015																												■
System Engineering Assessment Report (SEAR) - FY2011																												

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</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 Engineering Assessment Report (SEAR) - FY2012													■															
System Engineering Assessment Report (SEAR) - FY2013																												
System Engineering Assessment Report (SEAR) - FY2014																												
System Engineering Assessment Report (SEAR) - FY2015																												
System/Subsystem Requirements Review - FY2011																												
System/Subsystem Requirements Review - FY2013																												
System/Subsystem Requirements Review - FY2015																												
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2011																												
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2012																												
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2013																												
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2014																												

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</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
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2015																												
Update PAA Capability Planning Specifications (CPS) - FY2011												■																
Update PAA Capability Planning Specifications (CPS) - FY2012															■													
Update to BMD System Description Document (BMD S-DD) - FY2011										■																		
Update to BMD System Description Document (BMD S-DD) - FY2013																	■											
Update to BMD System Description Document (BMD S-DD) - FY2015																										■		
Update to BMD System Interface Control Documents (SICD) - FY2011												■																
Update to BMD System Interface Control Documents (SICD) - FY2013																												
Update to BMD System Interface Control Documents (SICD) - FY2015																											■	
Update to BMD System Specification (BMD SS) - FY2011												■																
Update to BMD System Specification (BMD SS) - FY2013																												
																												■

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</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
Update to BMD System Specification (BMD SS) - FY2015																												
Update to Integrated Master Test Plan (IMTP) - FY2011									■																			
Update to Integrated Master Test Plan (IMTP) - FY2012													■															
Update to Integrated Master Test Plan (IMTP) - FY2013																	■											
Update to Integrated Master Test Plan (IMTP) - FY2014																					■							
Update to Integrated Master Test Plan (IMTP) - 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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</i>

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Adversary Data Package (ADP) - FY2011	1	2011	1	2011
Adversary Data Package (ADP) - FY2012	1	2012	1	2012
Adversary Data Package (ADP) - FY2013	1	2013	1	2013
Adversary Data Package (ADP) - FY2014	1	2014	1	2014
Adversary Data Package (ADP) - FY2015	1	2015	1	2015
BMD System Description Document (BMD S-DD) - FY2012	1	2012	1	2012
BMD System Description Document (BMD S-DD) - FY2014	1	2014	1	2014
BMD System Design Review - FY2011	3	2011	3	2011
BMD System Design Review - FY2012	3	2012	3	2012
BMD System Design Review - FY2013	3	2013	3	2013
BMD System Design Review - FY2014	3	2014	3	2014
BMD System Design Review - FY2015	3	2015	3	2015
BMD System Interface Control Documents (SICD) - FY2012	3	2012	3	2012
BMD System Interface Control Documents (SICD) - FY2014	3	2014	3	2014
BMD System Specification (BMD SS) - FY2012	2	2012	2	2012
BMD System Specification (BMD SS) - FY2014	2	2014	2	2014
Capability Assessment Plan (CAP) / Update - FY2011	2	2011	2	2011
Capability Assessment Plan (CAP) / Update - FY2012	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Capability Assessment Plan (CAP) / Update - FY2013	2	2013	2	2013
Capability Assessment Plan (CAP) / Update - FY2014	2	2014	2	2014
Capability Assessment Plan (CAP) / Update - FY2015	2	2015	2	2015
Element Preliminary Design Reviews - FY2011	2	2011	2	2011
Element Preliminary Design Reviews - FY2012	2	2012	2	2012
Element Preliminary Design Reviews - FY2013	2	2013	2	2013
Element Preliminary Design Reviews - FY2014	2	2014	2	2014
Element Preliminary Design Reviews - FY2015	2	2015	2	2015
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2011	2	2011	2	2011
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2012	2	2012	2	2012
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2013	2	2013	2	2013
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2014	2	2014	2	2014
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2015	2	2015	2	2015
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2011	4	2011	4	2011
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2012	4	2012	4	2012
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2013	4	2013	4	2013
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2014	4	2014	4	2014
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2015	4	2015	4	2015
Incremental Capability Delivery Support - FY2011	2	2011	2	2011
Incremental Capability Delivery Support - FY2012	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Incremental Capability Delivery Support - FY2013	2	2013	2	2013
Incremental Capability Delivery Support - FY2014	2	2014	2	2014
Incremental Capability Delivery Support - FY2015	2	2015	2	2015
Master Integration Plan (MIP) - FY2011	4	2011	4	2011
Master Integration Plan (MIP) - FY2012	4	2012	4	2012
Master Integration Plan (MIP) - FY2013	4	2013	4	2013
Master Integration Plan (MIP) - FY2014	4	2014	4	2014
Master Integration Plan (MIP) - FY2015	4	2015	4	2015
Provide Independent Assessments to MDA - FY2011	4	2011	4	2011
Provide Independent Assessments to MDA - FY2012	4	2012	4	2012
Provide Independent Assessments to MDA - FY2013	4	2013	4	2013
Provide Independent Assessments to MDA - FY2014	4	2014	4	2014
Provide Independent Assessments to MDA - FY2015	4	2015	4	2015
System Engineering Assessment Report (SEAR) - FY2011	1	2011	1	2011
System Engineering Assessment Report (SEAR) - FY2012	1	2012	1	2012
System Engineering Assessment Report (SEAR) - FY2013	1	2013	1	2013
System Engineering Assessment Report (SEAR) - FY2014	1	2014	1	2014
System Engineering Assessment Report (SEAR) - FY2015	1	2015	1	2015
System/Subsystem Requirements Review - FY2011	1	2011	1	2011
System/Subsystem Requirements Review - FY2013	1	2013	1	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
System/Subsystem Requirements Review - FY2015	1	2015	1	2015
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2011	4	2011	4	2011
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2012	4	2012	4	2012
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2013	4	2013	4	2013
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2014	4	2014	4	2014
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2015	4	2015	4	2015
Update PAA Capability Planning Specifications (CPS) - FY2011	4	2011	4	2011
Update PAA Capability Planning Specifications (CPS) - FY2012	4	2012	4	2012
Update to BMD System Description Document (BMD S-DD) - FY2011	1	2011	1	2011
Update to BMD System Description Document (BMD S-DD) - FY2013	1	2013	1	2013
Update to BMD System Description Document (BMD S-DD) - FY2015	1	2015	1	2015
Update to BMD System Interface Control Documents (SICD) - FY2011	3	2011	3	2011
Update to BMD System Interface Control Documents (SICD) - FY2013	3	2013	3	2013
Update to BMD System Interface Control Documents (SICD) - FY2015	3	2015	3	2015
Update to BMD System Specification (BMD SS) - FY2011	2	2011	2	2011
Update to BMD System Specification (BMD SS) - FY2013	2	2013	2	2013
Update to BMD System Specification (BMD SS) - FY2015	2	2015	2	2015
Update to Integrated Master Test Plan (IMTP) - FY2011	1	2011	1	2011
Update to Integrated Master Test Plan (IMTP) - FY2012	1	2012	1	2012
Update to Integrated Master Test Plan (IMTP) - FY2013	1	2013	1	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD24: <i>System Engineering & Integration</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Update to Integrated Master Test Plan (IMTP) - FY2014	1	2014	1	2014
Update to Integrated Master Test Plan (IMTP) - FY2015	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</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>YX28: Intelligence & Security</i>	20.007	17.789	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	37.796
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 YX28 for FY 2009 - FY 2010 is now captured in Project MD28 for FY 2011 - FY 2015.

A. Mission Description and Budget Item Justification

The Security and Intelligence Project captures three specific areas:

- 1) Intelligence
- 2) Counterintelligence
- 3) BMDS information assurance systems certification

Collectively, these efforts provide critical information regarding threat ballistic missile system capabilities (via intelligence), protection of personnel, activities, and technology from espionage and terrorism through active and passive activities (via counterintelligence); and BMDS system vulnerabilities (via BMDS certification). Specifically, the activities include:

1. Intelligence: The MDA Intelligence Requirements Division serves as a clearing house for MDA's requirements for the Intelligence Community collection, analysis and production. The MDA Intelligence Requirements Division serves as the quality control and dissemination agent of Intelligence Community products for all properly cleared Government and contractor personnel and provides feedback to the Intelligence Community on subsequent questions, issues and other requirements resulting from Intelligence Community reporting. The intelligence process begins when the Intelligence Community collects and analyzes data on foreign threat missiles. Resulting threats and threat changes are provided to the BMDS System Engineer who uses the threats to develop and change the BMDS. Through this activity, threat data is provided to support BMDS architecture design, testing, modeling and wargaming. This information reduces the risk and improves system performance. It enables MDA Program Managers to achieve a sufficiently accurate understanding of the threat environment to respond to relevant capabilities of immediate importance, make informed decisions and invest limited resources on countering the most significant aspects of potential adversary capabilities. Other aspects of the

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Exhibit R-2A, RDT&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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</i>
<p>Intelligence Division are designed to gain access to, and leverage unique Intelligence Community developed, owned and operated capabilities for the benefit and advocacy of the Missile Defense Community. Numerous Intelligence Community capabilities are highly classified and require both access and expertise to exploit. The Intelligence Requirements Division supports the overarching MDA objectives of BMDS on-Alert, evolutionary development, and enhanced BMDS capabilities.</p> <p>2. Counterintelligence. Pursuant to Executive Order 12333, (US Intelligence Activities), DoD Directive 5240.2 (DoD Counterintelligence), and other DoD Counterintelligence policy issuances, the MDA Counterintelligence Division is charged with undertaking activities as part of an integrated DoD and national effort, to detect, identify, assess, exploit, degrade and counter or neutralize foreign intelligence collection efforts, other intelligence activities, sabotage, espionage, sedition, subversion and terrorist activities directed against MDA personnel, information, materials, facilities, and activities or against U.S. national security. As a member of the DoD Counterintelligence Community, the Counterintelligence Division portfolio includes the following missions & functions: Counterintelligence investigations and Preliminary Inquiries:</p> <p>The Counterintelligence Division conducts counterintelligence preliminary investigations to determine the initial facts and circumstances surrounding suspected clandestine relationships between MDA personnel and Foreign Intelligence Security Services agents or individuals associated with terrorist organizations. When allegations are substantiated, the Counterintelligence Division refers these matters to the appropriate Title 10, U.S.C. jurisdiction (Army, Navy or United States Air Force Counterintelligence Organization, Defense Criminal Investigative Services or Federal Bureau of Investigation, as appropriate.</p> <p>DoD Counterintelligence Collection and Reporting: The Counterintelligence Division systematically collects counterintelligence information from US and foreign counterpart intelligence, counterintelligence, security and law enforcement entities through routine liaison activities associated with multi-national BMD conferences overseas, RDT&E activities and BMDS deployments worldwide. The Counterintelligence Division also conducts briefings and debriefings of MDA personnel who travel outside continental United States (OCONUS) for counterintelligence relevant information. Information gleaned from these activities is reported to the US Intelligence Community via Intelligence Information Reports, as appropriate, to answer validated DoD Counterintelligence collection requirements.</p> <p>Counterintelligence Analysis and Production: The Counterintelligence Division conducts research and prepares timely and relevant analytic products that address the threat from espionage, international terrorism, subversion, sabotage, assassination, other clandestine or covert activities, and any other similar activities that are reasonably believed to have a foreign nexus. This includes threats to MDA personnel and property, RDT&E activities and conferences worldwide, and intelligence collection threats to MDA technology, information systems or infrastructure.</p> <p>Counterintelligence Functional Services: The Counterintelligence Division serves as the focal point within MDA for specialized counterintelligence technical services support to include Technical Surveillance Countermeasures surveys/inspections, Counterintelligence-Scope polygraph exams and computer forensic examinations in support of Counterintelligence and law enforcement investigations resulting from insider abuse or foreign computer intrusions. The Counterintelligence Division provides specialized support to MDA special access programs to protect the most critical BMDS technologies and capabilities from Foreign Intelligence and Security Service collection and exploitation throughout the entire acquisition lifecycle. The Counterintelligence Division develops and executes other defensive programs such as the insider threat program with the objective of detecting computer abuse or other nefarious activities detrimental to MDA interests.</p> <p>Counterintelligence Awareness, Briefing and Reporting Program: The Counterintelligence Division provides initial (MDA Newcomer's briefing) and periodic counterintelligence awareness training to the entire MDA Government and DoD Contractor workforce on the threats posed by Foreign Intelligence and Security Service,</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</i>
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international terrorists, computer intruders, unauthorized disclosures and insider activities, and individual reporting responsibilities. In addition to counterintelligence awareness, the Counterintelligence Division provides mandatory foreign travel threat briefings to all MDA OCONUS travelers to familiarize them with potential terrorism, criminal, health, political and Foreign Intelligence and Security Service threats. Follow-up debriefings are done to capture pertinent counterintelligence information that is shared with other MDA travelers and the US Intelligence Community, as appropriate.

3. BMDS Security Assessment and Certification Division: This division is responsible for assisting the BMDS manage and deploy Information Assurance/Computer Network Defense solutions to enhance the robustness and resilience of the cyber infrastructure. To fulfill this role, the division works in concert with Information Assurance Engineers and Information Assurance Managers to obtain a comprehensive picture of the overall Information Assurance/Computer Network Defense architecture at all levels of the BMDS, then influence the design by 1) identifying opportunities to implement Defense-in-Depth within planned development cycles 2) providing oversight, coordination and management of key information assurance management processes, 3) by providing contract acquisition support to BMDS Elements ensuring information assurance is addressed throughout the procurement process and 4) by interfacing with the Intelligence Community to define cyber security threats relevant to the BMDS. To fulfill stated mission requirements, the division must interface with relevant information assurance domain experts to assess documentation and Information Assurance/Computer Network Defense design, gain insight into past/present security related issues, and exploit threat/vulnerability assessments to identify trends, understand threats and manage risks to fulfill certification related requirements.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Counterintelligence See Description Below <i>FY 2009 Accomplishments:</i> FY 2009 Accomplishments In FY 2009 and the Out years the Counterintelligence Division will continue down a transformational path to expand its capabilities to better support and protect MDA and BMDS personnel, facilities, information and activities from threats posed by Foreign Intelligence and Security Service, terrorism and criminal activities. The Counterintelligence Division will continue its federated approach to supporting MDA by leveraging available national and DoD Counterintelligence resources to ensure	4.131	4.167	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</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>The Counterintelligence Division will partner with the Security and Program Protection Division to reinvigorate the MDA Research and Technology Program to better identify and protect critical program information and RDT&E activities.</p> <p><i>FY 2010 Plans:</i> FY 2010 Plans</p> <p>The Counterintelligence Division will continue to foster collaborative partnerships and activities with the National and DoD Counterintelligence communities targeting Foreign Intelligence and Security Service collection activities directed against MDA personnel, facilities and activities to prevent the loss or compromise of critical program information or critical BMDS technologies.</p> <p>The Counterintelligence Division will leverage available DoD counterintelligence resources to deploy Counterintelligence Officers to Poland and the Czech Republic to provide on-site support to the European Interceptor Site and European Mid-course Radar Site construction projects.</p> <p>Under a FY 2010 and out year Foreign Counterintelligence Program funding initiative, the Counterintelligence Division will establish a Flight Test Support Team dedicated to conducting defensive counterintelligence operations and technical support (Technical Surveillance Countermeasures and Cyber) to MDA RDT&E activities, flight tests and operational BMDS deployments worldwide.</p> <p>The Counterintelligence Division will procure and field updated secure data communications systems for the Colorado Springs Regional Counterintelligence Office in support of flight tests, conferences and overseas deployments.</p> <p>The Counterintelligence Division will solicit external Military Intelligence Program funding support to execute its Technical Surveillance Countermeasures program.</p> <p>Execute BRAC relocations according to MDA master plan with relocations to Redstone Arsenal, AL and Colorado Springs, CO.</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>		PROJECT YX28: <i>Intelligence & Security</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> The program plans for this project are reported under MD28 in PB11.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>								
<p>Intelligence</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> The Intelligence Requirements Office:</p> <p>Provides a single integrated mission area focus that interfaces with the Intelligence Community to acquire collection and analysis of data on foreign threat missiles. The increased pace of rogue nation missile development, i.e., Iran and North Korea, requires increasing intelligence collection, analysis, and production of data on foreign threat missiles. Additionally, the nature of the 21st century world-wide missile testing is reducing available signatures and warning of test events. Therefore, enhanced collaboration with the Intelligence Community is crucial to fielding a missile defense capability. Provides Intelligence Community data on foreign threat missiles to the BMDS System Engineer who uses the threats to develop and change the BMDS in support of BMDS architecture design, testing, modeling, and wargaming to reduce risk and improve system performance. Enables MDA program managers to achieve a sufficiently accurate understanding of the threat environment to respond to relevant capabilities of immediate importance, make informed decisions and invest limited resources on countering the most significant aspects of potential adversary capabilities. Gains access to and leverages unique, Intelligence Community developed, owned and operated capabilities for the benefit of the Missile Defense Community; many capabilities are highly classified</p>				13.096	11.321	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</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>and require both access and expertise to exploit. Supports the overarching MDA objectives of BMDS on-Alert, continuing evolutionary development, and enhanced BMDS capabilities.</p> <p><i>FY 2010 Plans:</i> FY 2010 Plans</p> <p>The Intelligence Requirements Division will continue to be the single intelligence requirements integration office within MDA and its designated intermediary with the Intelligence Community and will continue to maintain a consistent dialog with the Intelligence Community to make sure they have a focused, prioritized, and a complete understanding of the vast requirements for foreign intelligence necessary to build a comprehensive BMDS. The increased pace of rogue nation missile development, i.e., Iran and North Korea, requires increasing intelligence collection, analysis, and production of data on foreign threat missiles. Additionally, the nature of the 21st century world-wide missile testing is reducing available signatures and warning of test events. Therefore, enhanced collaboration with the Intelligence Community is crucial to fielding a missile defense capability. ;</p> <p>Continue to manage the intelligence collection requirements and engage the Intelligence Community to ensure MDA requirements are documented, validated, collected, and understood. Intelligence tasks will include planning intelligence collections support for missile defense tests and documenting requirements in Intelligence Community management systems, maintaining and updating Measurement and Signature Intelligence (MASINT), Geospatial Intelligence (GEOINT), and Signal Intelligence (SIGINT) requirements on advances in foreign ballistic missile technology and for all MDA events. ;</p> <p>Continue to maintain an ongoing, persistent, focused dialog with all members of the Intelligence Community to ensure MDA intelligence requirements are viewed in proper context, receive the proper priority level, and are explicitly understood by the Intelligence Community. ;</p> <p>Continue to provide to all levels of builders of missile defense intelligence requirements with the most up-to-date and accurate intelligence which requires a detailed understanding of the BMDS developer's and senior leadership's particular requirements. ;</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</i>

B. Accomplishments/Planned Program (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Continue to provide an encyclopedic, all-source, and all encompassing knowledge base of the foreign ballistic missile threat including development, enhancement, and population of the Secret and Top Secret/Sensitive Compartmented Information Missile Threat Portal with Intelligence Community produced finish intelligence documents. These portals have the most up-to-date current intelligence to provide immediate situational awareness, technical intelligence data to be used by the BMDS Program Elements and System Engineers, and direct linkages to the Intelligence Community to support the MDA Warfighter Support Center. ;</p> <p>Maintain the use of UMPIRE which is a universal tool to allow BMDS planners and warfighters to access disparate Intelligence Community databases using a single interface.</p> <p><i>FY 2011 Base Plans:</i> The program plans for this project are reported under MD28 in PB11.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
<p>BMDS Security Assessment and Certification</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> BMDS Security Assessment and Certification Directorate: Execute the mission of the BMDS Information Assurance Functional Manager. Responsible for the following functions:</p> <p>Fulfilling the DoD 8500.2 and 8510.01 policy-mandated role as the BMDS Information Assurance Manager and the BMDS Information Assurance Officer for the overarching BMDS Mission System and Element Components.</p> <p>Characterizing the overall BMDS security posture; Manage matriced Information Assurance Manager staff.</p>	2.780	2.301	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</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>Defining the BMDS Information Assurance/Computer Network Defense architecture of the in conjunction with systems engineering.</p> <p>Defining Information Assurance requirements consistently, comprehensively and definitively at each stage of the acquisition lifecycle and in support of the European Component Office.</p> <p>Interfacing with the Intelligence Community to define cyber security threats relevant to the BMDS.</p> <p>Project Accomplishments/Plans: BMDS Information Assurance Directorate:</p> <p>Fulfill DoD 8500.2 and 8510.01 policy-mandated roles of the Information Assurance Manager and Information Assurance Officer for the overarching BMDS.</p> <p>Define information assurance requirements for Continental United States (CONUS) and non-CONUS based BMDS assets consistently, comprehensively and definitively.</p> <p>Assess the Information Assurance/Computer Network Defense security architecture to address gaps, to enhance interoperability, and realize efficiencies across all mission systems. Define the ``As Built`` and ``To Be`` Information Assurance architectures to support technical assessments and Information Assurance/Computer Network Defense design solutions and implementation recommendations.</p> <p>Provide information assurance advice and assistance to program managers and elements to support ongoing and planned implementation related activities for the fielded BMDS and for planned European and international implementations.</p> <p>Define Information Assurance/Computer Network Defense and cyber security infrastructure intelligence requirements to focus Intelligence Community collection, analysis and production to target MDA/BMDS vulnerabilities.</p> <p>Assist in the sustainment of an acceptable Information Assurance/Computer Network Defense security posture for the Director, MDA, through various initiatives at each stage of the program`s lifecycle.</p> <p><i>FY 2010 Plans:</i> FY 2010 Plans</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</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 to fulfill DoD 8500.2 and 8510.01 policy-mandated roles of the Information Assurance Manager and Information Assurance Officer for the overarching BMDS. ;</p> <p>Continue to define information assurance requirements for Continental United States (CONUS) and non-CONUS based BMDS assets consistently, comprehensively and definitively. ;</p> <p>Continue to enhance the Information Assurance posture of the BMDS by delivering expert, responsive, relevant Information Assurance/Computer Network Defense products and services supporting the PMs to meet BMDS and Element Information Assurance/Computer Network Defense needs and requirements. ;</p> <p>Continue to assist in the sustainment of an acceptable Information Assurance/Computer Network Defense security posture for the Director, MDA, through various initiatives at each stage of the program`s lifecycle.</p> <p><i>FY 2011 Base Plans:</i> The program plans for this project are reported under MD28 in PB11.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	20.007	17.789	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
	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 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>
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>											
• 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
• 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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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</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
• 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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</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

In support of acquiring an effective BMDS capability, this project directs various executing agents and leverages expertise in the intelligence community, counterintelligence community, and information assurance community, including the military departments, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution to the BMDS.

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			
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			
Counterintelligence Analysis and Support-1 YX28	C/FFP	QinetiQ Inc Fairfax, VA	8.576	4.067	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Counterintelligence Analysis and Support-2 YX28	C/CPFF	Telecom Systems MD	0.220	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Counterintelligence Analysis and Support-3 YX28	TBD/TBD	Various Various	0.400	0.100	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Intelligence Intelligence Support Center YX28	SS/CPAF	MDIOC-Northrop Grumman Colorado Springs, CO	5.996	2.844	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Intelligence Intelligence Applications YX28	TBD/TBD	SMDC Hunstville, AL	1.933	1.191	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			
Intelligence Scenario Population YX28	SS/CPAF	MDIOC-Northrop Grumman Colorado Springs, CO	3.712	2.133	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Security Assessment and Certification IA/CND Support-1 YX28	TBD/TBD	Aerospace Corporation LA, CA and Columbia, MD	3.555	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Security Assessment and Certification Cyber threat Review and Assessment Support YX28	TBD/TBD	MITRE Bedford, MA	0.611	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Security Assessment and Certification IA/CND Support-2 YX28	SS/FFP	Booz Allen Hamilton McLean, VA	2.127	2.301	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Security Assessment and Certification IA/CND Support-3 YX28	SS/FFP	Zeltech Hampton, VA	0.270	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			27.400	12.636		0.000		0.000		0.000			

Remarks
MDIOC-Missile Defense Integration & Operations Center

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</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			
Intelligence Project Management Support YX28	TBD/TBD	Aerospace Los Angeles, CA	1.060	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Intelligence Project Management-1 YX28	C/FFP	BAH McLean, VA	10.476	5.153	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Intelligence Project Management-2 YX28	C/FFP	SAIC San Diego, CA	1.101	0.000	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Intelligence Project Management-3 YX28	C/FFP	ASR McLean, VA	0.707	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Intelligence Project Management-4 YX28	SS/Various	Various Various	0.425	0.000	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Intelligence Project Management-5 YX28	TBD/TBD	CECOM Fort Monmouth, NJ	0.660	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</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			14.429	5.153		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	41.829	17.789		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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</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
CI Investigations & Operations Updates	■	■	■	■	■	■	■	■																				
Certification and Accreditation	■	■	■	■	■	■	■	■																				
Defense Threat Assessments	■	■	■	■	■	■	■	■																				
Intelligence Briefings	■	■	■	■	■	■	■	■																				
Intelligence Information Reports	■	■	■	■	■	■	■	■																				
Intelligence Support Center	■	■	■	■	■	■	■	■																				
Multi-Discipline CI Threat Assessment	■	■	■	■	■	■	■	■																				
Studies and Scenario Development	■	■	■	■	■	■	■	■																				
Systems Engineering & Validation	■	■	■	■	■	■	■	■																				
Travel Briefings & Debriefings	■	■	■	■	■	■	■	■																				
Update and Maintain Foreign Missile Knowledge Base	■	■	■	■	■	■	■	■																				
Wargaming 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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX28: <i>Intelligence & Security</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
CI Investigations & Operations Updates	1	2009	4	2010
Certification and Accreditation	1	2009	4	2010
Defense Threat Assessments	1	2009	4	2010
Intelligence Briefings	1	2009	4	2010
Intelligence Information Reports	1	2009	4	2010
Intelligence Support Center	1	2009	4	2010
Multi-Discipline CI Threat Assessment	1	2009	4	2010
Studies and Scenario Development	1	2009	4	2010
Systems Engineering & Validation	1	2009	4	2010
Travel Briefings & Debriefings	1	2009	4	2010
Update and Maintain Foreign Missile Knowledge Base	1	2009	4	2010
Wargaming Support	1	2009	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD28: <i>Intelligence & Security</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
MD28: <i>Intelligence & Security</i>	0.000	0.000	15.905	0.000	15.905	15.711	15.992	16.276	16.360	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

Note: In accordance with the Missile Defense Agency revised Budget structure, the content previously planned in Project YX28 for FY 2009 - FY 2010 is now captured in Project MD28 for FY 2011 - FY 2015.

A. Mission Description and Budget Item Justification

Intelligence and Security Program Major Program Goals:

Ensure the Intelligence Community understands, accurately and timely fulfills MDA`s current and future prioritized intelligence requirements; advocate BMDS test support collection requirements with the Intelligence Community and ensure that MDA`s intelligence needs and finished intelligence requirements are understood while ensuring the Intelligence Community is involved in technical interchange meetings.

Continue the federated approach to supporting MDA by leveraging available National and DoD Counterintelligence resources to ensure counterintelligence products and services are fully integrated into all RDT&E programs and activities to protect classified information, critical technologies and to support and protect MDA and BMDS personnel, facilities, information and activities from criminal, terrorist and Foreign Intelligence and Security Service targeting/threats.

Consistently, comprehensively and definitively define information assurance requirements for Continental United States (CONUS) and non-CONUS based on BMDS assets. Define Information Assurance/Computer Network Defense and cyber security infrastructure intelligence requirements to focus Intelligence Community collection, analysis and production to target MDA/BMDS vulnerabilities; definitize and incorporate information assurance requirements into the systems engineering process.

The Security and Intelligence Project captures three specific areas:

- 1) Intelligence
- 2) Counterintelligence
- 3) BMDS Information Assurance Development and Management

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Exhibit R-2A, RDT&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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD28: <i>Intelligence & Security</i>
<p>Collectively, these efforts provide critical information regarding threat ballistic missile system capabilities (via intelligence), protection of personnel, activities, and technology from espionage and terrorism through active and passive activities (via counterintelligence); and BMDS system vulnerabilities (via BMDS information assurance). Specifically, the activities include overarching MDA objectives of BMDS on-Alert, continuing evolutionary development, and enhanced BMDS capabilities.</p> <p>1) Intelligence: The MDA Intelligence Requirements Division serves as a clearing house for MDA`s requirements for the Intelligence Community collection, analysis and production. The MDA Intelligence Requirements Division serves as the quality control and dissemination agent of Intelligence Community products for all properly cleared Government and contractor personnel and provides feedback to the Intelligence Community on subsequent questions, issues and other requirements resulting from Intelligence Community reporting. The intelligence process begins when the Intelligence Community collects and analyzes data on foreign threat missiles. Resulting threats and threat changes are provided to the BMDS System Engineer who uses the threats to develop and change the BMDS. Through this activity, threat data is provided to support BMDS architecture design, and testing. This information reduces the risk and improves system performance. It enables MDA Program Managers to achieve a sufficiently accurate understanding of the threat environment to respond to relevant capabilities of immediate importance, make informed decisions and invest limited resources on countering the most significant aspects of potential adversary capabilities. Other aspects of the Intelligence Division are designed to gain access to, and leverage unique Intelligence Community developed, owned and operated capabilities for the benefit and advocacy of the Missile Defense Community. Numerous Intelligence Community capabilities are highly classified and require both access and expertise to exploit. The Intelligence Requirements Division supports the overarching MDA objectives of BMDS on-Alert, evolutionary development, and enhanced BMDS capabilities.</p> <p>2) Counterintelligence: Pursuant to Executive Order 12333, (US Intelligence Activities), DoD Directive 5240.2 (DoD Counterintelligence), and other DoD Counterintelligence policy issuances, the MDA Counterintelligence Division is charged with undertaking activities as part of an integrated DoD and national effort, to detect, identify, assess, exploit, degrade and counter or neutralize foreign intelligence collection efforts, sabotage, espionage, sedition, subversion, terrorist and other intelligence activities directed against MDA personnel, information, materials, facilities, and activities or against U.S. national security. As a member of the DoD Counterintelligence Community, the Counterintelligence Division`s portfolio includes the following missions and functions:</p> <p>Counterintelligence Investigative Inquiries: Pursuant to DoD Instruction 5240.21, the Counterintelligence Division conducts counterintelligence investigative inquiries into reported or suspected clandestine relationships between MDA personnel and agents of a foreign power and/or individuals associated with international terrorist organizations; failure to report contact with a foreign intelligence service and/or failure to comply with DoD reporting requirements pursuant to DoD Instruction 5240.6. Counterintelligence inquiries establish or refute a reasonable belief that a particular person was acting for or on behalf of, or an event was related to, a foreign power engaged in spying or committing espionage, sabotage, treason, sedition, subversion, assassinations, or international terrorist activities. When such allegations are substantiated, the Counterintelligence Division refers them to the appropriate Title 10, U.S. Code jurisdiction (Army, Navy or United States Air Force Counterintelligence Organization, Defense Criminal Investigative Services or Federal Bureau of Investigation, as appropriate) for further investigative action.</p> <p>Counterintelligence Collection and Reporting: Pursuant to DoD Instruction 5240.17, the Counterintelligence Division systematically collects counterintelligence information from US and foreign counterpart intelligence, counterintelligence, security and law enforcement entities through routine liaison and other activities associated with multi-national BMD conferences overseas, RDT&E activities and BMDS deployments worldwide. The Counterintelligence Division also conducts</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD28: <i>Intelligence & Security</i>
<p>briefings and debriefings of MDA personnel who travel overseas and passes on any relevant information to the US Intelligence Community via Intelligence Information Reports, as appropriate, to answer validated DoD Counterintelligence collection requirements.</p> <p>Counterintelligence Analysis and Production: Pursuant to DoD Instruction S-5240.18, the Counterintelligence Division conducts unclassified and classified web-based research and prepares tailored, timely and relevant analytical products that address threats from espionage, international terrorism, subversion, sabotage, assassination, other clandestine or covert activities, and any other similar activities targeting MDA that are reasonably believed to have a foreign nexus. This includes threats to MDA personnel, property, flight tests, RDT&E activities, and worldwide conferences in addition to intelligence collection threats to MDA critical program information, BMDS technologies, administrative and mission networks or infrastructure.</p> <p>Counterintelligence Functional Services: Pursuant to DoD Instruction 5240.16, the Counterintelligence Division conducts specialized defensive Counterintelligence activities to identify and counter terrorism, espionage, sabotage and other related activities of foreign intelligence services in support of MDA flight tests, Special Access Programs, CONUS/OCONUS BMD conferences, BMDS field deployments and initiatives and other worldwide initiatives. Specialized defensive counterintelligence activities include the conduct of Technical Surveillance Countermeasures surveys/inspections (DoD Instruction 5240.5) and computer forensics examinations in support of investigations resulting from reported insider threats and/or foreign computer intrusions.</p> <p>Counterintelligence Awareness, Briefing and Reporting Program: Pursuant to DoD Instruction 5240.6, the Counterintelligence Division provides initial (MDA Newcomer`s briefing) and periodic Counterintelligence Awareness briefings to DoD military, civilian and contractor personnel assigned to MDA. These briefings focus on the threats posed by foreign intelligence services, international terrorists, computer intruders and unauthorized disclosures, in addition to individual reporting responsibilities. The Counterintelligence Division also provides mandatory foreign travel threat briefings to all MDA OCONUS travelers to familiarize them with potential terrorism, criminal, health, political and foreign intelligence and security service threats they may encounter. Follow-up debriefings are conducted to capture pertinent counterintelligence information that is shared with other MDA travelers and the US Intelligence Community, as appropriate.</p> <p>Counterintelligence in Cyberspace: Pursuant to DoD Instruction 5240.LL and other DoD policy guidance, the Counterintelligence Division conducts defensive cyber activities and computer forensics using specialized gear and software toolsets to detect, identify, assess, deter, neutralize or exploit the activities of individuals, organizations, international terrorists and foreign intelligence and security services attempting to extricate information from MDA administrative or mission networks or using the MDA cyberspace domain to conduct espionage, other intelligence activities, sabotage, and assassinations against MDA personnel, facilities, programs and/or activities.</p> <p>3) BMDS Information Assurance Division: This division is responsible for assisting the BMDS to manage and deploy Information Assurance/Computer Network Defense requirements and solutions to fulfill DoD and Warfighter mandates, while enhancing the robustness and resilience of the cyber infrastructure. To fulfill this role, the BMDS Information Assurance Division works in concert with Information Assurance Engineers and Information Assurance managers to obtain a comprehensive picture of the overall Information Assurance/Computer Network Defense architecture at all levels of the BMDS, then influence the design by 1) identifying and developing Core Standards and Requirements to implement Defense-in-Depth within planned development cycles (Builds); 2) providing oversight, coordination and management of key information assurance management processes, technical requirements development, and policy-mandated responsibilities; 3) providing contract acquisition support to BMDS Elements ensuring information assurance is addressed throughout the procurement process, and; 4) interfacing with the Intelligence Community to define cyber security threats relevant to the BMDS. To fulfill stated mission requirements, the division must interface with relevant information assurance experts to assess</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD28: <i>Intelligence & Security</i>				
requirements, documentation and Information Assurance/Computer Network Defense design, gain insight into past/present/future security related issues, and exploit threat/vulnerability assessments to identify trends, understand threats and manage risks to fulfill developmental related requirements.						
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
BMDS Information Assurance See Description Below <i>FY 2009 Accomplishments:</i> The program content in this project was previously reported under YX28 in PB10. <i>FY 2010 Plans:</i> The program content in this project was previously reported under YX28 in PB10. <i>FY 2011 Base Plans:</i> FY 2011 Plans BMDS Information Assurance Division : ; Execute the mission of the BMDS Information Assurance Functional Manager. ; Responsible for the following functions: ; Fulfilling the DoD 8500.2 and 8510.01 policy-mandated role as the BMDS Information Assurance Manager and the BMDS Information Assurance Officer for the overarching BMDS Mission System and Element Components. Characterizing the overall BMDS security posture; Manage matriced Information Assurance Manager staff. ; Defining the BMDS Information Assurance/Computer Network Defense architecture of the in conjunction with systems engineering. ; ; Defining Information Assurance requirements consistently, comprehensively and definitively at each stage of the acquisition lifecycle and in support of the European Component Office. Interfacing with the Intelligence Community to define cyber security threats relevant to the BMDS.		0.000	0.000	2.688	0.000	2.688

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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>FY 2011 BMDS Information Assurance Planned Program:</p> <p>Continue to fulfill DoD 8500.2 and 8510.01 policy-mandated roles of the Information Assurance Manager and Information Assurance Officer for the overarching BMDS.</p> <p>Continue to define Information Assurance/Computer Network Defense requirements for CONUS and non-CONUS based BMDS assets consistently, comprehensively and definitively. ;</p> <p>Continue to Assess the Information Assurance/Computer Network Defense security architecture to address gaps/disconnects, to enhance interoperability, and realize efficiencies across all mission systems. Define the "As Built" and "To Be" Information Assurance/Computer Network Defense Architectural Concepts to support technical assessments and Information Assurance/Computer Network Defense design solutions and implementation recommendations. ;</p> <p>Develop and document technical requirements and interfaces to execute an Integrated Information Assurance/Computer Network Defense NETCENTRIC Architectural Concept. ;</p> <p>Continue to enhance the information assurance posture of the BMDS by delivering expert, responsive, relevant Information Assurance/Computer Network Defense products and services supporting the Program Managers to meet BMDS and Element Information Assurance/Computer Network Defense needs and requirements.</p> <p>Continue to assist in the sustainment of an acceptable Information Assurance/Computer Network Defense security posture for the Director, MDA, through various initiatives at each stage of the program`s lifecycle.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Counterintelligence See Description Below	0.000	0.000	4.362	0.000	4.362

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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 2009 Accomplishments:</i> The program content in this project was previously reported under YX28 in PB10.</p> <p><i>FY 2010 Plans:</i> The program content in this project was previously reported under YX28 in PB10.</p> <p><i>FY 2011 Base Plans:</i> FY 2011 Counterintelligence Planned Program:</p> <p>The Counterintelligence Division will continue to serve as the single point of contact with Federal, State and Local Law Enforcement and Counterintelligence Organizations. ; To this end, the Counterintelligence Division will continue to foster collaborative partnerships targeting foreign intelligence collection activities directed against MDA personnel, facilities and activities to prevent the loss or compromise of critical program information or critical BMDS technologies.</p> <p>The Counterintelligence Division will deploy organic counterintelligence teams to conduct defensive counterintelligence activities in support of MDA fielding initiatives worldwide to include sites in Poland and the Czech Republic.</p> <p>The Counterintelligence Division will procure and field updated secure data communications systems for the Colorado Springs Regional Counterintelligence Office in support of flight tests, conferences and overseas deployments.</p> <p>The Counterintelligence Division will continue to support all MDA flight tests to detect, deter, or neutralize criminal, terrorist and foreign intelligence collection threats targeting MDA and BMDS technologies, personnel, facilities and activities.</p> <p>The Counterintelligence Division will continue to keep MDA leadership and supported Program Elements informed of counterintelligence threats targeting its Research, Development and Acquisition programs, technologies and critical program information through aggressive an Analysis and Production Program.</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>		PROJECT MD28: <i>Intelligence & Security</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>The Counterintelligence Division will continue to educate the entire MDA workforce on the criminal, terrorist and foreign intelligence threats targeting MDA personnel, information, facilities and activities through an aggressive Counterintelligence Awareness Briefing Program that includes foreign travel threat briefings.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>								
<p>Intelligence</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> The program content in this project was previously reported under YX28 in PB10.</p> <p><i>FY 2010 Plans:</i> The program content in this project was previously reported under YX28 in PB10.</p> <p><i>FY 2011 Base Plans:</i> FY 2011 Intelligence Planned Program:</p> <p>The Intelligence Requirements Office will continue to be the single intelligence requirements integration office within MDA and its designated intermediary with the Intelligence Community and will continue to maintain a consistent dialog with the Intelligence Community to make sure they have a focused, prioritized, and a complete understanding of the vast requirements for foreign intelligence necessary to build a comprehensive BMDS. Continue to manage the intelligence collection requirements and engage the Intelligence Community to ensure MDA requirements are documented, validated, collected, and understood. Intelligence</p>				0.000	0.000	8.855	0.000	8.855

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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>tasks will include planning intelligence collections support for missile defense tests and documenting requirements in Intelligence Community management systems, maintaining and updating Measurement and Signature Intelligence (MASINT), Geospatial Intelligence (GEOINT), and Signal Intelligence (SIGINT) requirements on advances in foreign ballistic missile technology and for all MDA events.</p> <p>Continue to maintain an ongoing, persistent, focused dialog with all members of the Intelligence Community to ensure MDA intelligence requirements are viewed in proper context, receive the proper priority level, and are explicitly understood by the Intelligence Community.</p> <p>Continue to provide to all levels of builders of missile defense intelligence requirements with the most up to-date and accurate intelligence which requires a detailed understanding of the BMDS developer`s and senior leadership`s particular requirements.</p> <p>Continue to provide an encyclopedic, all-source, and all encompassing knowledge base of the foreign ballistic missile threat including development, enhancement, and population of the Secret and Top Secret/Sensitive Compartmented Information Missile Threat Portals with Intelligence Community produced finish intelligence documents. These portals have the most up-to-date current intelligence to provide immediate situational awareness, technical intelligence data to be used by the BMDS Program Elements and System Engineers, and direct linkages to the Intelligence Community to support the MDA Warfighter Support Center.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	15.905	0.000	15.905

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

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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</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>
• 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
• 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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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>				PROJECT MD28: <i>Intelligence & Security</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
• 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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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

In support of acquiring an effective BMDS capability, this project directs various executing agents and leverages expertise in the intelligence community, counterintelligence community, and information assurance community, including the military departments, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution to the BMDS. Products and Services will be acquired by competitive means to the extent that is possible and practical.

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 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 costs enterprise-wide. Advisory and Assistance Services 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			
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			
BMDs Information Assurance IA/CND Support MD28	SS/FFP	Booz Allen Hamilton McLean, VA	0.000	0.000		2.688		0.000		2.688	Continuing	Continuing	Continuing
Counterintelligence Analysis and Support MD28	C/FFP	QinetiQ Inc Fairfax, VA	0.000	0.000		4.262	Jan 2011	0.000		4.262	Continuing	Continuing	Continuing
Counterintelligence Analysis and Support - 2 MD28	TBD/TBD	Various Various	0.000	0.000		0.100	Jan 2011	0.000		0.100	Continuing	Continuing	Continuing
Intelligence Intelligence Watch MD28	SS/CPAF	MDIOC-Northrop Grumman Colorado Springs, CO	0.000	0.000		2.346	Jan 2011	0.000		2.346	Continuing	Continuing	Continuing
Intelligence Analysis and Support MD28	C/FFP	Booz Allen Hamilton	0.000	0.000		5.294	Jan 2011	0.000		5.294	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			
		McLean VA											
Intelligence Applications MD28	TBD/TBD	SMDC Huntsville, AL	0.000	0.000		1.191	Jan 2011	0.000		1.191	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		15.881		0.000		15.881			

Remarks
MDIOC - Missile Defense Integration & Operations Center

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			
Intelligence Project Management MD28	SS/Various	Various Various	0.000	0.000		0.024	Jan 2011	0.000		0.024	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.024		0.000		0.024			

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	0.000	0.000		15.905		0.000		15.905			

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
YX29: <i>Producibility and Manufacturing Technology</i>	40.805	44.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	84.837
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

The content previously planned in Project YX29 for FY 2009 - FY 2010 is now captured in Project MD29 for FY 2011 - FY 2015.

A. Mission Description and Budget Item Justification

Producibility and Manufacturing's responsibility is improving the Ballistic Missile Defense System by applying producibility tools; which include Design for Manufacturing and Assembly, supply chain gap analysis, and Continuous Process Improvement (CPI) which includes Lean Six-Sigma, the Theory of Constraints, and others to assist in the elimination of manufacturing waste, reducing process variability, and insuring first time quality for Ballistic Missile Defense Element Program Offices and their suppliers.

The identification of manufacturing risks is done through Engineering and Manufacturing Readiness Level (EMRL) Assessments. EMRLs are a systems engineering tool that employs widespread industry and BMDS Element interaction to analyze the maturity of manufacturing processes as a factor in the BMDS Risk Management Process. Producibility and Manufacturing conducts Industrial Capability Assessments (ICAs) across the BMDS Industrial Base in order to identify production gaps created by material supplier changes, loss of manufacturing base, and movement of US production overseas. From these assessments, a gap analysis is developed which focuses on methods that can be used to support our US original equipment manufacturers (OEMs), their supplier base, and other organizations that produce end items for the BMDS.

As part of the gap analysis US environmental concerns are addressed. Our efforts to find a replacement for the environmentally toxic metal Beryllium has focused us on an environmentally friendly Silicon Carbide as a Kill Vehicle telescope construction material. An additional benefit of Silicon Carbide is the telescope assembly also improves the nuclear survivability of or Kill Vehicle sensors.

Producibility and Manufacturing is MDA's Technology Transition Lead; ensuring technologies and products under development from the Advanced Technology Deputate, items developed through the Small Business Innovative Research program, and efforts developed through the Services MANTECH programs are mapped into the BMDS architecture at the appropriate insertion points and in concert with the Elements. We assess and report transition readiness using Engineering Manufacturing Readiness Levels and exit criteria metrics (i.e., Critical Knowledge Points).

Near term producibility capabilities are accomplished through efforts in a number of key investment areas: Power Systems, Radiation Hardening/ Survivability (both natural and prompt radiation affects), Manufacturing Process Improvements, Electro-Optics/Infrared (EO/IR), Radar RF / Electronics, Propulsion, Advanced Materials and Structures, and Anti-Tamper. These capabilities are matured through the Next Generation Component Producibility Program and its associated Flight Experiments.

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<p>These efforts are programmed for BMDS Element integration within a three to five year timeframe. MDA has designated Producibility and Manufacturing as the command focal point for Continuous Process Improvement (CPI) which includes the utilization of tools such as Lean Six-Sigma, and the Theory of Constraints to assist in the elimination of waste, reducing process variability, and insuring first time quality for internal and external customers.</p>						
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Power Systems See Description Below <i>FY 2009 Accomplishments:</i> Developed new manufacturing process for precursor material for Li-ion battery cells. This process will be used in the DoD Title III program and will save the program several million dollars since they will not need to use a more expensive process. THAAD Kill Vehicle batteries successfully qualified at Eagle Picher in May 2009. The KVB uses a low temperature electrolyte developed under the DEP effort and allows battery operation over full system temperature range. Completed Lean Six Sigma effort at Eagle Picher's energetics facility. Results allowed Eagle Picher to realize improvements in cycle time and quality while reducing costs. <i>FY 2010 Plans:</i> Continue Lean Six Sigma Projects, Value Stream Mappings and Rapid Improvement Events in selected Eagle Picher Technologies Product areas, both Energetics and Battery Fully implement Computer Assisted Production Planning/Paperless Manufacturing Review factory integrated improvements which impact MDA product cycle time, quality, and cost Relocate Eagle Picher Technologies Company oxyhalide battery production based on manufacturing improvements developed in the FY 2009 Lean Six Sigma Projects <i>FY 2011 Base Plans:</i> NA		5.083	4.387	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 OCO Plans:</i> NA						
Radiation Hardening See Description Below <i>FY 2009 Accomplishments:</i> Promulgated Position, Navigation and Timing, MDA-STD-004, core standard in support of Common Inertial Measurement Unit (CIMU), MDA-STD-005. Engaged radiation hardness assurance (RHA) under the Parts, Materials and Processes (PMAP) Mission Assurance Plan, MDA-QS-003-PMAP-REV A, as a CIMU compatibility targeted for Ground-based Midcourse Defense two stage booster applications. Conducted High Altitude Exo-Atmospheric Nuclear Survivability (HAENS), MDA-STD-001A, testing for nearly half of electronic devices used in CIMU including accelerometers, data bus and optical components. <i>FY 2010 Plans:</i> Conduct electronics and sensor nuclear survivability testable protocol testing for the BMDS. This includes sensor chip assembly testing of Kill Vehicle long wave infrared and visible sensors relative to MDA-STD-001. Use the High Altitude Exoatmospheric Nuclear Survivability standard tested parts from FY 2008 and FY 2009 for building prototype Inertial Measurement Unit engineering development units that meet MDA-STD-005. This will lead to low rate initial production of a Nuclear Survivable common Inertial Measurement Unit. <i>FY 2011 Base Plans:</i> NA		3.800	6.405	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 OCO Plans:</i> NA						
<p>Manufacturing Process Improvements</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Deployed Mission Assurance supply chain Mapping Interface (MIAMI) pilot at Raytheon Missile Systems (RMS). ; Quickly identified specific suppliers potentially affected by hurricanes, fires, flooding, earthquakes ; RMS was so satisfied ; they are ; moving to deploy ; technology throughout entire Raytheon corporation. ; Demonstrated a Vet-Biz Initiative for National Sustainment (VINS)/Supplier Qualification Project at LMMFC. ; Developed web-crawling technology to identify potentially qualified suppliers with certain skill sets. ; This supply chain tool will identify new sources of Veteran Owned Small Business (VOSB) ; and Service Disabled Veteran Owned Small Business (SDVOSB) suppliers with capabilities in key technology fields. Established MDA Obsolescence Working Group that will support the MDA Parts, Materials, and Processes board. ; Major focus is on lead free electronics and counterfeit parts. ; Updated MDA Obsolescence Desk Guide and completed Lean Six Sigma activities with PAC-3 suppliers.</p> <p><i>FY 2010 Plans:</i> Conduct Continuous Process Improvement efforts for internal and external MDA customers. This includes the following:</p> <p>Lean Six Sigma Green Belt and Black Belt Training and certification Lean Six Sigma Green Belt and Black Belt Project Planning, Mentoring and Implementation Target projects that help MDA meet its strategic, short term and long term objectives Web-based Lean Six Sigma Champion Training Development</p>		2.843	3.837	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>Complete Lean Six Sigma -Pathways Training for Suppliers to One Original Equipment Manufacturers (Second Wave) and initiate Lean Six Sigma -Pathways Training with a new MDA Original Equipment Manufacturer and it's Suppliers</p> <p>Participate with OSD Continuous Process Improvement Steering Group in improving the Continuous Process Improvement program based on lessons learned and Lean Six Sigma technology developments</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Electro-Optics/Infrared (EO/IR)</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Collaborated with LLNL to use NIF laser-based radiation source for radiation and thermal shock testing of improved thermal figure of merit missile interceptor optical telescope materials Collaborated with IR focal plane array (FPA) suppliers and AFRL Kirtland to develop and test an Operational Operability Metric to leverage capabilities afforded by new digital FPAs to improve production yields and enable larger format arrays Collaborated with IR FPA suppliers to establish the benefits of hydrogen infiltration or hydrogenization of IR FPA detectors to reduce defect densities and improve detector material quality to include growth of Mercury-Cadmium-Telluride on alternative substrates Identified extreme environment MEMS-based IMU suppliers for smaller, more accurate and radiation tolerant interceptor IMUs</p>		12.029	18.738	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> Complete coordinated multiple low (3-5 units) quantity production and radiation testing of both improved performance and radiation tolerant next generation sensor subsystems/component technologies for flight experiments planned for FY10 involving two sensor guided by a controlled divert and attitude control system. The planned sensor technologies are : 1) both one and two color digital (up to 200 frames/sec) Focal Plan Arrays, 2) a common power and data bus architecture/connectors, and a (missile and space) standard power and data bus architecture/connectors and common dual-use split-cryocooler configuration, 3) subwavelength gratings in lieu of coatings to improve the efficiency of both transmissive and reflective optics, and 4) laser cross-link telemetry between two separately launched payloads (sensor with Divert and Attitude Control System).</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Radar RF/Electronics See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Conducted reliability testing of next generation High Voltage Gallium Arsenide X-band monolithic microwave integrated circuits and achieved >10⁶ hours reliability at required power levels and efficiency. ; Conducted reliability testing of Gallium Nitride X-band discrete devices. Achieved >10⁶ hours reliability on GaN devices as supplied from 2 domestic sources at required power levels and efficiency. ;</p>		2.658	2.950	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 the 4-inch Diameter Semi-insulating Silicon Carbide Wafer Producibility program. ; Introduced second source for 4-inch Semi-insulating Silicon Carbide wafers for utilization by MDA and other DoD radar programs. ; Demonstrated wafer producibility metrics as well as independent review by Industry. Initiated the 4-inch Diameter Semi-insulating Gallium Wafer Producibility program. Demonstrated scale-up of wafer size from 1-inch diameter to 2-inch diameter.</p> <p><i>FY 2010 Plans:</i> Continue the High Power Electronics Reliability Test program for MDA and other joint DoD applications. Conduct reliability testing of Gallium Nitride X-band monolithic microwave integrated circuits. This testing will focus on 1st generation (28V) Gallium Arsenide monolithic microwave integrated circuits Initiate the X-band Gallium Arsenide monolithic microwave integrated circuits Producibility program to support MDA and other joint DoD applications. This is to focus on 1st generation (28V) Gallium Arsenide monolithic microwave integrated circuits Initiate development of a Radar Demonstrator to aid in the transition of producible, modular, scalable, and affordable technology to the BMDS.</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Propulsion See Description Below	8.481	2.287	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</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> Completed preliminary design review for the low cost liquid DACS program. ; The PDR was completed successfully with the design approach disclosed, all risks identified and mitigation plans in place. Kicked off throttling DACS development to support the flight experiment program. ; Conducted the first concept design reviews for the divert subsystem and the integrated actuator subsystem for the divert thrusters. Completed initial material evaluation for the Lyocell staple fiber material. ; This material evaluation program is assessing the maturity and viability of Lyocell as a replacement material for rocket motor ablative components currently manufactured with NARC Rayon.</p> <p><i>FY 2010 Plans:</i> Execute component and subsystem design, fabrication and testing of controllable Solid Divert and Altitude Control System component technologies. This program will be a testbed for products developed as part of the overall materials development program, low cost high performance actuators and other control schemes as they relate to improved performance for controllable solid DACS systems for the BMDS</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Advanced Materials & Structures See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Delivered composite lightweight solid rocket motor case</p>		3.066	2.337	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</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> Evaluate software modification effort started in FY08 to determine its likely effectiveness against reverse engineering. Develop protective Anti-Tamper technologies focused on key management, authentication, and active response (penalties) for the BMDS. Develop low/no power AT technologies to enable active response capabilities for the BMDS. Evaluate performance of multiple integrated AT technologies. Conduct assessments on Anti-Tamper technologies to evaluate likely effectiveness. Initiate transition plans and tailor above Anti-Tamper technologies for utilization on and protection of the BMD System. Work with the BMDS to identify critical technologies and identify Anti-Tamper solutions.</p> <p><i>FY 2011 Base Plans:</i> NA</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	40.805	44.032	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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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
• 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
• 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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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
• 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
• 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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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

Producibility and Manufacturing adheres to MDA`s capability-based acquisition strategy that emphasizes testing, incremental development, and evolutionary acquisition. The Producibility and Manufacturing group is MDA`s Technology Transition Lead; ensuring technologies and products under development from the Advanced Technology Deputate, items developed through the Small Business Innovative Research program, and efforts developed through the Services MANTECH programs are mapped into the BMDS architecture at the appropriate insertion points and in concert with the BMDS Elements. The identification of manufacturing risks is done through Engineering and Manufacturing Readiness Level (EMRL) Assessments. EMRLs are a systems engineering tool that employs widespread industry and BMDS Element interaction to analyze the maturity of manufacturing processes as a factor in the BMDS Risk Management Process. Producibility and Manufacturing conducts Industrial Capability Assessments (ICAs) across the BMDS Industrial Base in order to identify production gaps created by material supplier changes, loss of manufacturing base, and movement of US production overseas. From these assessments, a gap analysis is developed which focuses on methods that can be used to support our US original equipment manufacturers (OEMs), their supplier base, and other organizations that produce end items for the BMDS.

As part of the gap analysis, US environmental concerns are addressed. Our efforts to find a replacement for the environmentally toxic metal Beryllium has focused our efforts on pursuing environmentally friendly Silicon Carbide as a Kill Vehicle telescope construction material. An additional benefit of Silicon Carbide is that it will be used to improve the nuclear survivability of Kill Vehicle sensors which is part of the telescope assembly.

For efficiency, Producibility and Manufacturing utilizes existing MDA and service contract vehicles when possible to execute the program.

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			
Power Systems Battery Efforts YX29	TBD/TBD	NSWC/Crane, IN -	4.222	0.836	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Power Systems Li-Ion Modeling YX29	TBD/FFP	Quallion -	0.575	0.575	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Power Systems Lean Initiatives YX29	TBD/FFP	Tiburon -	0.530	0.530	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Power Systems BLDS Program Battery YX29	Various/ Various	Various Various	1.459	1.459	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Power Systems Thermal Battery Process Improvements YX29	TBD/FFP	Enser -	0.200	0.200	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Radiation Hardening Rad Hard-1 YX29	TBD/CPFF	Draper -	0.022	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Radiation Hardening Rad Hard-2 YX29	TBD/CPFF	Kearfott -	5.429	5.503	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Manufacturing Process Improvements BMDS Supply Chain YX29	TBD/CPFF	ATI -	1.611	1.275	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Manufacturing Process Improvements CPI YX29	TBD/CPFF	DRC -	1.170	1.275	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Manufacturing Process Improvements COTS YX29	TBD/TBD	Crane -	0.465	0.330	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Electro-Optics/Infrared (EO/IR) EO/IR-1 YX29	TBD/CPFF	BAE Kirtland, NM	1.900	0.300	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
	TBD/CPFF	Fibertek	2.095	1.000	Apr 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			
Electro-Optics/Infrared (EO/IR) EO/IR-2 YX29		Hendon, VA											
Electro-Optics/Infrared (EO/IR) EO/IR-3 YX29	TBD/CPFF	Miltec -	3.300	1.100	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Electro-Optics/Infrared (EO/IR) EO/IR-4 YX29	TBD/TBD	DMEA McLellan, CA	1.200	1.000	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Electro-Optics/Infrared (EO/IR) EO/IR-5 YX29	TBD/TBD	NASA Wallops Island	5.050	2.400	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Electro-Optics/Infrared (EO/IR) EO/IR-6 YX29	TBD/CPFF	AXSYS -	3.803	1.800	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Electro-Optics/Infrared (EO/IR) EO/IR-7 YX29	TBD/CPFF	EOC PA	1.000	10.151	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Electro-Optics/Infrared (EO/IR) EO/IR-8 YX29	TBD/CPFF	Draper -	0.200	0.200	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Radar RF/Electronics Bulk Si GaN for RF YX29	TBD/CPFF	AFRL Kirtland	0.895	0.500		0.000		0.000		0.000	Continuing	Continuing	Continuing
Radar RF/Electronics Reliability Testing YX29	TBD/TBD	NRL Washington, DC	0.400	0.300		0.000		0.000		0.000	Continuing	Continuing	Continuing
Radar RF/Electronics Tri-Service Rel. Testing YX29	TBD/TBD	AFRL Kirtland	1.042	0.613		0.000		0.000		0.000	Continuing	Continuing	Continuing
Radar RF/Electronics Producibility of 100mm Si SiC Substrates YX29	TBD/TBD	AFRL Kirtland	1.200	0.750		0.000		0.000		0.000	Continuing	Continuing	Continuing
Propulsion SMDC YX29	TBD/CPFF	Aerojet	10.650	0.600	Jul 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			
		Sacramento, CA											
Propulsion Propulsion-1 YX29	TBD/TBD	NSWCCD MD	1.496	0.730	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Propulsion Propulsion-2 YX29	TBD/TBD	China Lake CA	0.101	0.055	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Advanced Materials & Structures Advanced Materials-1 YX29	TBD/CPFF	SMDC/San Diego Composites San Diego, CA	3.557	1.385	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Advanced Materials & Structures Advanced Materials-2 YX29	TBD/TBD	SORI -	0.458	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Advanced Materials & Structures Advanced Materials-3 YX29	TBD/TBD	DCMA IAC	0.060	0.035	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Anti-Tamper Anti-Tamper YX29	TBD/TBD	NSWC Crane Crane, IN	0.766	0.304	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Anti-Tamper Technology Development/ Assessment YX29	Various/ Various	AFRL Raytheon	1.891	2.000	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			56.747	37.206		0.000		0.000		0.000			

Remarks

NA

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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			
Power Systems SETA YX29	TBD/FFP	DRC, Sparta VA	1.006	0.525	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Radiation Hardening SETA YX29	TBD/FFP	DRC, Sparta VA	1.006	0.525	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Radiation Hardening Other DoD YX29	TBD/TBD	SMDC Huntsville, AL	0.228	0.115	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Manufacturing Process Improvements JDMTP YX29	TBD/CPFF	Tiburon -	0.318	0.170	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Manufacturing Process Improvements Tin Whisker/PCB Tech YX29	TBD/TBD	ONR VA	0.318	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Manufacturing Process Improvements SETA YX29	TBD/FFP	DRC, Sparta VA	1.006	0.525	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Electro-Optics/Infrared (EO/IR) SETA YX29	TBD/FFP	DRC, Sparta VA	1.006	0.525	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Radar RF/Electronics SETA YX29	TBD/FFP	DRC, Sparta VA	1.006	0.525	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Propulsion SETA YX29	TBD/FFP	DRC, Sparta VA	1.006	0.525	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Propulsion Other DoD YX29	TBD/TBD	SMDC Huntsville, AL	0.228	0.115	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Advanced Materials & Structures SETA YX29	TBD/FFP	DRC, Sparta VA	1.006	0.525	Apr 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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</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			
Advanced Materials & Structures Other DoD YX29	TBD/TBD	SMDC Huntsville, AL	0.224	0.130	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Anti-Tamper SETA YX29	TBD/FFP	DRC, Sparta VA	1.006	0.525	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			9.364	4.730		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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>					PROJECT YX29: <i>Producibility and Manufacturing Technology</i>				

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			
Power Systems Govt Personnel YX29	TBD/TBD	MDA VA	0.420	0.225	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Power Systems CIV Travel YX29	TBD/TBD	MDA VA	0.072	0.037	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Radiation Hardening Govt Personnel YX29	TBD/TBD	MDA VA	0.420	0.225	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Radiation Hardening CIV Travel YX29	TBD/TBD	MDA VA	0.072	0.037	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Manufacturing Process Improvements Govt Personnel YX29	TBD/TBD	MDA VA	0.420	0.225	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Manufacturing Process Improvements CIV Travel YX29	TBD/TBD	MDA VA	0.072	0.037	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Electro-Optics/Infrared (EO/IR) Govt Personnel YX29	TBD/TBD	MDA VA	0.420	0.225	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Electro-Optics/Infrared (EO/IR) CIV Travel YX29	TBD/TBD	MDA VA	0.072	0.037	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Radar RF/Electronics Govt Personnel YX29	TBD/TBD	MDA VA	0.420	0.225	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Radar RF/Electronics CIV Travel YX29	TBD/TBD	MDA VA	0.072	0.037	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Propulsion Govt Personnel YX29	TBD/TBD	MDA VA	0.420	0.225	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
	TBD/TBD	MDA	0.072	0.037	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</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			
Propulsion CIV Travel YX29		VA											
Advanced Materials & Structures Govt Personnel YX29	TBD/TBD	MDA VA	0.420	0.225	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Advanced Materials & Structures CIV Travel YX29	TBD/TBD	MDA VA	0.072	0.037	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Anti-Tamper Govt Personnel YX29	TBD/TBD	MDA VA	0.420	0.225	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Anti-Tamper CIV Travel YX29	TBD/TBD	MDA VA	0.072	0.037	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			3.936	2.096		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	70.047	44.032			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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</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
Li-Ion Battery Mgnt System Line				■	■																							
Dual-use Cryocooler Testing	■																											
Optical Mat'ls (Subst./Coatings) Radiation Testing	■																											
Advanced IR Detector with Digital Readout Testing						■	■	■	■																			
4-inch Diameter GaN Wafer Producibility-1Q2009	■																											
4-inch Diameter GaN Wafer Producibility-1Q2010						■																						
4-inch Diameter GaN Wafer Producibility-2Q2009		■																										
4-inch Diameter GaN Wafer Producibility-2Q2010							■																					
4-inch Diameter GaN Wafer Producibility-3Q2009			■																									
4-inch Diameter GaN Wafer Producibility-3Q2010								■																				
4-inch Diameter GaN Wafer Producibility-4Q2009				■																								
4-inch Diameter GaN Wafer Producibility-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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</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
4-inch Diameter SiC Water Producibility-1Q2009																												
4-inch Diameter SiC Water Producibility-2Q2009		■																										
4-inch Diameter SiC Water Producibility-3Q2009			■																									
4-inch Diameter SiC Water Producibility-4Q2009				■																								
Block 08/10 Component Material Upgrades-1Q2009	■																											
Block 08/10 Component Material Upgrades-1Q2010					■																							
Block 08/10 Component Material Upgrades-2Q2009		■																										
Block 08/10 Component Material Upgrades-2Q2010						■																						
Block 08/10 Component Material Upgrades-3Q2009			■																									
Block 08/10 Component Material Upgrades-3Q2010							■																					
Block 08/10 Component Material Upgrades-4Q2009				■																								
Block 08/10 Power Projects-1Q2009	■																											

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</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
Block 08/10 Power Projects-1Q2010				■																								
Block 08/10 Power Projects-2Q2009		■																										
Block 08/10 Power Projects-2Q2010							■																					
Block 08/10 Power Projects-3Q2009			■																									
Block 08/10 Power Projects-3Q2010											■																	
Block 08/10 Power Projects-4Q2009				■																								
Block 10/12 Hardening projects-1Q2010							■																					
Block 10/12 Hardening projects-2Q2009		■																										
Block 10/12 Hardening projects-2Q2010											■																	
Block 10/12 Hardening projects-3Q2009			■																									
Block 10/12 Hardening projects-4Q2009				■																								
Block 10/12 Hardening projects-4Q2010												■																
Command Destruct-1Q2009	■																											
Command Destruct-1Q2010							■																					
Command Destruct-2Q2009		■																										
Command Destruct-2Q2010											■																	
Command Destruct-3Q2009			■																									
Command Destruct-3Q2010												■																
Command Destruct-4Q2009				■																								
Command Destruct-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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</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
Controllable solid DACS development and test-1Q2009	■																											
Controllable solid DACS development and test-1Q2010					■																							
Controllable solid DACS development and test-2Q2009		■																										
Controllable solid DACS development and test-2Q2010						■																						
Controllable solid DACS development and test-3Q2009			■																									
Controllable solid DACS development and test-3Q2010							■																					
Controllable solid DACS development and test-4Q2009				■																								
Controllable solid DACS development and test-4Q2010								■																				
Dorsal and Control Surf Cost Reduction-1Q2009	■																											
Dorsal and Control Surf Cost Reduction-1Q2010						■																						
Dorsal and Control Surf Cost Reduction-2Q2009		■																										
						■																						

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</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
Dorsal and Control Surf Cost Reduction-2Q2010																												
Dorsal and Control Surf Cost Reduction-3Q2009			█																									
Dorsal and Control Surf Cost Reduction-3Q2010							█																					
Dorsal and Control Surf Cost Reduction-4Q2009				█																								
Dorsal and Control Surf Cost Reduction-4Q2010											█																	
Flight Exp. (FE-2) Planning and Development											█																	
HAENS testing-1Q2009	█																											
HAENS testing-1Q2010						█																						
HAENS testing-2Q2009		█																										
HAENS testing-2Q2010							█																					
HAENS testing-3Q2009			█																									
HAENS testing-3Q2010											█																	
HAENS testing-4Q2009				█																								
HAENS testing-4Q2010												█																
Low cost LDACS fabrication and test-1Q2009	█																											
Low cost LDACS fabrication and test-2Q2009		█																										
Low cost LDACS fabrication and test-3Q2009			█																									

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</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
Low cost LDACS fabrication and test-4Q2009				■																								
MMIC/T-R Module Reliability Testing-1Q2009	■																											
MMIC/T-R Module Reliability Testing-1Q2010					■																							
MMIC/T-R Module Reliability Testing-2Q2009		■																										
MMIC/T-R Module Reliability Testing-2Q2010						■																						
MMIC/T-R Module Reliability Testing-3Q2009			■																									
MMIC/T-R Module Reliability Testing-3Q2010							■																					
MMIC/T-R Module Reliability Testing-4Q2009				■																								
MMIC/T-R Module Reliability Testing-4Q2010								■																				
Material Characterization-1Q2009	■																											
Material Characterization-1Q2010					■																							
Material Characterization-2Q2009		■																										
Material Characterization-2Q2010						■																						
Material Characterization-3Q2009			■																									
Material Characterization-3Q2010							■																					
Material Characterization-4Q2009				■																								
Material Characterization-4Q2010								■																				
Radar Sub-Array Demonstrator (MPSD)-1Q2009	■																											
Radar Sub-Array Demonstrator (MPSD)-1Q2010					■																							

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</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
Radar Sub-Array Demonstrator (MPSD)-2Q2009		■																										
Radar Sub-Array Demonstrator (MPSD)-2Q2010							■																					
Radar Sub-Array Demonstrator (MPSD)-3Q2009			■																									
Radar Sub-Array Demonstrator (MPSD)-3Q2010								■																				
Radar Sub-Array Demonstrator (MPSD)-4Q2009				■																								
Radar Sub-Array Demonstrator (MPSD)-4Q2010											■																	
Radiation tolerant FPGA Device trials-1Q2009	■																											
Radiation tolerant FPGA Device trials-1Q2010							■																					
Radiation tolerant FPGA Device trials-2Q2009		■																										
Radiation tolerant FPGA Device trials-2Q2010								■																				
Radiation tolerant FPGA Device trials-3Q2009			■																									
Radiation tolerant FPGA Device trials-3Q2010											■																	
Radiation tolerant FPGA Device trials-4Q2009				■																								
Radiation tolerant FPGA Device trials-4Q2010												■																
Software Modifications	■	■																										
Software Modifications-1Q2010							■																					

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</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
Software Modifications-2Q2010						■																						
Software Modifications-3Q2009			■																									
Software Modifications-3Q2010								■																				
Software Modifications-4Q2009				■																								
Specialized solutions-1Q2009	■																											
Specialized solutions-1Q2010						■																						
Specialized solutions-2Q2009		■																										
Specialized solutions-2Q2010							■																					
Specialized solutions-3Q2009			■																									
Specialized solutions-3Q2010								■																				
Specialized solutions-4Q2009				■																								
Specialized solutions-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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Li-Ion Battery Mgnt System Line	4	2009	1	2010
Dual-use Cryocooler Testing	1	2009	1	2009
Optical Mat'ls (Subst./Coatings) Radiation Testing	1	2009	1	2009
Advanced IR Detector with Digital Readout Testing	1	2010	4	2010
4-inch Diameter GaN Wafer Producibility-1Q2009	1	2009	1	2009
4-inch Diameter GaN Wafer Producibility-1Q2010	1	2010	1	2010
4-inch Diameter GaN Wafer Producibility-2Q2009	2	2009	2	2009
4-inch Diameter GaN Wafer Producibility-2Q2010	2	2010	2	2010
4-inch Diameter GaN Wafer Producibility-3Q2009	3	2009	3	2009
4-inch Diameter GaN Wafer Producibility-3Q2010	3	2010	3	2010
4-inch Diameter GaN Wafer Producibility-4Q2009	4	2009	4	2009
4-inch Diameter GaN Wafer Producibility-4Q2010	4	2010	4	2010
4-inch Diameter SiC Wafer Producibility-1Q2009	1	2009	1	2009
4-inch Diameter SiC Wafer Producibility-2Q2009	2	2009	2	2009
4-inch Diameter SiC Wafer Producibility-3Q2009	3	2009	3	2009
4-inch Diameter SiC Wafer Producibility-4Q2009	4	2009	4	2009
Block 08/10 Component Material Upgrades-1Q2009	1	2009	1	2009
Block 08/10 Component Material Upgrades-1Q2010	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Block 08/10 Component Material Upgrades-2Q2009	2	2009	2	2009
Block 08/10 Component Material Upgrades-2Q2010	2	2010	2	2010
Block 08/10 Component Material Upgrades-3Q2009	3	2009	3	2009
Block 08/10 Component Material Upgrades-3Q2010	3	2010	3	2010
Block 08/10 Component Material Upgrades-4Q2009	4	2009	4	2009
Block 08/10 Power Projects-1Q2009	1	2009	1	2009
Block 08/10 Power Projects-1Q2010	1	2010	1	2010
Block 08/10 Power Projects-2Q2009	2	2009	2	2009
Block 08/10 Power Projects-2Q2010	2	2010	2	2010
Block 08/10 Power Projects-3Q2009	3	2009	3	2009
Block 08/10 Power Projects-3Q2010	3	2010	3	2010
Block 08/10 Power Projects-4Q2009	4	2009	4	2009
Block 10/12 Hardening projects-1Q2010	1	2010	1	2010
Block 10/12 Hardening projects-2Q2009	2	2009	2	2009
Block 10/12 Hardening projects-2Q2010	2	2010	2	2010
Block 10/12 Hardening projects-3Q2009	3	2009	3	2009
Block 10/12 Hardening projects-4Q2009	4	2009	4	2009
Block 10/12 Hardening projects-4Q2010	4	2010	4	2010
Command Destruct-1Q2009	1	2009	1	2009
Command Destruct-1Q2010	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Command Destruct-2Q2009	2	2009	2	2009
Command Destruct-2Q2010	2	2010	2	2010
Command Destruct-3Q2009	3	2009	3	2009
Command Destruct-3Q2010	3	2010	3	2010
Command Destruct-4Q2009	4	2009	4	2009
Command Destruct-4Q2010	4	2010	4	2010
Controllable solid DACS development and test-1Q2009	1	2009	1	2009
Controllable solid DACS development and test-1Q2010	1	2010	1	2010
Controllable solid DACS development and test-2Q2009	2	2009	2	2009
Controllable solid DACS development and test-2Q2010	2	2010	2	2010
Controllable solid DACS development and test-3Q2009	3	2009	3	2009
Controllable solid DACS development and test-3Q2010	3	2010	3	2010
Controllable solid DACS development and test-4Q2009	4	2009	4	2009
Controllable solid DACS development and test-4Q2010	4	2010	4	2010
Dorsal and Control Surf Cost Reduction-1Q2009	1	2009	1	2009
Dorsal and Control Surf Cost Reduction-1Q2010	1	2010	1	2010
Dorsal and Control Surf Cost Reduction-2Q2009	2	2009	2	2009
Dorsal and Control Surf Cost Reduction-2Q2010	2	2010	2	2010
Dorsal and Control Surf Cost Reduction-3Q2009	3	2009	3	2009
Dorsal and Control Surf Cost Reduction-3Q2010	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Dorsal and Control Surf Cost Reduction-4Q2009	4	2009	4	2009
Dorsal and Control Surf Cost Reduction-4Q2010	4	2010	4	2010
Flight Exp. (FE-2) Planning and Development	4	2010	4	2010
HAENS testing-1Q2009	1	2009	1	2009
HAENS testing-1Q2010	1	2010	1	2010
HAENS testing-2Q2009	2	2009	2	2009
HAENS testing-2Q2010	2	2010	2	2010
HAENS testing-3Q2009	3	2009	3	2009
HAENS testing-3Q2010	3	2010	3	2010
HAENS testing-4Q2009	4	2009	4	2009
HAENS testing-4Q2010	4	2010	4	2010
Low cost LDACS fabrication and test-1Q2009	1	2009	1	2009
Low cost LDACS fabrication and test-2Q2009	2	2009	2	2009
Low cost LDACS fabrication and test-3Q2009	3	2009	3	2009
Low cost LDACS fabrication and test-4Q2009	4	2009	4	2009
MMIC/T-R Module Reliability Testing-1Q2009	1	2009	1	2009
MMIC/T-R Module Reliability Testing-1Q2010	1	2010	1	2010
MMIC/T-R Module Reliability Testing-2Q2009	2	2009	2	2009
MMIC/T-R Module Reliability Testing-2Q2010	2	2010	2	2010
MMIC/T-R Module Reliability Testing-3Q2009	3	2009	3	2009

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Event	Start		End	
	Quarter	Year	Quarter	Year
MMIC/T-R Module Reliability Testing-3Q2010	3	2010	3	2010
MMIC/T-R Module Reliability Testing-4Q2009	4	2009	4	2009
MMIC/T-R Module Reliability Testing-4Q2010	4	2010	4	2010
Material Characterization-1Q2009	1	2009	1	2009
Material Characterization-1Q2010	1	2010	1	2010
Material Characterization-2Q2009	2	2009	2	2009
Material Characterization-2Q2010	2	2010	2	2010
Material Characterization-3Q2009	3	2009	3	2009
Material Characterization-3Q2010	3	2010	3	2010
Material Characterization-4Q2009	4	2009	4	2009
Material Characterization-4Q2010	4	2010	4	2010
Radar Sub-Array Demonstrator (MPSD)-1Q2009	1	2009	1	2009
Radar Sub-Array Demonstrator (MPSD)-1Q2010	1	2010	1	2010
Radar Sub-Array Demonstrator (MPSD)-2Q2009	2	2009	2	2009
Radar Sub-Array Demonstrator (MPSD)-2Q2010	2	2010	2	2010
Radar Sub-Array Demonstrator (MPSD)-3Q2009	3	2009	3	2009
Radar Sub-Array Demonstrator (MPSD)-3Q2010	3	2010	3	2010
Radar Sub-Array Demonstrator (MPSD)-4Q2009	4	2009	4	2009
Radar Sub-Array Demonstrator (MPSD)-4Q2010	4	2010	4	2010
Radiation tolerant FPGA Device trials-1Q2009	1	2009	1	2009

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Event	Start		End	
	Quarter	Year	Quarter	Year
Radiation tolerant FPGA Device trials-1Q2010	1	2010	1	2010
Radiation tolerant FPGA Device trials-2Q2009	2	2009	2	2009
Radiation tolerant FPGA Device trials-2Q2010	2	2010	2	2010
Radiation tolerant FPGA Device trials-3Q2009	3	2009	3	2009
Radiation tolerant FPGA Device trials-3Q2010	3	2010	3	2010
Radiation tolerant FPGA Device trials-4Q2009	4	2009	4	2009
Radiation tolerant FPGA Device trials-4Q2010	4	2010	4	2010
Software Modifications	1	2009	2	2009
Software Modifications-1Q2010	1	2010	1	2010
Software Modifications-2Q2010	2	2010	2	2010
Software Modifications-3Q2009	3	2009	3	2009
Software Modifications-3Q2010	3	2010	3	2010
Software Modifications-4Q2009	4	2009	4	2009
Specialized solutions-1Q2009	1	2009	1	2009
Specialized solutions-1Q2010	1	2010	1	2010
Specialized solutions-2Q2009	2	2009	2	2009
Specialized solutions-2Q2010	2	2010	2	2010
Specialized solutions-3Q2009	3	2009	3	2009
Specialized solutions-3Q2010	3	2010	3	2010
Specialized solutions-4Q2009	4	2009	4	2009

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX29: <i>Producibility and Manufacturing Technology</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Specialized solutions-4Q2010	4	2010	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
MD29: <i>Producibility & Manufacturing Technology</i>	0.000	0.000	36.575	0.000	36.575	33.659	36.523	37.287	38.065	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

The content in Project MD29 is a continuation of the efforts reported in Project YX29 and was explained in that project in PB10.

A. Mission Description and Budget Item Justification

Producibility and Manufacturing is responsible for improving the Ballistic Missile Defense System by applying producibility tools. These tools include Design for Manufacturing and Assembly, supply chain gap analysis, and Continuous Process Improvement (CPI) which includes Lean Six-Sigma, the Theory of Constraints, and others to assist in the elimination of manufacturing waste, reducing process variability, and ensuring first time quality for Ballistic Missile Defense Element Program Offices and their suppliers.

Producibility and Manufacturing conducts Industrial Capability Assessments (ICAs) across the BMDS Industrial Base in order to identify production gaps created by material supplier changes, loss of manufacturing base, and movement of US production overseas. From these assessments, we develop a gap analysis which focuses on methods that can be used to support our US original equipment manufacturers (OEMs), their supplier base, and other organizations that produce end items for the BMDS.

As part of the gap analysis we address US environmental concerns. Our efforts to find a replacement for the environmentally toxic metal Beryllium has focused us on an environmentally friendly Silicon Carbide as a Kill Vehicle telescope construction material. An additional benefit of Silicon Carbide is the telescope assembly also improves the nuclear survivability of Kill Vehicle sensors.

Producibility and Manufacturing ensures technologies and products under development from the Advanced Technology Deputate, items developed through the Small Business Innovative Research program, and efforts developed through the Services MANTECH programs, which map into the BMDS architecture at the appropriate insertion points and in concert with the Elements.

Near term producibility capabilities are accomplished through efforts in a number of key investment areas: Power Systems, Radiation Hardening/ Survivability (both natural and prompt radiation affects), Manufacturing Process Improvements, Electro-Optics/Infrared (EO/IR), Radar Radio Frequency / Electronics, Propulsion, and Advanced Materials and Structures. These capabilities mature through the Next Generation Component Producibility Program and its associated Flight Experiments. The programming of these efforts for BMDS Element integration is within a three to five year timeframe. MDA has designated Producibility and Manufacturing as the command focal point for Continuous Process Improvement (CPI) which includes the utilization of tools such as Lean Six-Sigma, and the Theory of Constraints to assist in the elimination of waste, reducing process variability, and ensuring first time quality for internal and external customers.

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</i>
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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. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Electro-Optics/Infrared (EO/IR) See Description Below <i>FY 2009 Accomplishments:</i> NA <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> Complete coordinated multiple low (3-5 units) quantity production and radiation testing of both improved performance and radiation tolerant next generation sensor subsystems/component technologies for flight experiments planned for FY 2011 involving two sensor guided by a controlled divert and attitude control system. The planned sensor technologies are : 1) both one and two color digital (up to 200 frames/sec) Focal Plan Arrays, 2) a common power and data bus architecture/connectors, and a (missile and space) standard power and data bus architecture/connectors and common dual-use split-cryocooler configuration, 3) subwavelength gratings in lieu of coatings to improve the efficiency of both transmissive and reflective optics, and 4) high bandwidth (Ku-band) cross-link telemetry between two separately launched maneuvering vehicles. <i>FY 2011 OCO Plans:</i> NA	0.000	0.000	9.058	0.000	9.058

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Propulsion See Description Below <i>FY 2009 Accomplishments:</i> NA <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> Complete the fabrication and system flight environmental testing for the low cost liquid divert and attitude control system prior to delivery for the flight experiment program. This effort will provide data on the robustness of the low cost liquid divert and attitude control system design prior to integration and flight to demonstrate component level maturity of seekers, divert and attitude control systems, batteries, and other associated missile defense interceptor components. Complete fabrication and conduct flight environmental testing of the flight experiment solid divert and attitude control system system for use in the flight experiment program. This program will also deliver a flight unit for integration into a maneuvering sensor for the flight experiment program to support the maturity assessments for missile defense components for use in the BMDS. Conduct a system level material durability test of the Lyocell material using an existing BMDS interceptor rocket motor. The plan will be to design, fabricate, integrate and test a drop-in replacement rocket motor nozzle fabricated using Lyocell material then conduct a post test evaluation of the nozzle to determine the material durability. This will add data to determine if Lyocell is a viable candidate as a North American Rayon Corporation (NARC) replacement material. <i>FY 2011 OCO Plans:</i> NA		0.000	0.000	6.354	0.000	6.354
Power Systems		0.000	0.000	5.758	0.000	5.758

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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> NA</p> <p><i>FY 2011 Base Plans:</i> Continue Lean Six Sigma Projects, with DoD battery industrial base manufacturers. Continue testing of space grade Lithium-ion cells from multiple suppliers. Complete Lithium-ion cell modeling effort that will allow systems engineers to design cells for optimum performance to mission requirements. Continue development of oxyhalide fluid flow model which addresses a known problem in the Terminal High Altitude Area Defense (THAAD) ;and Exoatmospheric Kill Vehicle (EKV) ;batteries arising from activation dynamic conditions in electrolyte flow. Continue efforts to find and develop improved nickel-cadmium (NiCd) batteries to replace the poorly performing Commercial Off-The-Shelf (COTS) batteries being used in various BMDS applications.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Radiation Hardening</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> NA</p>		0.000	0.000	5.243	0.000	5.243

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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> NA</p> <p><i>FY 2011 Base Plans:</i> Use Independent Research and Development (IR&D) Common Inertial Measurement Unit (CIMU) flight experiment prototypes for preparing Radiation Hardness Assurance (RHA) ground testing of Low Rate Initial Production(LRIP) Common Inertial Measurement Units. This reduces risk for LRIP CIMU data correlation from in-flight performance demonstrated using an unhardened IR&D experimental prototype. Attain Defense Supply Center Columbus qualified manufacturing listing for standard microcircuit drawings used for CIMU nuclear event detector, processor and data bus components. Conduct Kill Vehicle control and electronics RHA Missile Defense Agency Parts, Materials, and Processes Mission Assurance Plan (PMAP) protocol testing for the BMDS. This includes valve / actuator driver multi chip assembly testing for divert attitude control systems relative to MDA-STD-001A level two.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Manufacturing Process Improvements See Description Below</p> <p><i>FY 2009 Accomplishments:</i> NA</p> <p><i>FY 2010 Plans:</i> NA</p>		0.000	0.000	4.116	0.000	4.116

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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> Demonstrate an Automated Supplier Road-mapping tool which is fully integrated, secure, and provides for automatic exchange of supplier information behind MDA firewall. Continue effort to demonstrate a cost-effective method for PMAP compliance which can be used by any prime. Initiate a cost effective process to create a technology development plan utilizing technology roadmaps. Continue efforts to work with BMDS primes and their suppliers to deploy Lean Six Sigma to realize improvements in cost, schedule, and quality. Demonstrate tool that will provide greater insight with regards to obsolete and counterfeit parts. Tool will provide method to comply with PMAP, create ability to track individual component suppliers, inform user where other similar suspect (counterfeit/obsolete) parts are installed and provide visibility of installed parts across BMDS. Continue to support efforts to mitigate risks associated with lead free electronics.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Advanced Materials & Structures See Description Below</p> <p><i>FY 2009 Accomplishments:</i> NA</p> <p><i>FY 2010 Plans:</i> NA</p>		0.000	0.000	3.483	0.000	3.483

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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> Conduct more hot fire tests for Lyocell. Develop, test, demonstrate and deliver to Standard Missile 3 (SM-3) Program Office several advanced materials product technologies in support of Preliminary Design Review (PDR) ;-- Compact Antenna, Electronic Enclosures, New Strake with Composite Leading Edge, etc. Conduct more aerothermal testing for advanced materials and rain erosion tests for new radome materials.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Radar RF/Electronics See Description Below</p> <p><i>FY 2009 Accomplishments:</i> NA</p> <p><i>FY 2010 Plans:</i> NA</p> <p><i>FY 2011 Base Plans:</i> Continue the High Power Electronics Reliability Test program for MDA and other joint DoD applications. Conduct reliability testing of Gallium Nitride X-band monolithic microwave integrated circuits. This testing will focus on 1st generation (28V) Gallium Arsenide monolithic microwave integrated circuits (MMIC).</p>		0.000	0.000	2.563	0.000	2.563

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Initiate the X-band Gallium Arsenide monolithic microwave integrated circuits producibility program to support MDA and other joint DoD applications. This is to focus on 1st generation (28V) Gallium Arsenide monolithic microwave integrated circuits.</p> <p>Demonstrate producibility metrics necessary for transition into an operational radar system.</p> <p>Continue the 4-inch Diameter Semi-insulating Gallium Wafer Producibility program. Demonstrate scale-up of wafer size from 2.5-inch diameter to 3-inch diameter.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	36.575	0.000	36.575

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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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
• 0603888C: <i>Ballistic Missile Defense Test and Targets</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
• 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

Producibility and Manufacturing adheres to MDA's acquisition strategy that emphasizes testing, incremental development, and evolutionary acquisition. The Producibility and Manufacturing group is MDA's Technology Transition Lead. Ensuring technologies and products under development from the Advanced Technology Deputate, items developed through the Small Business Innovative Research program, and efforts developed through the Services MANTECH programs are mapped into the BMDS architecture at the appropriate insertion points and in concert with the BMDS Elements. By contracting directly with existing and aspiring BMDS subcontractors, suppliers, vendors and small businesses, Producibility and Manufacturing enhances greater competition across the BMDS industrial base. The identification of manufacturing risks is done through Engineering and Manufacturing Readiness Level (EMRL) Assessments. EMRLs are a systems engineering tool that employs widespread industry and BMDS Element interaction to analyze the maturity of manufacturing processes as a factor in the BMDS Risk Management Process. Producibility and Manufacturing conducts Industrial Capability Assessments (ICAs) across the BMDS Industrial Base in order to identify production gaps created by material supplier changes, loss of manufacturing base, and movement of US production overseas. From these assessments, a gap analysis is developed

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Exhibit R-2A, RDT&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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</i>
<p>which focuses on methods that can be used to support our US original equipment manufacturers (OEMs), their supplier base, and other organizations that produce end items for the BMDS.</p> <p>As part of the gap analysis, US environmental concerns are addressed. Our efforts to find a replacement for the environmentally toxic metal Beryllium has focused our efforts on pursuing environmentally friendly Silicon Carbide as a Kill Vehicle telescope construction material. An additional benefit of Silicon Carbide is that it will be used to improve the nuclear survivability of Kill Vehicle sensors which is part of the telescope assembly.</p> <p>For efficiency, Producibility and Manufacturing utilizes existing MDA and service contract vehicles when possible to execute the program.</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

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</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			
Electro-Optics/Infrared (EO/IR) EO/IR MD29	C/CPFF	FIBERTEK HERNDON VA	0.000	0.000		1.500	Apr 2011	0.000		1.500	Continuing	Continuing	Continuing
Electro-Optics/Infrared (EO/IR) EO/IR - 20098204697769 MD29	C/CPFF	MILTEC HUNTSVILLE AL	0.000	0.000		1.000	Apr 2011	0.000		1.000	Continuing	Continuing	Continuing
Electro-Optics/Infrared (EO/IR) EO/IR - 20098204697773 MD29	TBD/TBD	NASA WALLOPS ISLAND VA	0.000	0.000		1.000	Apr 2011	0.000		1.000	Continuing	Continuing	Continuing
Electro-Optics/Infrared (EO/IR) EO/IR - 20098204697777 MD29	C/CPFF	AXSYS ROCHESTER MI	0.000	0.000		1.030	Apr 2011	0.000		1.030	Continuing	Continuing	Continuing
Electro-Optics/Infrared (EO/IR) EO/IR - 20098204697783 MD29	C/CPFF	Electro-Optics Center UNIVERSITY PARK PA	0.000	0.000		3.654	Apr 2011	0.000		3.654	Continuing	Continuing	Continuing
Propulsion PROPULSION MD29	C/CPFF	AEROJET SACRAMENTO CA	0.000	0.000		4.465	Apr 2011	0.000		4.465	Continuing	Continuing	Continuing
Propulsion PROPULSION - 20098204823348 MD29	TBD/TBD	NSWC CARDEROCK BETHESDA MD	0.000	0.000		0.800	Jan 2011	0.000		0.800	Continuing	Continuing	Continuing
Propulsion PROPULSION - 20098204823353 MD29	TBD/TBD	NAVAL AIR WARFARE CENTER WEAPONS DIV CHINA LAKE CA	0.000	0.000		0.100	Oct 2010	0.000		0.100	Continuing	Continuing	Continuing
	TBD/TBD	NSWC CRANE	0.000	0.000		1.095	Apr 2011	0.000		1.095	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</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			
Power Systems Battery Efforts MD29		CRANE IN											
Power Systems Lithium-Ion modeling MD29	C/FFP	Quallion SYLMAR CA	0.000	0.000		0.575	Jan 2011	0.000		0.575	Continuing	Continuing	Continuing
Power Systems Lean initiatives MD29	C/FFP	Tiburon ALEXANDRIA VA	0.000	0.000		0.530	Apr 2011	0.000		0.530	Continuing	Continuing	Continuing
Power Systems BMDS Program Battery MD29	TBD/TBD	NSWC CRANE CRANE IN	0.000	0.000		2.484	Jul 2011	0.000		2.484	Continuing	Continuing	Continuing
Power Systems Thermal Battery Process Improvements MD29	C/FFP	Enser ST PETERSBURG FL	0.000	0.000		0.200	Jan 2011	0.000		0.200	Continuing	Continuing	Continuing
Radiation Hardening Rad Hard MD29	C/CPFF	KEARFOTT LITTLE FALLS NJ	0.000	0.000		4.254	Apr 2011	0.000		4.254	Continuing	Continuing	Continuing
Manufacturing Process Improvements BMDS SUPPLY CHAIN MD29	C/CPFF	Advanced Technology Institute NORTH CHARLESTON SC	0.000	0.000		1.572	Jan 2011	0.000		1.572	Continuing	Continuing	Continuing
Manufacturing Process Improvements Continuous Process Improvement MD29	C/CPFF	Dynamics Research Corp (DRC) ANDOVER MA	0.000	0.000		1.400	Jan 2011	0.000		1.400	Continuing	Continuing	Continuing
Manufacturing Process Improvements	TBD/TBD	NSWC CRANE CRANE IN	0.000	0.000		0.100	Jan 2011	0.000		0.100	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</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			
Commercial Off-The-Shelf MD29													
Advanced Materials & Structures ADVANCED MATERIALS MD29	C/CPFF	SMDC/ SAN DIEGO COMPOSITES SAN DIEGO CA	0.000	0.000		1.954	Apr 2011	0.000		1.954	Continuing	Continuing	Continuing
Advanced Materials & Structures ADVANCED MATERIALS - 20098204860438 MD29	TBD/TBD	SOUTHERN RESEARCH BIRMINGHAM AL	0.000	0.000		0.500	Jan 2011	0.000		0.500	Continuing	Continuing	Continuing
Advanced Materials & Structures ADVANCED MATERIALS - 20098204860442 MD29	TBD/TBD	DEFENSE CONTRACT MAGANGEMENT AGENCY/IAC ALEXANDRIA VA	0.000	0.000		0.025		0.000		0.025	Continuing	Continuing	Continuing
Radar RF/Electronics BULK Semi-Insulating Gallium Nitride FOR Radio Frequency MD29	C/CPFF	AIR FORCE (AFRL) ALBUQUERQUE NM	0.000	0.000		0.700	Apr 2011	0.000		0.700	Continuing	Continuing	Continuing
Radar RF/Electronics RELIABILITY TESTING MD29	TBD/TBD	NAVAL RESEARCH LAB WASHINGTON DC	0.000	0.000		0.200	Apr 2011	0.000		0.200	Continuing	Continuing	Continuing
Radar RF/Electronics TRI-SERVICE RELIABILITY TESTING MD29	TBD/TBD	AFRL ALBUQUERQUE NM	0.000	0.000		0.300	Apr 2011	0.000		0.300	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</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			
Radar RF/Electronics 100mm Semi-Insulating Silicon Carbide SUBSTRATES MD29	TBD/TBD	AFRL ALBUQUERQUE NM	0.000	0.000		0.489	Apr 2011	0.000		0.489	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		29.927		0.000		29.927			

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			
Electro-Optics/Infrared (EO/IR) CSS MD29	C/FFP	DRC ANDOVER MA	0.000	0.000		0.541	Apr 2011	0.000		0.541	Continuing	Continuing	Continuing
Propulsion CSS MD29	C/FFP	DRC ANDOVER MA	0.000	0.000		0.541	Apr 2011	0.000		0.541	Continuing	Continuing	Continuing
Propulsion OTHER DOD MD29	TBD/TBD	SMDC HUNTSVILLE AL	0.000	0.000		0.115	Apr 2011	0.000		0.115	Continuing	Continuing	Continuing
Power Systems CONTRACT SUPPORT SERVICES (CSS) MD29	C/FFP	DRC ANDOVER MA	0.000	0.000		0.541	Apr 2011	0.000		0.541	Continuing	Continuing	Continuing
	C/FFP	DRC	0.000	0.000		0.541	Apr 2011	0.000		0.541	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			
Radiation Hardening CSS MD29		ANDOVER MA											
Radiation Hardening OTHER DOD MD29	TBD/TBD	SMDC HUNTSVILLE AL	0.000	0.000		0.115	Apr 2011	0.000		0.115	Continuing	Continuing	Continuing
Manufacturing Process Improvements JOINT DEFENSE MANUFACTURING TECHNOLOGY PANEL MD29	C/CPFF	TIBURON ALEXANDRIA VA	0.000	0.000		0.170	Apr 2011	0.000		0.170	Continuing	Continuing	Continuing
Manufacturing Process Improvements CSS MD29	C/FFP	DRC ANDOVER MA	0.000	0.000		0.541	Apr 2011	0.000		0.541	Continuing	Continuing	Continuing
Advanced Materials & Structures CSS MD29	C/FFP	DRC ANDOVER MA	0.000	0.000		0.541	Apr 2011	0.000		0.541	Continuing	Continuing	Continuing
Advanced Materials & Structures OTHER DOD MD29	TBD/TBD	SMDC HUNTSVILLE AL	0.000	0.000		0.130	Apr 2011	0.000		0.130	Continuing	Continuing	Continuing
Radar RF/Electronics CSS MD29	C/FFP	DRC ANDOVER MA	0.000	0.000		0.541	Apr 2011	0.000		0.541	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		4.317		0.000		4.317			

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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</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			
Electro-Optics/ Infrared (EO/IR) GOVERNMENT(GOVT) SALARIES AND TRAVEL MD29	Various/ Various	MDA ARLINGTON VA	0.000	0.000		0.333	Jul 2011	0.000		0.333	Continuing	Continuing	Continuing
Propulsion GOVT SALARIES AND TRAVEL MD29	Various/ Various	MDA ARLINGTON VA	0.000	0.000		0.333	Jul 2011	0.000		0.333	Continuing	Continuing	Continuing
Power Systems GOVT SALARIES AND TRAVEL MD29	Various/ Various	MDA ARLINGTON VA	0.000	0.000		0.333	Jul 2011	0.000		0.333	Continuing	Continuing	Continuing
Radiation Hardening GOVT SALARIES AND TRAVEL` MD29	Various/ Various	MDA ARLINGTON VA	0.000	0.000		0.333	Jul 2011	0.000		0.333	Continuing	Continuing	Continuing
		MDA	0.000	0.000		0.333	Jul 2011	0.000		0.333	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</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			
Manufacturing Process Improvements GOVT SALARIES AND TRAVEL MD29	Various/ Various	ARLINGTON VA											
Advanced Materials & Structures GOVT SALARIES AND TRAVEL MD29	Various/ Various	MDA ARLINGTON VA	0.000	0.000		0.333	Jul 2011	0.000		0.333	Continuing	Continuing	Continuing
Radar RF/Electronics GOVT SALARIES AND TRAVEL MD29	Various/ Various	MDA ARLINGTON VA	0.000	0.000		0.333	Jul 2011	0.000		0.333	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		2.331		0.000		2.331			

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	36.575	0.000	36.575			

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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</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
RADAR/MONOLITHIC MICROWAVE INTEGRATED CIRCUITS (MMIC) / TRANSMIT-RECEIVE MODULE RELIABILITY TESTING 1/11									■																			
RADAR/MMIC / T-R MODULE RELIABILITY TESTING 2/11										■																		
RADAR/MMIC / T-R MODULE RELIABILITY TESTING 3/11											■																	
RADAR/MMIC / T-R MODULE RELIABILITY TESTING 4/11												■																
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 1/11									■																			
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 2/11										■																		
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 3/11										■																		
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 4/11											■																	
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 1/12												■																
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 2/12													■															
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 3/12														■														

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</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
RAD HARD/HARDENING PROJECTS 4/11												■																
RAD HARD/HARDENING PROJECTS 1/12													■															
RAD HARD/HARDENING PROJECTS 2/12														■														
RAD HARD/HARDENING PROJECTS 3/12															■													
RAD HARD/HARDENING PROJECTS 4/12															■													
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 1/13																				■								
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 2/13																				■								
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 3/13																												
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 4/13																												
Flight Experiment 2													■															
Flight Experiment 3																												
Flight Experiment 4																												■
Flight Experiment controllable solid divert attitude control system static sub-system test 1/11																												
Low cost liquid divert attitude control system flight experiment 2/11																												

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</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
Low cost liquid divert attitude control system qualification complete 1/11																												
Lyocell nozzle durability static hot fire test 2/11											■																	

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
RADAR/MONOLITHIC MICROWAVE INTEGRATED CIRCUITS (MMIC) / TRANSMIT-RECEIVE MODULE RELIABILITY TESTING 1/11	1	2011	1	2011
RADAR/MMIC / T-R MODULE RELIABILITY TESTING 2/11	2	2011	2	2011
RADAR/MMIC / T-R MODULE RELIABILITY TESTING 3/11	3	2011	3	2011
RADAR/MMIC / T-R MODULE RELIABILITY TESTING 4/11	4	2011	4	2011
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 1/11	1	2011	1	2011
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 2/11	2	2011	2	2011
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 3/11	2	2011	2	2011
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 4/11	4	2011	4	2011
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 1/12	1	2012	1	2012
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 2/12	2	2012	2	2012
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 3/12	3	2012	3	2012
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 4/12	4	2012	4	2012
RAD HARD/RADIATION TOLERANT FPGA DEVICE TRIALS 2/11	2	2011	2	2011
RAD HARD/HAENS TESTING 2/11	2	2011	2	2011
RAD HARD/HAENS TESTING 3/11	3	2011	3	2011
RAD HARD/HAENS TESTING 4/11	4	2011	4	2011
RAD HARD/HAENS TESTING 1/12	1	2012	1	2012
RAD HARD/RADIATION TOLERANT FPGA DEVICE TRIALS 1/11	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
RAD HARD/HAENS TESTING 1/11	1	2011	1	2011
RAD HARD/RADIATION TOLERANT FPGA DEVICE TRIALS 2/12	2	2012	2	2012
RAD HARD/RADIATION TOLERANT FPGA DEVICE TRIALS 3/11	3	2011	3	2011
RAD HARD/RADIATION TOLERANT FPGA DEVICE TRIALS 4/11	4	2011	4	2011
RAD HARD/RADIATION TOLERANT FPGA DEVICE TRIALS 1/12	1	2012	1	2012
RAD HARD/HARDENING PROJECTS 1/11	1	2011	1	2011
RAD HARD/HARDENING PROJECTS 2/11	2	2011	2	2011
RAD HARD/HARDENING PROJECTS 3/11	3	2011	3	2011
RAD HARD/HARDENING PROJECTS 4/11	4	2011	4	2011
RAD HARD/HARDENING PROJECTS 1/12	1	2012	1	2012
RAD HARD/HARDENING PROJECTS 2/12	2	2012	2	2012
RAD HARD/HARDENING PROJECTS 3/12	3	2012	3	2012
RAD HARD/HARDENING PROJECTS 4/12	3	2012	3	2012
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 1/13	1	2013	1	2013
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 2/13	1	2013	1	2013
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 3/13	3	2013	3	2013
RADAR/RADAR SUB-ARRAY DEMONSTRATOR 4/13	4	2013	4	2013
Flight Experiment 2	4	2011	4	2011
Flight Experiment 3	4	2013	4	2013
Flight Experiment 4	4	2015	4	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD29: <i>Producibility & Manufacturing Technology</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Flight Experiment controllable solid divert attitude control system static sub-system test 1/11	1	2011	1	2011
Low cost liquid divert attitude control system flight experiment 2/11	2	2011	2	2011
Low cost liquid divert attitude control system qualification complete 1/11	1	2011	1	2011
Lyocell nozzle durability static hot fire test 2/11	2	2011	2	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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
YX30: <i>BMD Information Management Systems</i>	103.676	105.536	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	209.212
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

The budget increase from FY 2009 to FY 2010 is to sustain the existing Information Technology (IT) infrastructure in the National Capital Region (NCR) during the Base Realignment and Closure (BRAC) transition while building the new IT infrastructure at Headquarters Command Center (HQCC)/Ft. Belvoir and Von Braun III/Huntsville Alabama. During this period additional funding is required to support the IT infrastructure build-out; redundant telecommunications; simultaneous IT operations/parallel infrastructure; end-user and role-based technical training for improved quality of service; increased Information Assurance (IA) awareness, monitoring, and protection; wireless telephony; and expanded wireless for mobile workforce.

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project YX30 for FY 2011- 2015 is now captured in Project MD30 for FY 2011-2015.

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense (BMD) Information Management Systems Project funds the Information Technology (IT) and telecommunications infrastructure of the Agency. The IT and telecommunications infrastructure is critical to the day-to-day functions of the MDA Director and MDA senior leaders to communicate (classified and unclassified) with Congress, senior DoD and other U.S. government agency personnel, Combatant Commanders, North Atlantic Treaty Organization (NATO) partners, and other industry partners. Communication among these organizations facilitates the MDA mission to continue as one of developing and fielding an integrated Ballistic Missile Defense System (BMDS) to defend the United States, our deployed forces, allies and friends against all ranges of enemy ballistic missiles in all phases of flight. The MDA IT infrastructure and telecommunication capabilities support rigorous missile defense testing and facilitates the development of technologies to hedge against future missile threat growth. Communications are vital for missile defense to continue a viable homeland defense against rogue threats and to provide the integration required to defend deployed forces, allies, and friends against theater threats. The IT and telecommunications infrastructure consists of MDA secure information technology systems, data centers, operations and monitoring centers which are vital to support the strategic mission of the Agency and necessary to meet disaster recovery and continuity of operations requirements. The IT and telecommunications infrastructure is required to sustain access to the Secret Internet Protocol Router Network (SIPRNET), Nonsecure Internet Protocol Router Network (NIPRNET), MDA classified and unclassified networks, classified and unclassified video teleconferencing services, test and business knowledge data centers, the Defense Research Engineering Network (DREN), and the Joint Worldwide Intelligence Communication System (JWICS). JWICS is essential to the MDA to obtain and provide intelligence data used to feed the Command, Control,

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
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<p>Battle Management and Communication project, the Countermeasures/Counter-Countermeasures projects, and Modeling and Simulation projects. The above initiatives will provide for the efficient operation and safeguarding of all agency information. This project also funds Information Management/Information Technology operations for multiple systems in existing as well as new facilities at Dahlgren, Virginia and during the MDA transition to Huntsville, Alabama and Alexandria, Virginia.</p> <p>To support the Director`s intent to significantly improve all layers of our Ballistic Missile Defense System (BMDS), this project funds IT initiatives that include:</p> <p>Operational support to provide critical day-to-day quality of service IT support to the Agency mission Information Technology enterprise architecture that is compliant with DoD and Federally mandatory standards for the business and mission support activities of the MDA Business Transformation Agency efforts to provide DoD approved solutions for information sharing, electronic records management, financial management, and decision support systems to achieve more effective, efficient and secure business and mission support activities throughout MDA Knowledge data center integration and universal access for information sharing capabilities Consolidated information technology infrastructure in support of information technology line of business goals/objectives Information assurance controls and computer network defense of MDA networks infrastructure for disaster recovery and continuity of operations capabilities Certification and accreditation processes that support the BMDS, test assets, and administrative support networks Information technology policies, guidance, planning, oversight, and monitoring to ensure continued compliance with DoD mandated initiatives, statutes, regulations, directives, and policies</p> <p>The BMD Information Management Systems project YX30 includes the following IT initiatives:</p> <p>-US South Metropolitan Area Network (US SOUTH MAN) This initiative consists of Information Technology support services required to operate and maintain the classified and unclassified local area networks in the Huntsville, Alabama region. This includes operations and maintenance of hardware, software and help desk services in support of BMDS mission, research and test efforts as well as MDA business processes. The US South Information Technology Office coordinates with the MDA Enterprise Network Operations Security Center to implement Information Assurance Vulnerability Assessments issued by the Joint Task Force-Global Network Operations. The increase in funding is for Information Management/Information Technology operations in support of new facilities in Huntsville, Alabama. The funding profile variance is due to Information Technology infrastructure build-out, test and activation efforts and the increase in the user base (2,200 to 5,500) for MDA facilities in Huntsville, Alabama and the decommissioning of leased facilities. This initiative is consolidated and reported under the General IT Services initiative for Project MD30 for FY 2011-FY 2015.</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</i>
<p>-US West Metropolitan Area Network (US WEST MAN) This initiative consists of Information Technology management support to monitor the Airborne Laser Program (ABL) connectivity to the MDA classified and unclassified networks at Kirtland Air Force Base, New Mexico and Edwards Air Force Base, California. The Information Technology Office West coordinates with the MDA Enterprise Network Operations Security Center to implement Information Assurance Vulnerability Assessments issued by the Joint Task Force-Global Network Operations. This initiative is consolidated and reported under the General IT Services initiative for Project MD30 for FY 2011-FY 2015.</p> <p>-US National Capital Region Metropolitan Area Network (US NCR MAN) This initiative consists of Information Technology support services required to operate and maintain the classified and unclassified local area networks in the National Capital Region and the Aegis Program Office at Dahlgren, Virginia. This includes operations and maintenance of hardware, software and help desk services in support of BMDS mission, research and test efforts as well as MDA business processes. The National Capital Region Information Technology Office coordinates with the MDA Enterprise Network Operations Security Center to implement Information Assurance Vulnerability Assessments issued by the Joint Task Force-Global Network Operations. The funding profile variance is due to build-out, test and activation efforts for the MDA HQCC at Alexandria, Virginia, core application transitions to Huntsville, Alabama and preparation for decommissioning of National Capital Region facilities through FY 2011. This initiative is consolidated and reported under the General IT Services initiative for Project MD30 for FY 2011- FY 2015.</p> <p>-Enterprise Plans, Policies, and Analyses This initiative funds efforts that support development and implementation of Agency-wide Information Management/Information Technologies strategies, policies, guidelines, and management processes to ensure efficient and effective oversight of information resources. These efforts ensure that the policies and budget are in place to support the BMDS mission and to comply with statutory and DoD policies including: the Clinger-Cohen Act, the Federal Information Security Management Act, the Presidents Management Agenda - E-Government reporting, and Office of Management and Budget (OMB) IT budget reporting policies. Specific examples include development, implementation, and oversight of various plans, guidelines, and policies to include the MDA Information Resource Strategic Plan, the Information Assurance Program Plan, and the MDA Information Management/Information Technology Capital Planning and Investment Control process. This initiative also includes budget formulation and execution as well as contract management and oversight. This initiative is consolidated and reported under the IT Consumables/Sustainment initiative for Project MD30 for FY 2011-FY 2015.</p> <p>-MDA General Services Wide Area Network This initiative consists of telecommunications equipment and leased communications for classified and unclassified voice and data circuits, video teleconferencing capabilities, and circuit access to the Joint Worldwide Intelligence Communications System (JWICS). The MDA Special Access Program Wide Area Network supports</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 planning and contingency operations. Circuits and associated services are provided by the Defense Information Systems Agency (DISA) as well as the Defense Research and Engineering Network (DREN). These circuits provide access to over 80 government and industry partner locations to enable information sharing of BMD-related data throughout the global MDA Enterprise. This initiative is consolidated and reported under the Unified Communications initiative for Project MD30 for FY 2011-FY 2015.</p> <p>-MDA Video Teleconferencing The MDA Video Teleconferencing initiative supports management, engineering, systems integration, operation, maintenance and technical support services for the teleconferencing systems and implementation of a high-bandwidth, Video Over Internet Protocol (VoIP) capability to enhance resolution and reduce per-minute unit cost. Primary MDA video-teleconferencing sites include the National Capital Region, MDA Integration Operations Center, Airborne Laser at Kirtland Air Force Base in New Mexico, and Space Tracking and Surveillance System at Los Angeles California Air Force Base. Future sites will include numerous offices in Huntsville, AL including Terminal High Altitude Area Defense, Targets and Countermeasures, and Ground Based Missile Defense. This initiative is consolidated and reported under the Unified Communications initiative for Project MD30 for FY 2011-FY 2015.</p> <p>-MDA Knowledge On-Line This initiative includes costs to manage content, operate and maintain the unclassified and classified MDA Portals. The MDA Portals are a vital asset used to share information and knowledge throughout the Missile Defense community. This initiative also supports the operations and maintenance of the Visual Information Production Center, a state-of-the-art, high capacity graphic and video production center, which provides services to senior leadership and agency employees. This initiative is consolidated and reported under the Knowledge and Information Management initiative for Project MD30 for FY 2011-FY 2015.</p> <p>-Core Enterprise Services In accordance with the Clinger Cohen Act, DoD Directive 5000.15 and DoD Records Management Program, this initiative provides for the licensing and sustainment of DoD approved enterprise information applications. DoD mandated and mission essential examples include BMD System Asset Management, BMDS Integrated Master Schedule, Electronic Records Management System, E-Tasker, Integrated Acquisition Environment, data management tool, financial management tools, personnel tracking system, MDA Identify and Management Infrastructure application, Computer-Aided Facilities Management, and the MDA Corporate University Enterprise (web-based learning management system). The Defense Information Systems Agency sponsored collaboration tool (IBM Collaboration Suite) will be implemented to allow real-time collaboration throughout the MDA enterprise, the BMDS operational sites and the Combatant Command Headquarters. In addition this initiative funds the Program Resource Internet Database Environment (PRIDE) which is a database management tool and the MDA Standard Procurement System (SPS) helpdesk and application support. This initiative is consolidated and reported under the Knowledge and Information Management initiative for Project MD30 for FY 2011-FY 2015.</p>		

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<p>-Enterprise Information Assurance This initiative supports the Federal Information Security Management Act (FISMA) and is a key priority of the MDA Director. This vital program of the BMDS and MDA Enterprise consists of Information Assurance, Computer Network Defense, Network Situational Awareness, Certification and Accreditation activities, and Information Assurance Workforce training and certification to comply with DoD Information Assurance directives, instructions and guidelines. The Information Assurance program provides system security engineering, development, and testing to ensure that command, control, communications, computing and intelligence systems are protected against malicious or accidental attacks. The MDA Information Assurance program provides the network security operations centers and supporting processes to protect and defend information and information systems. The MDA Enterprise Network Operations Security Center manages network situational awareness and status reporting. The MDA Computer Emergency Response Team (CERT) coordinates with the Joint Task Force-Global Network Operations (JTF-GNO) to identify and implement network vulnerability updates. This ensures the availability, integrity, authentication, confidentiality and non-repudiation of the MDA mission, test and administrative systems. This initiative is consolidated and reported under the Information Assurance initiative for Project MD30 for FY 2011-FY 2015.</p> <p>-Architecture and Implementation Engineering Architecture and Implementation Engineering supports the MDA and the Ballistic Missile Defense Systems (BMDS) Core projects through the design and planning of an MDA Enterprise Architecture that is compliant with the DoD Federal enterprise architecture standards. The MDA Implementation Engineering efforts will improve the management of and access to information throughout the MDA. This is done through the integration of technology with Agency processes; transition planning for the MDA Alexandria, Virginia and multiple Huntsville, Alabama facilities; and decommission plans for multiple NCR facilities. These efforts will ensure the continuity of the Information Management and Information Technology services necessary for the design, development, modeling, and testing of the BMDS. This initiative is consolidated and reported under the IT Consumables/Sustainment Engineering initiative for Project MD30 for FY 2011-FY 2015.</p> <p>-Service Information Management/Information Technology for Executing Agents This initiative provides recurring funds to the U.S. Army Space and Missile Defense Command (SMDC) a MDA Executing Agent in support of BMDS research and mission related efforts in Huntsville, Alabama. Funds provided to SMDC support continuing operations and maintenance of their communications and Information Technology infrastructure in the Von Braun I facility in Huntsville, Alabama. This includes the communications costs, help desk services, and hardware and software sustainment tool used by MDA for planning and budgeting efforts.</p> <p><u>B. Accomplishments/Planned Program (\$ in Millions)</u></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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
US South Metropolitan Area Network (US SOUTH MAN) See Description Below <i>FY 2009 Accomplishments:</i> -Implemented Information Assurance control improvements in accordance with established Plan of Action and Milestones -Monitored networks for user compliance with DoD policies, and reported incidents -Provided web-based training to MDA users on new applications and upgrades -Maintained the helpdesk and network services -Provided technical training to Information Technology staff <i>FY 2010 Plans:</i> -Implement Information Assurance control improvements in accordance with established Plan of Action and Milestones -Monitor networks for user compliance with DoD policies, and reported incidents -Test and implement software application upgrades and provided web-based training to MDA users on new applications and upgrades -Maintain the network and help desk services -Provide technical training to Information Technology staff <i>FY 2011 Base Plans:</i> See Project MD30 for FY 2011 Plans. <i>FY 2011 OCO Plans:</i> NA		13.931	14.201	0.000	0.000	0.000
US National Capital Region Metropolitan Area Network (US NCR MAN) See Description Below		14.652	11.624	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
<ul style="list-style-type: none"> -Update FYDP budget plans, documentation and reports for future years to comply with OMB, OSD and MDA guidance -Execute, track and report the FY10 Information Technology budget -Conduct assessments, prepare compliance documentation and report status to MDA Senior Leadership, OSD, OMB, and DoD <p><i>FY 2011 Base Plans:</i> See Project MD30 for FY 2011 Plans.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>MDA General Service Wide Area Networks See Description Below</p> <p><i>FY 2009 Accomplishments:</i></p> <ul style="list-style-type: none"> -Upgraded network equipment to comply with DoD Instruction 8500.2 and DoD Global Information Grid architecture plan -Funded recurring maintenance agreements on MDA Enterprise network equipment and leased communications <p><i>FY 2010 Plans:</i></p> <ul style="list-style-type: none"> -Upgrade network equipment to comply with DoD Instruction 8500.2 and DoD Global Information Grid architecture plan -Fund recurring maintenance agreements on MDA Enterprise network equipment and leased communications 		14.544	13.657	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> See Project MD30 for FY 2011 Plans.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>MDA Video Teleconferencing See Description Below</p> <p><i>FY 2009 Accomplishments:</i> -Operated and maintained the Video Teleconference Scheduling Operations Center in support of classified and unclassified MDA mission, test and business operations -Operated and maintained recurring operations and maintenance for Video Teleconference rooms and equipment to include multiple Nation Capital Region locations, Aegis Program Office facility at Dahlgren, Virginia, the Missile Defense Integration Operations Center (MDIOC) at Shriever Air Force Base, Colorado, and the multiple MDA locations in Huntsville, Alabama -Designed and implemented a training program for Video Teleconference room facilitators</p> <p><i>FY 2010 Plans:</i> -Operate and maintain the Video Teleconference Scheduling Operations Center in support of classified and unclassified MDA mission, test and business operations -Operate and maintain recurring operations and maintenance for Video Teleconference rooms and equipment to include multiple Nation Capital Region locations, Aegis Program Office facility at Dahlgren, Virginia, the Missile Defense Integration Operations Center (MDIOC) at Shriever Air Force Base, Colorado, and the multiple MDA locations in Huntsville, Alabama -Implement and test Video Teleconference rooms in the new facility in Huntsville, Alabama -Provide recurring training for Video Teleconference room facilitators</p>		7.151	9.071	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> See Project MD30 for FY 2011 Plans.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>MDA Knowledge On-Line See Description Below</p> <p><i>FY 2009 Accomplishments:</i> -Continued implementation of MDA Portal (web-based) training programs to include information assurance, business applications, workforce certification, security, and ethics -Operated and maintained MDA Portal services -Sustained recurring operation and maintenance of graphic and video production capabilities</p> <p><i>FY 2010 Plans:</i> -Continue implementation of MDA Portal (web-based) training programs to include information assurance, business applications, workforce certification, security, and ethics -Operate and maintain MDA Portal services -Sustain recurring operation and maintenance of graphic and video production capabilities</p> <p><i>FY 2011 Base Plans:</i> See Project MD30 for FY 2011 Plans.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>		14.024	13.299	0.000	0.000	0.000
Core Enterprise Applications		7.662	8.777	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> <ul style="list-style-type: none"> -Managed software assessment program and sustained approved software applications -Sustained the BMDS Integrated Master Schedule and the BMD Asset Management Tool -Developed concept of operations for MDA use of Microsoft Sharepoint with Video Teleconferencing services to support real-time research, test and operational information exchange -Conducted privacy impact surveys and compliance reporting -Continued implementation of DoD mandated business management modernization applications and sustained MDA financial and contractual support systems <p><i>FY 2010 Plans:</i></p> <ul style="list-style-type: none"> -Manage software assessment program and sustained approved software applications -Sustain the BMDS Integrated Master Schedule and the BMD Asset Management Tool -Conduct privacy impact surveys and compliance reporting -Continue implementation of DoD mandated business management modernization applications ; and sustained MDA financial and contractual support systems <p><i>FY 2011 Base Plans:</i></p> <p>See Project MD30 for FY 2011 Plans.</p> <p><i>FY 2011 OCO Plans:</i></p> <p>NA</p>						
Enterprise Information Assurance See Description Below		14.645	22.555	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></p> <ul style="list-style-type: none"> -Revised and updated Information Assurance certification packages for test, administrative and business information technology systems reported DoD and OMB -Completed implementation of network situational awareness tools for the Enterprise Network Operations Security Center -Conducted certification evaluations of mission, test and administrative systems and assisted in the development of the Plan of Actions and Milestones to correct Information Assurance deficiencies -Managed the Information Assurance Workforce Improvement Program to certify Information Assurance professionals and reported compliance in accordance with Federal Information Security Management Act (FISMA) and DoDM 8570.1, achieving the DoD certification goal -Completed annual Information Assurance user training for the MDA workforce -Provided Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs <p><i>FY 2010 Plans:</i></p> <ul style="list-style-type: none"> -Revise and update Information Assurance certification packages for test, administrative and business information technology systems reported DoD and OMB -Complete implementation of network situational awareness tools for the Enterprise Network Operations Security Center -Conduct certification evaluations of mission, test and administrative systems and assist in the development of the Plan of Actions and Milestones to correct Information Assurance deficiencies -Manage the Information Assurance Workforce Improvement Program to certify Information Assurance professionals and report compliance in accordance with Federal Information Security Management Act (FISMA) and DoDM 8570.1, achieving the DoD certification goal -Complete annual Information Assurance user training for the MDA CIO IT workforce -Provide Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs 						

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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> See Project MD30 for FY 2011 Plans.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Architecture and Implementation Engineering</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i></p> <ul style="list-style-type: none"> -Architected and developed plans for telecommunication circuits in support of global BMDS test and mission data sharing requirements -Executed revisions to realignment and transition plans to support the MDA relocation to Huntsville and Fort Belvoir -Executed plans to expand MDA enterprise networks to support knowledge center integration and research collaboration -Revise and tested contingency plans for Information Technology systems at Schriever Air Force Base, Colorado and Huntsville, Alabama -Developed decommission plans National Capital Region facilities <p><i>FY 2010 Plans:</i></p> <ul style="list-style-type: none"> -Architect and develop plans for telecommunication circuits in support of global BMDS test and mission data sharing requirements -Maintain the Information Technology infrastructure at Huntsville, Alabama and Alexandria, Virginia -Execute realignment and transition plans to support the MDA relocation to Huntsville, Alabama and Alexandria, Virginia -Revise and test contingency plans for Information Technology systems at Dahlgren, Virginia, Schriever Air Force Base, Colorado, and Huntsville, Alabama 		7.214	6.186	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>-Continue decommission plans for National Capital Region facilities</p> <p><i>FY 2011 Base Plans:</i> See Project MD30 for FY 2011 Plans.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Service Information Management/Information Technology for Executing Agents</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i></p> <ul style="list-style-type: none"> -Operated and maintained Information Technology networks in support of MDA efforts in Huntsville, Alabama -Implemented Information Assurance control improvements in accordance with established Plan of Action and Milestones -Monitored networks for user compliance with DoD policies, and reported incidents -Tested and implemented software application upgrades -Maintained the network and help desk services <p><i>FY 2010 Plans:</i></p> <ul style="list-style-type: none"> -As a result of the completion of the BRAC transition to Huntsville, this Information Technology support will be transferred to and provided by the MDA Chief Information Office. <p><i>FY 2011 Base Plans:</i></p> <p><i>FY 2011 OCO Plans:</i> NA</p>		2.700	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>				PROJECT YX30: <i>BMD Information Management Systems</i>				
B. Accomplishments/Planned Program (\$ in Millions)												
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total		
Accomplishments/Planned Programs Subtotals						103.676	105.536	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	
• 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	
	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117	

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Exhibit R-2A, RDT&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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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>
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>											
• 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
• 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
	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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Exhibit R-2A, RDT&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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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>
• 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>											
• 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 employs a federated acquisition strategy for the procurement and sustainment of the MDA Enterprise. This strategy utilizes an Engineering and Architectural Planning support contractor with approved engineering designs and plans are then implemented, sustained, and operated by local contractors in each regional area (Arlington, Virginia; Dahlgren, Virginia; Huntsville, Alabama; Colorado Springs, Colorado; Albuquerque, New Mexico; and Los Angeles, California).

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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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			
US South Metropolitan Area Network (US SOUTH MAN) IT Equipment YX30	C/Various	Various Various	11.300	3.422	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
US South Metropolitan Area Network (US SOUTH MAN) IT HSV O&M Support YX30	C/CPAF	ASD AL	8.595	8.647	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
US South Metropolitan Area Network (US SOUTH MAN) Contract Support Services YX30	TBD/TBD	General Dynamics AL	0.526	0.422	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
US South Metropolitan Area Network (US SOUTH MAN) IT	C/CPAF	Northrop Grumman VA	0.323	0.194	Jul 2010	0.000		0.000		0.000	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>					PROJECT YX30: <i>BMD Information Management Systems</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			
Integration Support YX30													
US South Metropolitan Area Network (US SOUTH MAN) Customer Relations YX30	C/CPAF	ASD VA	0.666	0.655	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
US South Metropolitan Area Network (US SOUTH MAN) Portfolio Management-1 YX30	C/CPAF	ASD AL	3.024	0.229	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
US South Metropolitan Area Network (US SOUTH MAN) Portfolio Management-2 YX30	C/CPFF	BAH AL	0.000	0.632	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
US National Capital Region Metropolitan Area Network (US NCR MAN) Computing & Network Services YX30	C/CPAF	Northrop Grumman VA	29.057	10.571	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
US National Capital Region Metropolitan Area Network (US NCR MAN) IM/IT Contract Support Services YX30	TBD/TBD	General Dynamics IT VA	3.832	1.053	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
US West Metropolitan Area Network (US WEST MAN) Contract Support Services YX30	TBD/TBD	General Dynamics IT NM	0.513	0.388	Apr 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			
Enterprise Plans, Policies & Analyses Contract Support Services YX30	TBD/TBD	General Dynamics IT VA	3.483	1.331	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Plans, Policies & Analyses CIO Support/Exec Mgt/ Program Management Implementation Board YX30	Various/ Various	Various AL	1.534	1.274	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Plans, Policies & Analyses CIO Support-1 YX30	TBD/TBD	Decisive Analytics VA	3.372	0.965	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Plans, Policies & Analyses CIO Travel YX30	Various/ Various	Various Various	0.602	0.318	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Plans, Policies & Analyses Publications/ Subscriptions YX30	Various/ Various	Various Various	0.695	0.689	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Plans, Policies & Analyses Customer Relations YX30	C/CPAF	SRA VA	1.760	0.480		0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Plans, Policies & Analyses CIO Support-2 YX30	C/CPAF	SRA VA	0.660	0.721		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			
MDA General Service Wide Area Networks Leased Communications-1 YX30	TBD/TBD	DISA IL	2.311	1.590	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA General Service Wide Area Networks Leased Communications-2 YX30	TBD/TBD	Army Rsch Lab MD	6.070	3.275	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA General Service Wide Area Networks WAN Eng/Sustainment YX30	C/CPAF	Northrop Grumman CO	7.556	3.517	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA General Service Wide Area Networks Leased Communications-3 YX30	TBD/TBD	DTSW VA	0.250	0.265	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA General Service Wide Area Networks Contract Support Services YX30	C/CPFF	General Dynamics IT VA	2.274	1.393	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA General Service Wide Area Networks Comm SAPWAN/JWICS YX30	C/CPAF	Northrop Grumman VA	0.064	0.127	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA General Service Wide Area Networks Communications SAPWAN YX30	TBD/TBD	FEDSIM VA	0.565	0.000		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			
MDA General Service Wide Area Networks Army DOIM YX30	TBD/TBD	Army/Al AL	0.432	0.583	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA General Service Wide Area Networks Wireless YX30	C/Various	Various AL	4.022	2.650	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA General Service Wide Area Networks Leased Communications Sonet Ring YX30	TBD/TBD	DTSW VA	0.000	0.257		0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA Video Teleconferencing Contract Support Services -1 YX30	C/CPFF	General Dynamics IT VA	0.880	0.421	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA Video Teleconferencing VTC Support & Maintenance-1 YX30	C/CPAF	Microtech VA	12.577	8.438	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA Video Teleconferencing VTC Support & Maintenance-2 YX30	C/CPAF	ODC -	1.150	0.212	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA Video Teleconferencing Contract Support Services-2 YX30	C/CPAF	JTAAS CO	0.354	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
	C/CPAF	Phacil	10.950	6.758	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			
MDA Knowledge On-Line MDA Portal YX30		VA											
MDA Knowledge On-Line Visual Info Production Center YX30	SS/CPFF	CSC VA	7.474	4.240	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA Knowledge On-Line Business Innovation YX30	C/CPAF	ASD AL	0.000	0.262	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA Knowledge On-Line Classified MKO YX30	C/CPAF	Northrop Grumman VA	4.194	1.078	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
MDA Knowledge On-Line Knowledge Management YX30	C/CPAF	FEDSIM/SRA VA	3.182	0.961	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Core Enterprise Applications PRIDE Maintenance Support YX30	TBD/TBD	SMDC/CIMS AL	1.966	0.995	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Core Enterprise Applications Contract Support Services YX30	TBD/TBD	General Dynamics IT VA	3.695	1.403	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Core Enterprise Applications Application Support YX30	C/CPAF	Northrop Grumman CO	2.361	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Core Enterprise Applications Standard	TBD/TBD	SPS JPMO VA	0.588	0.412	Jan 2010	0.000		0.000		0.000	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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			
Procurement Says Support YX30													
Core Enterprise Applications Software License/Maintenance YX30	C/CPAF	SRA VA	3.644	4.059	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Core Enterprise Applications Microsoft Licenses YX30	C/TBD	FEDSIM VA	1.800	1.908	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance Certification & Accreditation Support YX30	C/CPAF	FEDSIM VA	1.041	0.721	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance Certification & Accreditation Support(DIACAP) YX30	TBD/TBD	General Dynamic IT VA	2.430	1.264	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance MDA CERT YX30	C/CPAF	Northrop Grumman VA	5.068	2.721	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance DIACAP Product YX30	C/CPAF	ASD AL	3.096	0.786	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance Compliance Verification Contract Support Services YX30	TBD/TBD	General Dynamics IT VA	1.561	2.059	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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			
Enterprise Information Assurance Enterprise Network Op Security Center/TRD Mgt YX30	C/CPAF	Northrop Grumman CO	13.060	6.590	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance PKI/CAC Support YX30	C/CPAF	FEDSIM/SRA VA	0.413	0.240	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance NetOps/ CERT Analysis YX30	C/CPFF	Booz Allen Hamilton CO	1.694	0.240		0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance ENOSC Contract Support Services Support YX30	C/CPAF	JTAAS CO	0.913	0.437	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance DEERS/ RAPIDS YX30	TBD/TBD	WHS -	0.194	0.043	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance ENOSC/ CERT Contract Support Services YX30	TBD/TBD	General Dynamics IT VA	0.000	0.422	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance COMSEC Equip/Labor YX30	TBD/TBD	ASD AL	0.806	0.315	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance IA Workforce	TBD/TBD	General Dynamics IT VA	2.903	0.529		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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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			
Improvement Training YX30													
Enterprise Information Assurance IA KB Contract Support Services YX30	C/CPAF	General Dynamics IT VA	1.030	0.529	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance Arcsight/SW Licenses YX30	C/CPAF	FEDSIM/SRA VA	0.177	1.270	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance DIACAP Certification & Accreditation BMDs Documentation YX30	C/CPAF	Northrop Grumman VA	1.169	0.583	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance Identify Protection Support YX30	C/CPAF	WHS VA	0.000	0.170	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance IAVA/ANOSC YX30	C/CPAF	ASD AL	1.260	1.310	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance MDA CERT Support YX30	C/CPAF	ASD AL	0.000	1.266	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Enterprise Information Assurance ENOSC HW Maintenance YX30	C/CPAF	Northrop Grumman CO	0.000	1.060	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
	C/CPAF	FEDSIM/SRA	5.104	0.335	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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			
Architecture and Implementation Engineering Enterprise Architecture & Engineering-1 YX30		VA											
Architecture and Implementation Engineering Contract Support Services YX30	C/CPFF	General Dynamics IT VA	1.931	1.792	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Architecture and Implementation Engineering Enterprise Architecture & Engineering-2 YX30	C/CPAF	ASD HSV	0.760	1.703	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Architecture and Implementation Engineering Enterprise Architecture & Engineering-3 YX30	C/CPAF	NG VA	3.460	2.138		0.000		0.000		0.000	Continuing	Continuing	Continuing
Architecture and Implementation Engineering Enterprise Architecture & Engineering-4 YX30	C/CPAF	JTAAS CO	0.531	0.218		0.000		0.000		0.000	Continuing	Continuing	Continuing
Architecture and Implementation Engineering Enterprise	C/CPAF	BAH CO	0.320	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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			
Architecture & Engineering-5 YX30													
Service Information Management/Information Technology for Executing Agents Service IM/IT YX30	C/CPAF	SMDC/SAIC AL	6.700	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			203.922	105.536		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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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	203.922	105.536		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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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
Prepare MDA IT transition/decommission plans	■	■	■	■																								
Finalize MDA IT transition/decommission plans					■	■	■	■																				
Update/sustain PKI/CAC infrastructure FY 2009	■	■	■	■																								
Update/sustain PKI/CAC infrastructure FY 2010					■	■	■	■																				
Certify Information Assurance workforce FY 2009	■	■	■	■																								
Certify Information Assurance workforce FY 2010					■	■	■	■																				
Sustain certified workforce FY09	■	■	■	■																								
Sustain certified workforce FY10					■	■	■	■																				
Implement Phased Disaster Recovery Capability	■	■	■	■																								
Implement Network Operations and Security Centers	■	■	■	■																								
Maintain Network Operations and Security Centers					■	■	■	■																				
Sustain operations of the MDA Computer Emergency Response Team (CERT) FY 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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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
Sustain operations of the MDA Computer Emergency Response Team (CERT) FY 2010																												
Sustain 24 hours a day, 7 days a week, 365 days a year Operational support of the MDA Portal-1Q2009-4Q2009	■	■	■	■																								
Sustain 8 hours a day, 5 days a week Operational support of the MDA Portal-1Q2010-4Q2010					■	■	■	■																				
Implement Business Applications FY 2009	■	■	■	■																								
Implement Business Applications FY 2010					■	■	■	■																				
Sustain 24 hours a day, 7 days a week, 365 days a year Operational support of IM/IT infrastructure USSOUTH	■	■	■	■																								
Sustain 8 hours a day, 5 days a week Operational support of IM/IT infrastructure USSOUTH					■	■	■	■																				
Sustain Visual Information Production Center (VIPIC) operations FY 2009	■	■	■	■																								
Sustain Visual Information Production Center (VIPIC) operations FY 2010					■	■	■	■																				
Sustain 24 hours a day, 7 days a week, 365 days a year Network Operations and Security Center	■	■	■	■																								
					■	■	■	■																				

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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
Sustain 8 hours a day, 7 days a week, 356 days a year Network Operations Security Center																												
Funded Recurring Licenses	■	■	■	■																								
Fund Recurring Licenses					■	■	■	■																				
Submit Qtly PMA/E-Gov scorecard	■	■	■	■																								
Sustain O&M of IM/IT for MDA Research support	■	■	■	■																								
Sustain MDA VTC Operations FY 2009	■	■	■	■																								
Sustain MDA VTC Operations FY 2010					■	■	■	■																				
Provide guidance for the implementation of Information Assurance controls and follow-on sustainment	■	■	■	■																								
Sustain Information Assurance controls					■	■	■	■																				
Implement and sustain secure wireless network	■	■	■	■																								
Sustain secure wireless network					■	■	■	■																				
Design/upgrade Architecture and Plans	■	■	■	■																								
Maintain Architecture and Plans					■	■	■	■																				
Implement DoD-mandated improvements	■	■	■	■																								
Implement phased Electronic Records Mgmt	■	■	■	■																								
Maintain Electronic Records Mgmt					■	■	■	■																				

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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
Develop and maintain agency IT budgets and monitor execution FY 2009	■	■	■	■																								
Develop and maintain agency IT budgets and monitor execution FY 2010					■	■	■	■																				
Plan server/helpdesk consolidation	■	■	■	■																								
Continue plan and implement server/helpdesk consolidation					■	■	■	■																				
Develop plans to transition comms networks	■	■	■	■																								
Continue to transition comms networks					■	■	■	■																				
Develop and maintain strategic IT plans and policies FY 2009	■	■	■	■																								
Develop and maintain strategic IT plans and policies FY 2010					■	■	■	■																				
Sustain Agency General Services Comms FY 2009	■	■	■	■																								
Sustain Agency General Services Comms FY 2010					■	■	■	■																				
Fund Recurring IT Infrastructure Hardware/ Software Maintenance FY 2009	■	■	■	■																								
Fund Recurring IT Infrastructure Hardware/ Software Maintenance FY 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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</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
Sustain 24 hours a day, 7 days a week, 365 days a year Operational support of IM/IT infrastructure USNCR																												
Sustain 8 hours a day, 5 days a week operational support of IM/IT infrastructure USNCR					■	■	■	■																				
Sustain 24 hours a day, 7 days a week, 365 days a year Operational support of IM/IT infrastructure USNCR Dahlgren	■	■	■	■																								
Sustain 8 hours a day, 5 days a week Operational support of IM/IT infrastructure US Dahlgren					■	■	■	■																				
Monitor Networks and Configuration Interfaces FY 2009	■	■	■	■																								
Monitor Networks and Configuration Interfaces FY 2010					■	■	■	■																				
Implement Agency-wide Collaborative Environment	■	■	■	■																								
Sustain Agency-wide Collaborative Environment					■	■	■	■																				

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Prepare MDA IT transition/decommission plans	1	2009	4	2009
Finalize MDA IT transition/decommission plans	1	2010	4	2010
Update/sustain PKI/CAC infrastructure FY 2009	1	2009	4	2009
Update/sustain PKI/CAC infrastructure FY 2010	1	2010	4	2010
Certify Information Assurance workforce FY 2009	1	2009	4	2009
Certify Information Assurance workforce FY 2010	1	2010	4	2010
Sustain certified workforce FY09	1	2009	4	2009
Sustain certified workforce FY10	1	2010	4	2010
Implement Phased Disaster Recovery Capability	1	2009	4	2009
Implement Network Operations and Security Centers	1	2009	4	2009
Maintain Network Operations and Security Centers	1	2010	4	2010
Sustain operations of the MDA Computer Emergency Response Team (CERT) FY 2009	1	2009	4	2009
Sustain operations of the MDA Computer Emergency Response Team (CERT) FY 2010	1	2010	4	2010
Sustain 24 hours a day, 7 days a week, 365 days a year Operational support of the MDA Portal-1Q2009-4Q2009	1	2009	4	2009
Sustain 8 hours a day, 5 days a week Operational support of the MDA Portal-1Q2010-4Q2010	1	2010	4	2010
Implement Business Applications FY 2009	1	2009	4	2009
Implement Business Applications FY 2010	1	2010	4	2010

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
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Event	Start		End	
	Quarter	Year	Quarter	Year
Sustain 24 hours a day, 7 days a week, 365 days a year Operational support of IM/IT infrastructure USSOUTH	1	2009	4	2009
Sustain 8 hours a day, 5 days a week Operational support of IM/IT infrastructure USSOUTH	1	2010	4	2010
Sustain Visual Information Production Center (VIPIC) operations FY 2009	1	2009	4	2009
Sustain Visual Information Production Center (VIPIC) operations FY 2010	1	2010	4	2010
Sustain 24 hours a day, 7 days a week, 365 days a year Network Operations and Security Center	1	2009	4	2009
Sustain 8 hours a day, 7 days a week, 356 days a year Network Operations Security Center	1	2010	4	2010
Funded Recurring Licenses	1	2009	4	2009
Fund Recurring Licenses	1	2010	4	2010
Submit Qtly PMA/E-Gov scorecard	1	2009	4	2009
Sustain O&M of IM/IT for MDA Research support	1	2009	4	2009
Sustain MDA VTC Operations FY 2009	1	2009	4	2009
Sustain MDA VTC Operations FY 2010	1	2010	4	2010
Provide guidance for the implementation of Information Assurance controls and follow-on sustainment	1	2009	4	2009
Sustain Information Assurance controls	1	2010	4	2010
Implement and sustain secure wireless network	1	2009	4	2009
Sustain secure wireless network	1	2010	4	2010
Design/upgrade Architecture and Plans	1	2009	4	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Maintain Architecture and Plans	1	2010	4	2010
Implement DoD-mandated improvements	1	2009	4	2009
Implement phased Electronic Records Mgmt	1	2009	4	2009
Maintain Electronic Records Mgmt	1	2010	4	2010
Develop and maintain agency IT budgets and monitor execution FY 2009	1	2009	4	2009
Develop and maintain agency IT budgets and monitor execution FY 2010	1	2010	4	2010
Plan server/helpdesk consolidation	1	2009	4	2009
Continue plan and implement server/helpdesk consolidation	1	2010	4	2010
Develop plans to transition comms networks	1	2009	4	2009
Continue to transition comms networks	1	2010	4	2010
Develop and maintain strategic IT plans and policies FY 2009	1	2009	4	2009
Develop and maintain strategic IT plans and policies FY 2010	1	2010	4	2010
Sustain Agency General Services Comms FY 2009	1	2009	4	2009
Sustain Agency General Services Comms FY 2010	1	2010	4	2010
Fund Recurring IT Infrastructure Hardware/Software Maintenance FY 2009	1	2009	4	2009
Fund Recurring IT Infrastructure Hardware/Software Maintenance FY 2010	1	2010	4	2010
Sustain 24 hours a day, 7 days a week, 365 days a year Operational support of IM/IT infrastructure USNCR	1	2009	4	2009
Sustain 8 hours a day, 5 days a week operational support of IM/IT infrastructure USNCR	1	2010	4	2010
	1	2009	4	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX30: <i>BMD Information Management Systems</i>

Event	Start		End	
	Quarter	Year	Quarter	Year
Sustain 24 hours a day, 7 days a week, 365 days a year Operational support of IM/IT infrastructure USNCR Dahlgren				
Sustain 8 hours a day, 5 days a week Operational support of IM/IT infrastructure US Dahlgren	1	2010	4	2010
Monitor Networks and Configuration Interfaces FY 2009	1	2009	4	2009
Monitor Networks and Configuration Interfaces FY 2010	1	2010	4	2010
Implement Agency-wide Collaborative Environment	1	2009	4	2009
Sustain Agency-wide Collaborative Environment	1	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD30: <i>BMD Information Management Systems</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
MD30: <i>BMD Information Management Systems</i>	0.000	0.000	111.829	0.000	111.829	92.926	94.821	94.132	93.315	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

For FY 2011, increased support funding is added for Information Technology (IT) infrastructure build-out at Headquarters Command Center (HQCC)/ Ft. Belvoir and Von Braun III/Huntsville, Alabama for redundant telecommunications to comply with disaster recovery, simultaneous IT operations/parallel infrastructure, and facility decommissioning.

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project YX30 for FY 2009-FY 2010 is now captured in Project MD30.

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense (BMD) Information Management Systems Project funds the Information Technology (IT) and telecommunications infrastructure of the Agency. The IT and telecommunications infrastructure is critical to the day-to-day functions of the MDA Director and MDA senior leaders to communicate (classified and unclassified) with Congress, senior DoD and other U.S. government agency personnel, Combatant Commanders, North Atlantic Treaty Organization (NATO) partners, and other industry partners. Communication among these organizations facilitates the MDA mission to continue as one of developing and fielding an integrated Ballistic Missile Defense System (BMDS) to defend the United States, our deployed forces, allies and friends against all ranges of enemy ballistic missiles in all phases of flight. The MDA IT infrastructure and telecommunication capabilities support rigorous missile defense testing and facilitates the development of technologies to hedge against future missile threat growth. Communications are vital for missile defense to continue a viable homeland defense against rogue threats and to provide the integration required to defend deployed forces, allies, and friends against theater threats. The IT and telecommunications infrastructure consists of MDA secure information technology systems, data centers, operations and monitoring centers which are vital to support the strategic mission of the Agency and necessary to meet disaster recovery and continuity of operations requirements. The IT and telecommunications infrastructure is required to sustain access to the Secret Internet Protocol Router Network (SIPRNET), Nonsecure Internet Protocol Router Network (NIPRNET), MDA classified and unclassified networks, classified and unclassified video teleconferencing services, test and business knowledge data centers, the Defense Research Engineering Network (DREN), and the Joint Worldwide Intelligence Communication System (JWICS). JWICS is essential to the MDA to obtain and provide intelligence data used to feed the Command, Control, Battle Management and Communication project, the Countermeasures/Counter-Countermeasures projects, and Modeling and Simulation projects. The above initiatives

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<p>will provide for the efficient operation and safeguarding of all agency information. This project also funds Information Management/Information Technology operations for multiple systems in existing as well as facilities at Dahlgren, Virginia and during the MDA transition to Huntsville, Alabama and Alexandria, Virginia.</p> <p>To support the Director`s intent to significantly improve all layers of our Ballistic Missile Defense System (BMDS), this project funds IT initiatives that include:</p> <p>Operational support to provide critical day-to-day quality of service IT support to the Agency mission Information Technology enterprise architecture that is compliant with DoD and Federally mandated standards for the business and mission support activities of the MDA Business Transformation Agency efforts to provide DoD approved solutions for information sharing, electronic records management, financial management, and decision support systems to achieve more effective, efficient and secure business and mission support activities throughout MDA Knowledge center integration and universal access for information sharing capabilities Consolidated information technology infrastructure in support of information technology line of business goals/objectives Information assurance controls and computer network defense of MDA networks infrastructure for disaster recovery and continuity of operations capabilities Certification and accreditation processes that support the BMDS, test assets, and administrative support networks Information technology policies, guidance, planning, oversight, and monitoring to ensure continued compliance with DoD mandated initiatives, statutes, regulations, directives, and policies</p> <p>The BMD Information Management Systems project MD30 includes the following IT initiatives:</p> <p>General IT Services</p> <p>This initiative consists of IT support services required to operate and maintain the classified and unclassified local area networks in the National Capital Region including the Aegis Program Office at Dahlgren, Virginia; the Huntsville, Alabama region; the Colorado Springs, Colorado region; Kirtland Air Force Base, New Mexico and Edwards Air Force Base, California. This includes operations and maintenance of hardware, software, and help desk services in support of BMDS mission, research and test efforts as well as MDA business processes. Funding also supports coordination with the MDA Enterprise Network Operations Security Center (ENOSC) to implement Information Assurance Vulnerability Assessments (IAVA) issued by the Joint Task Force-Global Network Operations (JTF-GNO). This initiative also funds planning, programming, budget and execution support and Federal and DoD IT compliance reporting. The higher funding in FY 2011 supports new facilities activation in Huntsville, Alabama; Dahlgren, Virginia; and Fort Belvoir, Virginia.</p>		

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<p>Knowledge and Information Management</p> <p>In accordance with the Clinger Cohen Act and DoD directives, this initiative provides for the licensing and sustainment of DoD approved enterprise information applications. This also provides management and storage of both the unclassified and classified MDA data to share information and knowledge throughout the Missile Defense community. Examples of DoD mandated and mission essential applications include BMD Asset Management System, BMDS Integrated Master Schedule, Electronic Records Management System, Electronic Tasking (E-Tasker), Integrated Acquisition Environment, data management tool, financial management tools, personnel tracking system, MDA Identify and Management Infrastructure application, Computer-Aided Facilities Management, the MDA Corporate University Enterprise (web-based learning management system), the Program Resource Internet Database Environment (PRIDE), and the MDA Standard Procurement System (SPS). This initiative also supports the operations and maintenance of the Visual Information Production Centers, state of-the-art, high capacity graphic and video production services for senior leadership and agency employees.</p> <p>Unified Communications</p> <p>This initiative supports leased communications, telecommunications, management, engineering, systems integration, operations, maintenance and technical support services. These services are provided at MDA locations including the National Capital Region; Huntsville, Alabama; Colorado Springs, Colorado and interceptor sites at Fort Greely, Alaska, Kirtland Air Force Base, New Mexico and Vandenberg Air Force Base, California. This includes classified and unclassified voice and data circuits, access to the Joint Worldwide Intelligence Communications System (JWICS), video teleconferencing and sustainment of Video Over Internet Protocol (VoIP) capability to enhance resolution and reduce per-minute unit costs. Circuits and associated services are provided by the Defense Information Systems Agency (DISA) as well as the Defense Research and Engineering Network (DREN). These circuits provide access to over 80 government and industry partner locations to enable information sharing of BMD-related data throughout the global MDA Enterprise.</p> <p>Information Assurance</p> <p>This initiative supports the Federal Information Security Management Act (FISMA) and is a key priority of the MDA Director. This vital program of the BMDS and MDA Enterprise consists of information assurance, computer network defense, network situational awareness, and certification and accreditation activities to comply with</p>		

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DoD information assurance directives, instructions and guidelines. Additionally, the information assurance program integrates human capital management initiatives to sustain and improve the continuity of workforce operations by providing information assurance workforce training and certification. The information assurance program provides system security engineering, development, and testing to ensure that command, control, communications, and computing systems are protected against malicious or accidental attacks and supports the transfer of missile defense capabilities between MDA and the Services. The MDA information assurance program provides the network security operations center and supporting processes to protect and defend MDA knowledge stores and information systems against cyber warfare. The MDA Enterprise Network Operations Security Center manages network situational awareness and status reporting. The MDA Computer Emergency Response Team (CERT) coordinates with the Joint Task Force-Global Network Operations (JTF-GNO) to identify and implement network vulnerability updates. This ensures the availability, integrity, authentication, confidentiality and non-repudiation of the MDA mission, test and administrative systems.

IT Consumables/Sustainment Engineering

This initiative provides project planning, engineering efforts, and IT consumables and equipment to sustain a quality of service for MDA general IT services and business systems to ensure compliance with Federal and DoD enterprise standards. Planning efforts ensure that the policies and budget are in place to support the BMDS mission and to comply with statutory and DoD policies including: Clinger-Cohen Act, the Federal Information Security Management Act, and Office of Management and Budget (OMB) IT budget reporting policies. Engineering efforts are essential to ensure the continuity of IT services necessary for the design, development, modeling, and testing of the BMDS. IT consumables consists of critical equipment sparing and test equipment necessary to sustain the general IT services to facilitate critical repairs within a 24 hour period. IT consumables also consist of items that require periodic replacement such as toner, keyboards, monitors, cabling, etc.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
General IT Services See Description Below <i>FY 2009 Accomplishments:</i> See Project YX30	0.000	0.000	31.621	0.000	31.621

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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 YX30</p> <p><i>FY 2011 Base Plans:</i></p> <ul style="list-style-type: none"> -Sustain quality of services 8 hours a day, 5 days a week for administrative and business information systems -Implement information assurance vulnerability assessment control improvements in accordance with established Plan of Action and Milestones -Monitor networks for user compliance with DoD policies, and report incidents -Fund hardware and software licenses for IT operational systems -Test and implement software application upgrades -Maintain the network and help desk services -Provide planning, budgeting, and management oversight of IT projects -Provide web-based training to MDA users on new applications and upgrade -Monitor networks for user compliance with DoD policies and reported incidents -Maintain MDA IT system interface configuration control and asset management -Support transition operations during activation of new facilities <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Knowledge and Information Management</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> See Project YX30</p>		0.000	0.000	28.983	0.000	28.983

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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 YX30</p> <p><i>FY 2011 Base Plans:</i> -Manage DoD mandated business applications and sustain MDA financial and contractual support systems -Manage software assessment program and conduct reviews of proposed software applications for DoD compliance -Sustain the BMDS Integrated Master Schedule and the BMD Asset Management Tool -Conduct privacy impact surveys and support compliance reporting -Manage MDA web-based training programs for information assurance, business applications, workforce certification, security, and ethics -Sustain quality of services ;for MDA Knowledge Online -Sustain recurring operations and maintenance of graphic and video production capabilities</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
<p>Unified Communications See Description Below</p> <p><i>FY 2009 Accomplishments:</i> See Project YX30</p> <p><i>FY 2010 Plans:</i> See Project YX30</p>	0.000	0.000	20.398	0.000	20.398

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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> <ul style="list-style-type: none"> -Fund recurring leased circuits, maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment -Operate, monitor, and sustain recurring classified and unclassified telecommunications equipment to comply with DoD policies and Global Information Grid architecture plan -Operate, monitor, and sustain recurring classified and unclassified wireless services -Operate, monitor, and sustain recurring operations for agency wide video teleconference rooms and equipment -Provide and implement engineering solutions for all unified communication services <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Information Assurance</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> See Project YX30</p> <p><i>FY 2010 Plans:</i> See Project YX30</p> <p><i>FY 2011 Base Plans:</i></p> <ul style="list-style-type: none"> -Fund recurring hardware maintenance and software licenses for IA monitoring systems -Monitor and defend mission, test, and administrative information systems on an 8 hours a day, 5 days a week basis -Collect, analyze, and report vulnerability and cyber warfare attack metrics to the MDA CIO, MDA leadership, and JTF-GNO 		0.000	0.000	18.780	0.000	18.780

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
-Revise and test contingency plans for IT systems across the MDA enterprise -Procure, receive, inventory, and manage IT consumables and equipment <i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	111.829	0.000	111.829

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
• 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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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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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

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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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			
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			
General IT Services IT Operations & Maintenance (O&M) Support (HSV) MD30	C/CPAF	Northrop Grumman-ASD AL	0.000	0.000		10.814	Oct 2010	0.000		10.814	Continuing	Continuing	Continuing
General IT Services Portfolio Management MD30	C/CPAF	ASD/BAH AL/CO	0.000	0.000		0.967	Oct 2010	0.000		0.967	Continuing	Continuing	Continuing
General IT Services Contract Support Services for General IT Support MD30	TBD/TBD	General Dynamics AL/VA/CO	0.000	0.000		5.841	Oct 2010	0.000		5.841	Continuing	Continuing	Continuing
General IT Services IT O&M Support (NCR) MD30	C/CPAF	Northrop Grumman VA	0.000	0.000		10.248	Oct 2010	0.000		10.248	Continuing	Continuing	Continuing
	C/CPAF		0.000	0.000		0.806	Oct 2010	0.000		0.806	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>					PROJECT MD30: <i>BMD Information Management Systems</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			
General IT Services Customer Relations MD30		Northrop Grumman/ASD AL											
General IT Services Travel MD30	Various/ Various	Various Various	0.000	0.000		0.396	Jul 2011	0.000		0.396	Continuing	Continuing	Continuing
General IT Services Hardware/Software Licenses MD30	Various/ Various	Various Various	0.000	0.000		2.549	Jul 2011	0.000		2.549	Continuing	Continuing	Continuing
Knowledge and Information Management MDA Portal MD30	C/CPAF	PHACIL VA	0.000	0.000		6.617	Oct 2010	0.000		6.617	Continuing	Continuing	Continuing
Knowledge and Information Management Contract Support Services Know Mgt Support MD30	TBD/TBD	General Dynamics VA	0.000	0.000		1.068	Oct 2010	0.000		1.068	Continuing	Continuing	Continuing
Knowledge and Information Management Standard Procurement Systems Support MD30	TBD/TBD	SPS JPMO VA	0.000	0.000		0.347	Jan 2011	0.000		0.347	Continuing	Continuing	Continuing
Knowledge and Information Management PRIDE MD30	TBD/TBD	CIMS/CAMBER AL	0.000	0.000		0.995	Jan 2011	0.000		0.995	Continuing	Continuing	Continuing
Knowledge and Information Management Classified MKO MD30	C/CPAF	Northrop Grumman VA	0.000	0.000		0.788	Jan 2011	0.000		0.788	Continuing	Continuing	Continuing
	C/CPAF	ASD	0.000	0.000		0.322	Oct 2010	0.000		0.322	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>					PROJECT MD30: <i>BMD Information Management Systems</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			
Knowledge and Information Management Business Innovation MD30		AL											
Knowledge and Information Management Licenses Support MD30	C/CPAF	Northrop Grumman VA	0.000	0.000		14.606	Oct 2010	0.000		14.606	Continuing	Continuing	Continuing
Knowledge and Information Management Visual Information Production Center MD30	SS/CPFF	CSC VA	0.000	0.000		4.240	Oct 2010	0.000		4.240	Continuing	Continuing	Continuing
Unified Communications Leased Communications - DISA MD30	TBD/TBD	DISA IL	0.000	0.000		1.612	Apr 2011	0.000		1.612	Continuing	Continuing	Continuing
Unified Communications Leased Communications - DREN MD30	TBD/TBD	DREN MD	0.000	0.000		3.322	Apr 2011	0.000		3.322	Continuing	Continuing	Continuing
Unified Communications Communications-JWICS MD30	C/CPAF	Northrop Grumman VA	0.000	0.000		0.129	Jul 2011	0.000		0.129	Continuing	Continuing	Continuing
Unified Communications WAN Engineering Sustainment MD30	C/CPAF	Northrop Grumman CO	0.000	0.000		0.985	Jan 2011	0.000		0.985	Continuing	Continuing	Continuing
Unified Communications Leased Telecom Wireless/Local MD30	C/Various	Various AL	0.000	0.000		2.884	Jul 2011	0.000		2.884	Continuing	Continuing	Continuing
	TBD/TBD	Army	0.000	0.000		0.742	Jul 2011	0.000		0.742	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD30: <i>BMD Information Management Systems</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			
Unified Communications Army DOIM MD30		AL											
Unified Communications Leased Communications - Sonet Ring MD30	TBD/TBD	DTSW VA	0.000	0.000		0.080		0.000		0.080	Continuing	Continuing	Continuing
Unified Communications PBX/Infostructure Support MD30	C/CPAF	Northrop Grumman-ASD AL/CO	0.000	0.000		0.433	Oct 2010	0.000		0.433	Continuing	Continuing	Continuing
Unified Communications Contract Support Services for Unified Communications Support MD30	TBD/TBD	General Dynamics AL	0.000	0.000		1.440	Oct 2010	0.000		1.440	Continuing	Continuing	Continuing
Unified Communications VTC Support and Maintenance MD30	C/CPAF	Microtech VA/AL	0.000	0.000		8.771	Oct 2010	0.000		8.771	Continuing	Continuing	Continuing
Information Assurance MDA Information Assurance Certification MD30	C/CPAF	Northrop Grumman-ASD AL/VA	0.000	0.000		2.257	Oct 2010	0.000		2.257	Continuing	Continuing	Continuing
Information Assurance Contract Support Services for IA Support MD30	TBD/TBD	General Dynamics VA	0.000	0.000		4.647	Oct 2010	0.000		4.647	Continuing	Continuing	Continuing
Information Assurance DIACAP Certification/	C/CPAF	Northrop Grumman-ASD AL/VA	0.000	0.000		1.397	Jul 2011	0.000		1.397	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD30: <i>BMD Information Management Systems</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			
Accreditation Support MD30													
Information Assurance DEERS/RAPID/Active Client/Card Support MD30	TBD/TBD	Various Various	0.000	0.000		0.083	Jul 2011	0.000		0.083	Continuing	Continuing	Continuing
Information Assurance Identify Protection Support MD30	C/CPAF	WHS VA	0.000	0.000		0.172	Jul 2011	0.000		0.172	Continuing	Continuing	Continuing
Information Assurance COMSEC MD30	C/CPAF	Northrop Grumman-ASD AL/VA	0.000	0.000		0.667	Jul 2011	0.000		0.667	Continuing	Continuing	Continuing
Information Assurance IAVA ANOSC Support MD30	C/CPAF	Northrop Grumman-ASD AL/VA	0.000	0.000		1.612	Oct 2010	0.000		1.612	Continuing	Continuing	Continuing
Information Assurance ENOSC HW/SW Main MD30	C/CPAF	Northrop Grumman-ASD AL/VA	0.000	0.000		1.292	Jul 2011	0.000		1.292	Continuing	Continuing	Continuing
Information Assurance ENOSC Security/TRD Mgt MD30	C/CPAF	Northrop Grumman-ASD AL/VA	0.000	0.000		6.653	Oct 2010	0.000		6.653	Continuing	Continuing	Continuing
IT Consumables/ Sustainment Engineering Architectural Engineering MD30	C/CPAF	Northrop Grumman-ASD AL/VA	0.000	0.000		1.110	Oct 2010	0.000		1.110	Continuing	Continuing	Continuing
	C/CPAF		0.000	0.000		2.741	Oct 2010	0.000		2.741	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD30: <i>BMD Information Management Systems</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			
IT Consumables/ Sustainment Engineering Implementation Engineering MD30		Northrop Grumman-ASD AL/VA											
IT Consumables/ Sustainment Engineering IT Consumables MD30	C/CPAF	Northrop Grumman-ASD AL/VA	0.000	0.000		5.176	Jul 2011	0.000		5.176	Continuing	Continuing	Continuing
IT Consumables/ Sustainment Engineering Contract Deliver/Compliance Reports/Publications MD30	Various/ Various	Various Various	0.000	0.000		1.648	Jul 2011	0.000		1.648	Continuing	Continuing	Continuing
IT Consumables/ Sustainment Engineering Contract Support Services for Implementation Support MD30	TBD/TBD	General Dynamics VA/AL	0.000	0.000		1.372	Oct 2010	0.000		1.372	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		111.829		0.000		111.829			

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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD30: <i>BMD Information Management Systems</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		111.829		0.000		111.829			

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
Sustain 8 hours a day, 5 days a week IT operational Support for Admin and Business Information Systems									■	■	■	■																
Sustain 8 hours a day, 5 days a week IT operational Support for Admin and Business Information Systems FY12													■	■	■	■												
Sustain 8 hours a day, 5 days a week IT operational Support for Admin and Business Information Systems FY13																	■	■	■	■								
Sustain 8 hours a day, 5 days a week IT operational Support for Admin and Business Information Systems FY14																					■	■	■	■				
Sustain 8 hours a day, 5 days a week IT operational Support for Admin and Business Information Systems FY15																									■	■	■	■
Implement IAVA control improvements for general IT services									■	■	■	■																
Implement IAVA control improvements for general IT services FY12													■	■	■	■												
Implement IAVA control improvements for general IT services FY13																	■	■	■	■								
Implement IAVA control improvements for general IT services FY14																					■	■	■	■				
																									■	■	■	■

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD30: <i>BMD Information Management Systems</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
Implement IAVA control improvements for general IT services FY15																												
Monitor networks for user compliance with DoD policies																												
Fund Hardware/Software licenses for IT operational systems																												
Fund Hardware/Software licenses for IT operational systems FY12																												
Fund Hardware/Software licenses for IT operational systems FY13																												
Fund Hardware/Software licenses for IT operational systems FY14																												
Fund Hardware/Software licenses for IT operational systems FY15																												
Test and implement software application upgrades for general IT services																												
Maintain network and helpdesk services for general IT services																												
Maintain network and helpdesk services for general IT services FY12																												
Maintain network and helpdesk services for general IT services FY13																												

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD30: <i>BMD Information Management Systems</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
Maintain network and helpdesk services for general IT services FY14																												
Maintain network and helpdesk services for general IT services FY15																												■
Provide planning, budgeting, and management oversight of IT projects										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Provide web-based training to MDA users										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Fund recurring leased circuits, maintenance agreements and licenses for MDA Enterprise										■	■	■	■															
Fund recurring leased circuits, maintenance agreements and licenses for MDA Enterprise FY12													■	■	■	■												
Fund recurring leased circuits, maintenance agreements and licenses for MDA Enterprise FY13																	■	■	■	■								
Fund recurring leased circuits, maintenance agreements and licenses for MDA Enterprise FY14																					■	■	■	■				
Fund recurring leased circuits, maintenance agreements and licenses for MDA Enterprise FY15																											■	
Operate, monitor, and sustain recurring classified and unclassified Telecom requirements for Unified Comms										■	■	■	■															

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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
Operate, monitor, and sustain recurring classified and unclassified Telecom requirements for Unified Comms FY12													■	■	■	■												
Operate, monitor, and sustain recurring classified and unclassified Telecom requirements for Unified Comms FY13																	■	■	■	■								
Operate, monitor, and sustain recurring classified and unclassified Telecom requirements for Unified Comms FY14																					■	■	■	■				
Operate, monitor, and sustain recurring classified and unclassified Telecom requirements for Unified Comms FY15																									■	■	■	■
Operate, monitor, and sustain recurring operations for Video Teleconferencing for Unified Comms									■	■	■	■																
Operate, monitor, and sustain recurring operations for Video Teleconferencing for Unified Comms FY12													■	■	■	■												
Operate, monitor, and sustain recurring operations for Video Teleconferencing for Unified Comms FY13																	■	■	■	■								
Operate, monitor, and sustain recurring operations for Video Teleconferencing for Unified Comms FY14																					■	■	■	■				
																									■	■	■	■

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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
Operate, monitor, and sustain recurring operations for Video Teleconferencing for Unified Comms FY15																												
Provide engineering solutions for all Unified Comms Services										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Manage DOD mandated business applications and sustain MDA financial and contractual support systems										■	■	■	■															
Manage DOD mandated business applications and sustain MDA financial and contractual support systems FY12													■	■	■	■												
Manage DOD mandated business applications and sustain MDA financial and contractual support systems FY13																■	■	■	■									
Manage DOD mandated business applications and sustain MDA financial and contractual support systems FY14																					■	■	■	■				
Manage DOD mandated business applications and sustain MDA financial and contractual support systems FY15																									■	■	■	■
Manage software assessment programs and conduct reviews for DoD compliance										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Sustain the BMDS Integrated Master Schedule and the BMD Asset Management Tool										■	■	■	■															

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD30: <i>BMD Information Management Systems</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
Sustain the BMDS Integrated Master Schedule and the BMD Asset Management Tool FY12													■	■	■	■												
Sustain the BMDS Integrated Master Schedule and the BMD Asset Management Tool FY13																	■	■	■	■								
Sustain the BMDS Integrated Master Schedule and the BMD Asset Management Tool FY14																					■	■	■	■				
Sustain the BMDS Integrated Master Schedule and the BMD Asset Management Tool FY15																									■	■	■	■
Manage MDA web-based training programs for IA, business applications, security, and ethics									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Operate and maintain MDA Knowledge Online Services									■	■	■	■																
Operate and maintain MDA Knowledge Online Services FY12													■	■	■	■												
Operate and maintain MDA Knowledge Online Services FY13																	■	■	■	■								
Operate and maintain MDA Knowledge Online Services FY14																					■	■	■	■				
Operate and maintain MDA Knowledge Online Services FY15																									■	■	■	■
Sustain recurring operations and maintenance of graphics and video production capabilities for Knowledge and Info Mgt									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD30: <i>BMD Information Management Systems</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
Fund Recurring hardware maintenance and software licenses for monitoring systems of Information Assurance									■	■	■	■																
Fund Recurring hardware maintenance and software licenses for monitoring systems of Information Assurance FY12													■	■	■	■												
Fund Recurring hardware maintenance and software licenses for monitoring systems of Information Assurance FY13																	■	■	■	■								
Fund Recurring hardware maintenance and software licenses for monitoring systems of Information Assurance FY14																					■	■	■	■				
Fund Recurring hardware maintenance and software licenses for monitoring systems of Information Assurance FY15																									■	■	■	■
Monitor and defend mission, test, and administrative information systems on an 8 hours a day, 5 days a week basis for Information Assurance									■	■	■	■																
Monitor and defend mission, test, and administrative information systems on an 8 hours a day, 5 days a week basis for Information Assurance FY12													■	■	■	■												
Monitor and defend mission, test, and administrative information systems on an																	■	■	■	■								

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD30: <i>BMD Information Management Systems</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
8 hours a day, 5 days a week basis for Information Assurance FY13																												
Monitor and defend mission, test, and administrative information systems on an 8 hours a day, 5 days a week basis for Information Assurance FY14																												
Monitor and defend mission, test, and administrative information systems on an 8 hours a day, 5 days a week basis for Information Assurance FY15																												
Report vulnerability and cyber warfare attack metrics to MDA CIO, MDA Leadership, and JTF-GNO																												
Report vulnerability and cyber warfare attack metrics to MDA CIO, MDA Leadership, and JTF-GNO FY12																												
Report vulnerability and cyber warfare attack metrics to MDA CIO, MDA Leadership, and JTF-GNO FY13																												
Report vulnerability and cyber warfare attack metrics to MDA CIO, MDA Leadership, and JTF-GNO FY14																												
Report vulnerability and cyber warfare attack metrics to MDA CIO, MDA Leadership, and JTF-GNO FY15																												

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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
Conduct IA certification evaluation of mission, test, and administrative systems									■	■	■	■																
Conduct IA certification evaluation of mission, test, and administrative systems FY12													■	■	■	■												
Conduct IA certification evaluation of mission, test, and administrative systems FY13																	■	■	■	■								
Conduct IA certification evaluation of mission, test, and administrative systems FY14																					■	■	■	■				
Conduct IA certification evaluation of mission, test, and administrative systems FY15																									■	■	■	■
Maintain Information Assurance certification packages for test, admin, and business information technology systems									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Complete Annual IA user training for MDA workforce									■	■	■	■																
Complete Annual IA user training for MDA workforce FY12													■	■	■	■												
Complete Annual IA user training for MDA workforce FY13																	■	■	■	■								
Complete Annual IA user training for MDA workforce FY14																					■	■	■	■				
Complete Annual IA user training for MDA workforce 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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD30: <i>BMD Information Management Systems</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
Provide IA engineering and planning guidance and vulnerability assessment for IT acquisition programs									■	■	■	■																
Provide IA engineering and planning guidance and vulnerability assessment for IT acquisition programs FY12													■	■	■	■												
Provide IA engineering and planning guidance and vulnerability assessment for IT acquisition programs FY13																	■	■	■	■								
Provide IA engineering and planning guidance and vulnerability assessment for IT acquisition programs FY14																					■	■	■	■				
Provide IA engineering and planning guidance and vulnerability assessment for IT acquisition programs FY15																									■	■	■	■
Manage the IA Workforce Improvement Program to certify CIO IA professionals									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Sustain the IT infrastructure across the MDA Enterprise									■	■	■	■																
Sustain the IT infrastructure across the MDA Enterprise FY12													■	■	■	■												
Sustain the IT infrastructure across the MDA Enterprise FY13																	■	■	■	■								
																					■	■	■	■				

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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
Sustain the IT infrastructure across the MDA Enterprise FY14																												
Sustain the IT infrastructure across the MDA Enterprise FY15																												
Architect and develop plans to repair general It service and business systems																												
Perform analysis, track, and report metrics on equipment lifecycle																												
Perform analysis, track, and report metrics on equipment lifecycle FY12																												
Perform analysis, track, and report metrics on equipment lifecycle FY13																												
Perform analysis, track, and report metrics on equipment lifecycle FY14																												
Perform analysis, track, and report metrics on equipment lifecycle FY15																												
Plan, engineer, and implement sustainment projects for general IT services and business systems																												
Revise and test contingency plans for IT systems																												
Revise and test contingency plans for IT systems FY12																												

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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
Revise and test contingency plans for IT systems FY13																	■	■	■	■								
Revise and test contingency plans for IT systems FY14																					■	■	■	■				
Revise and test contingency plans for IT systems FY15																									■	■	■	■
Procure, receive, inventory, and manage IT consumables and equipment									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

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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
Sustain 8 hours a day, 5 days a week IT operational Support for Admin and Business Information Systems	1	2011	4	2011
Sustain 8 hours a day, 5 days a week IT operational Support for Admin and Business Information Systems FY12	1	2012	4	2012
Sustain 8 hours a day, 5 days a week IT operational Support for Admin and Business Information Systems FY13	1	2013	4	2013
Sustain 8 hours a day, 5 days a week IT operational Support for Admin and Business Information Systems FY14	1	2014	4	2014
Sustain 8 hours a day, 5 days a week IT operational Support for Admin and Business Information Systems FY15	1	2015	4	2015
Implement IAVA control improvements for general IT services	1	2011	4	2011
Implement IAVA control improvements for general IT services FY12	1	2012	4	2012
Implement IAVA control improvements for general IT services FY13	1	2013	4	2013
Implement IAVA control improvements for general IT services FY14	1	2014	4	2014
Implement IAVA control improvements for general IT services FY15	1	2015	4	2015
Monitor networks for user compliance with DoD policies	1	2011	4	2015
Fund Hardware/Software licenses for IT operational systems	1	2011	4	2011
Fund Hardware/Software licenses for IT operational systems FY12	1	2012	4	2012
Fund Hardware/Software licenses for IT operational systems FY13	1	2013	4	2013
Fund Hardware/Software licenses for IT operational systems FY14	1	2014	4	2014

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
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Event	Start		End	
	Quarter	Year	Quarter	Year
Fund Hardware/Software licenses for IT operational systems FY15	1	2015	4	2015
Test and implement software application upgrades for general IT services	1	2011	4	2015
Maintain network and helpdesk services for general IT services	1	2011	4	2011
Maintain network and helpdesk services for general IT services FY12	1	2012	4	2012
Maintain network and helpdesk services for general IT services FY13	1	2013	4	2013
Maintain network and helpdesk services for general IT services FY14	1	2014	4	2014
Maintain network and helpdesk services for general IT services FY15	1	2015	4	2015
Provide planning, budgeting, and management oversight of IT projects	1	2011	4	2015
Provide web-based training to MDA users	1	2011	4	2015
Fund recurring leased circuits, maintenance agreements and licenses for MDA Enterprise	1	2011	4	2011
Fund recurring leased circuits, maintenance agreements and licenses for MDA Enterprise FY12	1	2012	4	2012
Fund recurring leased circuits, maintenance agreements and licenses for MDA Enterprise FY13	1	2013	4	2013
Fund recurring leased circuits, maintenance agreements and licenses for MDA Enterprise FY14	1	2014	4	2014
Fund recurring leased circuits, maintenance agreements and licenses for MDA Enterprise FY15	1	2015	4	2015
Operate, monitor, and sustain recurring classified and unclassified Telecom requirements for Unified Comms	1	2011	4	2011
	1	2012	4	2012

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
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Event	Start		End	
	Quarter	Year	Quarter	Year
Operate, monitor, and sustain recurring classified and unclassified Telecom requirements for Unified Comms FY12				
Operate, monitor, and sustain recurring classified and unclassified Telecom requirements for Unified Comms FY13	1	2013	4	2013
Operate, monitor, and sustain recurring classified and unclassified Telecom requirements for Unified Comms FY14	1	2014	4	2014
Operate, monitor, and sustain recurring classified and unclassified Telecom requirements for Unified Comms FY15	1	2015	4	2015
Operate, monitor, and sustain recurring operations for Video Teleconferencing for Unified Comms	1	2011	4	2011
Operate, monitor, and sustain recurring operations for Video Teleconferencing for Unified Comms FY12	1	2012	4	2012
Operate, monitor, and sustain recurring operations for Video Teleconferencing for Unified Comms FY13	1	2013	4	2013
Operate, monitor, and sustain recurring operations for Video Teleconferencing for Unified Comms FY14	1	2014	4	2014
Operate, monitor, and sustain recurring operations for Video Teleconferencing for Unified Comms FY15	1	2015	4	2015
Provide engineering solutions for all Unified Comms Services	1	2011	4	2015
Manage DOD mandated business applications and sustain MDA financial and contractual support systems	1	2011	4	2011
Manage DOD mandated business applications and sustain MDA financial and contractual support systems FY12	1	2012	4	2012

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

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Event	Start		End	
	Quarter	Year	Quarter	Year
Manage DOD mandated business applications and sustain MDA financial and contractual support systems FY13	1	2013	4	2013
Manage DOD mandated business applications and sustain MDA financial and contractual support systems FY14	1	2014	4	2014
Manage DOD mandated business applications and sustain MDA financial and contractual support systems FY15	1	2015	4	2015
Manage software assessment programs and conduct reviews for DoD compliance	1	2011	4	2015
Sustain the BMDS Integrated Master Schedule and the BMD Asset Management Tool	1	2011	4	2011
Sustain the BMDS Integrated Master Schedule and the BMD Asset Management Tool FY12	1	2012	4	2012
Sustain the BMDS Integrated Master Schedule and the BMD Asset Management Tool FY13	1	2013	4	2013
Sustain the BMDS Integrated Master Schedule and the BMD Asset Management Tool FY14	1	2014	4	2014
Sustain the BMDS Integrated Master Schedule and the BMD Asset Management Tool FY15	1	2015	4	2015
Manage MDA web-based training programs for IA, business applications, security, and ethics	1	2011	4	2015
Operate and maintain MDA Knowledge Online Services	1	2011	4	2011
Operate and maintain MDA Knowledge Online Services FY12	1	2012	4	2012
Operate and maintain MDA Knowledge Online Services FY13	1	2013	4	2013
Operate and maintain MDA Knowledge Online Services FY14	1	2014	4	2014

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Event	Start		End	
	Quarter	Year	Quarter	Year
Operate and maintain MDA Knowledge Online Services FY15	1	2015	4	2015
Sustain recurring operations and maintenance of graphics and video production capabilities for Knowledge and Info Mgt	1	2011	4	2015
Fund Recurring hardware maintenance and software licenses for monitoring systems of Information Assurance	1	2011	4	2011
Fund Recurring hardware maintenance and software licenses for monitoring systems of Information Assurance FY12	1	2012	4	2012
Fund Recurring hardware maintenance and software licenses for monitoring systems of Information Assurance FY13	1	2013	4	2013
Fund Recurring hardware maintenance and software licenses for monitoring systems of Information Assurance FY14	1	2014	4	2014
Fund Recurring hardware maintenance and software licenses for monitoring systems of Information Assurance FY15	1	2015	4	2015
Monitor and defend mission, test, and administrative information systems on an 8 hours a day, 5 days a week basis for Information Assurance	1	2011	4	2011
Monitor and defend mission, test, and administrative information systems on an 8 hours a day, 5 days a week basis for Information Assurance FY12	1	2012	4	2012
Monitor and defend mission, test, and administrative information systems on an 8 hours a day, 5 days a week basis for Information Assurance FY13	1	2013	4	2013
Monitor and defend mission, test, and administrative information systems on an 8 hours a day, 5 days a week basis for Information Assurance FY14	1	2014	4	2014
Monitor and defend mission, test, and administrative information systems on an 8 hours a day, 5 days a week basis for Information Assurance FY15	1	2015	4	2015

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Event	Start		End	
	Quarter	Year	Quarter	Year
Report vulnerability and cyber warfare attack metrics to MDA CIO, MDA Leadership, and JTF-GNO	1	2011	4	2011
Report vulnerability and cyber warfare attack metrics to MDA CIO, MDA Leadership, and JTF-GNO FY12	1	2012	4	2012
Report vulnerability and cyber warfare attack metrics to MDA CIO, MDA Leadership, and JTF-GNO FY13	1	2013	4	2013
Report vulnerability and cyber warfare attack metrics to MDA CIO, MDA Leadership, and JTF-GNO FY14	1	2014	4	2014
Report vulnerability and cyber warfare attack metrics to MDA CIO, MDA Leadership, and JTF-GNO FY15	1	2015	4	2015
Conduct IA certification evaluation of mission, test, and administrative systems	1	2011	4	2011
Conduct IA certification evaluation of mission, test, and administrative systems FY12	1	2012	4	2012
Conduct IA certification evaluation of mission, test, and administrative systems FY13	1	2013	4	2013
Conduct IA certification evaluation of mission, test, and administrative systems FY14	1	2014	4	2014
Conduct IA certification evaluation of mission, test, and administrative systems FY15	1	2015	4	2015
Maintain Information Assurance certification packages for test, admin, and business information technology systems	1	2011	4	2015
Complete Annual IA user training for MDA workforce	1	2011	4	2011
Complete Annual IA user training for MDA workforce FY12	1	2012	4	2012
Complete Annual IA user training for MDA workforce FY13	1	2013	4	2013
Complete Annual IA user training for MDA workforce FY14	1	2014	4	2014
Complete Annual IA user training for MDA workforce FY15	1	2015	4	2015

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Event	Start		End	
	Quarter	Year	Quarter	Year
Provide IA engineering and planning guidance and vulnerability assessment for IT acquisition programs	1	2011	4	2011
Provide IA engineering and planning guidance and vulnerability assessment for IT acquisition programs FY12	1	2012	4	2012
Provide IA engineering and planning guidance and vulnerability assessment for IT acquisition programs FY13	1	2013	4	2013
Provide IA engineering and planning guidance and vulnerability assessment for IT acquisition programs FY14	1	2014	4	2014
Provide IA engineering and planning guidance and vulnerability assessment for IT acquisition programs FY15	1	2015	4	2015
Manage the IA Workforce Improvement Program to certify CIO IA professionals	1	2011	4	2015
Sustain the IT infrastructure across the MDA Enterprise	1	2011	4	2011
Sustain the IT infrastructure across the MDA Enterprise FY12	1	2012	4	2012
Sustain the IT infrastructure across the MDA Enterprise FY13	1	2013	4	2013
Sustain the IT infrastructure across the MDA Enterprise FY14	1	2014	4	2014
Sustain the IT infrastructure across the MDA Enterprise FY15	1	2015	4	2015
Architect and develop plans to repair general It service and business systems	1	2011	4	2015
Perform analysis, track, and report metrics on equipment lifecycle	1	2011	4	2011
Perform analysis, track, and report metrics on equipment lifecycle FY12	1	2012	4	2012
Perform analysis, track, and report metrics on equipment lifecycle FY13	1	2013	4	2013
Perform analysis, track, and report metrics on equipment lifecycle FY14	1	2014	4	2014
Perform analysis, track, and report metrics on equipment lifecycle FY15	1	2015	4	2015

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Event	Start		End	
	Quarter	Year	Quarter	Year
Plan, engineer, and implement sustainment projects for general IT services and business systems	1	2011	4	2015
Revise and test contingency plans for IT systems	1	2011	4	2011
Revise and test contingency plans for IT systems FY12	1	2012	4	2012
Revise and test contingency plans for IT systems FY13	1	2013	4	2013
Revise and test contingency plans for IT systems FY14	1	2014	4	2014
Revise and test contingency plans for IT systems FY15	1	2015	4	2015
Procure, receive, inventory, and manage IT consumables and equipment	1	2011	4	2015

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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
YX31: <i>Modeling & Simulation</i>	90.523	48.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	138.655
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note
While FY2010 M&S funding decreases in the table above, the total M&S Program funding increases in FY10, because M&S funding for Hardware-in-the-Loop and Digital Modeling & Simulation was moved to the Elements to execute Element specific Modeling & Simulation requirements.

A. Mission Description and Budget Item Justification

The mission of the Agency’s Modeling and Simulation (M&S) program is to engineer and deliver validated, integrated simulation solutions for the primary uses of BMDS Performance Assessment and Ground Test, with additional capability to support BMDS-Element integration, missile defense wargames & exercises (national and international), BMDS training, and BMDS concept analysis. In this role, M&S provides cost-effective and proactive tools to assess the fielded capabilities of the BMDS, analyze and foster accelerated integration of Element and component capability into the BMDS, and is a valuable training and planning tool for warfighting Concept of Operations and missile defense planning. These M&S attributes enable the BMDS acquisition program to provide warfighting capability in a faster timetable and achieve tighter systems integration. Modeling and Simulation, anchored in ground and flight test program data, is a cornerstone for both developing the BMDS and gaining confidence in its performance, given that large amounts of flight data necessary to otherwise characterize the system is cost prohibitive. Likewise, M&S open architecture and frameworks are developed and implemented to reflect the open architecture characteristic of the Ballistic Missile Defense System. MDA objective 5.3 in the Strategic Intent states: Modeling and Simulation will acquire, develop, manage, direct, and execute high-fidelity models and simulations necessary for building and operating the BMDS. MDA will deemphasize stove-piped modeling efforts and invest in updating overall BMDS simulations and tools for use in ground-testing, wargames, and system level performance assessment. To accomplish this mission, M&S is organized into two product centers and two functional offices. The functional offices are Architecture and Engineering and Verification, Validation and Accreditation (VV&A). The product centers are BMDS Digital Modeling and Simulation, and BMDS Hardware-in-the-loop (HWIL).

SIMULATION, ARCHITECTURE & REQUIREMENTS

Architecture and Requirements (A&R) products include BMDS Event supporting system architectures and the standards and specifications used for BMDS model, simulation, and representation compliance. A&R provides Performance Assessment (PA) Scenario support for BMDS Test campaigns, implements a common Conceptual Model, and enables consistent/common Data Management and stakeholder collaboration.

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<p>VERIFICATION, VALIDATION, AND ACCREDITATION (VV&A)</p> <p>Accredited system-level models and simulations (M&S) anchored to real-world events, are required to perform an accurate and comprehensive assessment of the BMDS. VV&A is responsible for implementing and documenting system-level M&S verification, validation, and accreditation which establish credibility and increases confidence in the M&S that provides a cornerstone for the Agency's simulation-based acquisition approach. The individual MDA elements and components are responsible for conducting the VV&A of their own models and providing that evidence to system-level VV&A for each event. This includes benchmarking their M&S to higher fidelity simulations, anchoring to real world events, and planning and conducting post-flight reconstruction. VV&A annually verifies, validates and, accredits multiple MDA events to include Performance Assessment, Ground Tests that support BMDS fielding decisions, and tier one COCOM exercises. VV&A is responsible for the development and promulgation of system-level VV&A policies and standards, benchmarked against leading industry practices. VV&A provides model, simulation, and event credibility across Performance Assessment, Ground Tests, Element Integration, Wargames and Exercises, Training, and all associated infrastructure that supports BMDS fielding decisions. Through the consistent practice of verifying model representations benchmarked to other higher-fidelity models, and anchored to operational tests, VV&A will continue to increase model confidence and acceptability by outside agencies like the Operational Test Agency. Due to varying architectures and configurations required for different events, VV&A provides strong coordination, thorough analysis, development and use of appropriate tools, identification of metrics, and validation of both digital and hardware in the loop modeling and simulation capability. The implementation of the Model-Test-Model process requires that VV&A maintain close collaboration with the test community, and the capability to predict system-level test results and perform post-flight test reconstruction in order to improve model confidence and future performance. Robust VV&A requires flexibility and capability to explore new BMDS concepts, and evaluate new Element representations to identify and correct flaws early in the development process.</p> <p>BMDS DIGITAL MODELING AND SIMULATION</p> <p>BMDS Digital Modeling and Simulation produces and integrates digital M&S assets for use with the Digital Simulation Architecture to form system-level constructive simulations for full-envelope BMDS performance assessment with surrogate capability for BMDS ground tests. Digital M&S creates system-level stimulus for Element integration testing and system-level M&S capabilities which augment BMDS flight tests. Other mission areas include digital M&S capability for system-level concept definition and exploration; real-time, interactive system-level M&S capability to support warfighter-in-the-loop wargaming, training and exercises, and capabilities to support rapid, flexible scenario development and execution control.</p> <p>BMDS HARDWARE-IN-THE-LOOP (HWIL)</p>		

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<p>BMDS HWIL Modeling and Simulation is responsible to provide and integrate the BMDS system-level HWIL stimulation framework to support full-envelope BMDS ground test, flight test, and training events based upon Agency and warfighter needs. BMDS HWIL provides development, integration, and test funding to both MDA and non-MDA Elements participating in the BMDS ground test campaigns. BMDS HWIL also provides the core Lethality and Phenomenology models for use in analysis of BMDS and Element mission requirements. BMDS HWIL additionally maintains the Advanced Research Center and Simulation Center High Performance Computing Capabilities to support test and M&S requirements across MDA.</p>						
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Simulation Architecture & Requirements See Description Below <i>FY 2009 Accomplishments:</i> Established and execute a rigorous M&S Requirements Engineering Processed, published and enforced a cohesive M&S Systems Engineering processes across the M&S Enterprise Developed and maintained the Mission Space Description document Developed Simulation Framework descriptions Designed Event M&S hardware and software architectures <i>FY 2010 Plans:</i> ;Execute the M&S Requirements Engineering process for Test and fielding ;Enforce cohesive M&S Systems Engineering processes across the enterprise ;Enforce M&S standards to ensure M&S effectiveness and efficiency ;Update Common Environment and Threat Models to include improved trajectory generation, threat signatures generation, core lethality, and battlespace environment definitions ;Develop & maintain Mission Space Description ;Document Simulation Framework descriptions ;Update the M&S Strategic Plan, BMDS Integrated M&S Master Plan ;Event-specific analyses and briefings on appropriate Event milestones to affect planning, engineering and acquisition decisions		7.983	19.885	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>;Begin a collaborative effort to define and document the BMDS-level conceptual model ;Implement standard approach for Configuration Management process, control and artifacts Baseline configurations, change control documentation, technical evaluations, audit results</p> <p><i>FY 2011 Base Plans:</i> In accordance with the Missile Defense Agency revised budget structure, the content previously planned for FY11 is now captured in Project MD31.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>Verification, Validation & Accreditation See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Continued to provide an integrated validated system-level constructive simulation to support full-envelope BMDS performance assessment Continued to provide an integrated validated ground test M&S capability to support BMDS performance assessment Continued to provide an integrated validated system-level M&S capabilities to augment BMDS flight tests Continued to provide an integrated validated M&S capability to support Element Integration Continued to provide validated M&S capability for wargaming Continued to implement a system-level M&S VV&A capability Continued VV&A for BMDS-level M&S events/venues Continued to accredit Models and Simulations for Core Intended Uses Continued to develop Accreditation Reports Continued to provide Facility/Test support for test events</p>		9.837	3.883	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Continue to ensure that individual BMDS elements and components are responsible for the proper VV&A of their own models</p> <p><i>FY 2011 Base Plans:</i> In accordance with the Missile Defense Agency revised budget structure, the content previously planned for FY11 is now captured in Project MD31.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>BMDS Digital Modeling & Simulation</p> <p>See Description Below</p> <p><i>FY 2009 Accomplishments:</i> Continued Product Line development, sustainment, maintenance and product support for digital simulation:</p> <p>Infrastructure ((Digital Simulation Architecture (DSA), External Modeling Framework (EMF) and Optimistic Modeling Framework (OMF)) Core Extended Air Defense Simulation (EADSIM) Missile Defense Space Warning Tool (models validated space-borne assets of BMDS) Threat Modeling Simulation System BMD International Simulation Continued to design, integrate, deliver and execute the Performance Assessment 09 (PA09) constructive simulation to support full-envelope BMDS performance assessment Continued to integrate the EMF and OMF -compliant models supplied by the Elements Continued to provide the digital simulation infrastructure (architecture, frameworks) to support system-level M&S simulations, warfighter-in-the-loop ability for wargames and exercises, test driver</p>		27.928	7.740	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</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>See Description Below</p> <p><i>FY 2009 Accomplishments:</i></p> <p>Planned, developed, integrated and tested a common BMDS HWIL stimulation framework with the Elements for the GTX-09a, GTI-09, GTD-09 ground tests</p> <p>Conducted BMDS HWIL stimulation framework V&V for BMDS GTX-09a, GTI-09 and GTD-09 ground tests</p> <p>Derived and designed the BMDS HWIL stimulation framework for use in domestic and international BMDS M&S venues</p> <p>Provided funding for Element integration and development testing in support of GTX-09a and GTI-09 ground tests</p> <p>Provided O&M funding for the Advanced Research Center (ARC) in Huntsville, Alabama. The ARC supplies computational resources, infrastructure, and IT subject matter experts who support both system and element-level flight and ground testing</p> <p>Provided O&M funding for the Simulation Center in Huntsville, Alabama. The Sim-Center supplies computational resources and infrastructure for support of MDA distributed High Performance Computing Requirements</p> <p>Provided development, O&M, and IV&V of standardized tools and models to include active and passive signatures of threat objects and their kinematics and operational behaviors, relevant natural and perturbed battlespace environments, and a common way of dealing with the consequences of missile defense engagements</p> <p>Upgraded the BMDS stimulation framework to support wideband debris for BMDS sensors</p> <p>Completed integration of the BMDS stimulation framework with the Israeli Test Bed (ITB) and AN/TPY-2 tactical radar</p> <p>Initially integrated the BMDS stimulation framework with the ARROW HWIL facility in Israel and additional MDA/SN sensors</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</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"> Lease and maintain the ARC and the SSI in Huntsville, Alabama Modify and incrementally upgrade phenomenology and lethality HWIL Products Support for the SPAWAR-Pacific, Tactical Communication Emulation (TCES) Derive and support implementation and verification of the BMDS System Performance V&V to include the core phenomenology and lethality models Develop, integrate, and test a common BMDS HWIL stimulation framework with the Elements for ground tests Conduct BMDS HWIL stimulation framework V&V for BMDS ground tests Define and plan for enhancements to the SSF required for execution of ground test campaign to include identification of interdependencies required for execution Provide development, operations, support, and IV&V of standardized phenomenology and lethality tools and models to for the common environmental toolset Initiate planning to integrate SSF interface with radars and close the air gap Initiate planning to integrate SSF interface with the GMD Fielded assets Integrate common RDSIS for X-Band radars Initial integration of the BMDS stimulation framework with the ARROW HWIL facility in Israel Evolve and enhance the SSF to provide increased Warfighter support, specifically training and exercises Integrate the SSF with additional Allied/Coalition elements to expand Distributed ground test and exercise venues Initial integration of the SSF with the DSA product line development, sustainment, maintenance and product support for HWIL products Plan, develop, integrate and test a common BMDS HWIL stimulation framework with the Elements for ground tests, exercises and demos Conduct BMDS HWIL stimulation framework V&V for BMDS ground tests, exercises and demos 					

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Exhibit R-2A, RDT&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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
System engineering support to upgrade the BMDS stimulation framework to support wideband debris for BMDS sensors Initial integration of the BMDS stimulation framework with the additional sensors Provide common threat representations and scenarios to met specific event and customer requirements for BMDS HWIL framework <i>FY 2011 Base Plans:</i> In accordance with the Missile Defense Agency revised budget structure, the content previously planned for FY11 is now captured in Project MD31. <i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	90.523	48.132	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

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</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
• 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
	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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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>
• 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 M&S acquisition strategy is to develop, acquire and deliver the integrated architectures/frameworks while the Elements develop and deliver models of their system. The Digital and HWIL product centers integrate the suite of M&S into a composite simulation capability, all based on an open architecture. M&S achieves this end-state via close collaboration between its integrating contractor teams (Digital and HWIL) and those of the Element prime contractors, with additional technical standards and engineering oversight provided by FFRDC and UARCs.

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			
Simulation Architecture & Requirements Requirements, System Engineering, Architecture Development, Element Integration YX31	C/CPAF	Northrop Grumman CO	9.778	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements Key and Critical Factor Development YX31	C/CPAF	Northrop Grumman CO	0.000	1.032	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements M&S Analysis and Test Objective Development YX31	C/CPAF	Northrop Grumman CO	0.000	1.916	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements M&S Product Baseline & Configuration Management YX31	C/CPAF	Northrop Grumman CO	0.000	1.200	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements M&S Standards YX31	C/CPAF	Northrop Grumman CO	0.000	0.708	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements Standards & Conceptual Model Support YX31	C/CPAF	Northrop Grumman CO	0.000	0.090	Apr 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			
Simulation Architecture & Requirements Management Data/ Requirements YX31	C/CPAF	Northrop Grumman CO	0.000	0.361	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements M&S Architecture Requirements and Engineering-1 YX31	C/CPAF	Northrop Grumman CO	0.000	0.464	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements Requirements Lean Six Sigma YX31	C/CPAF	Northrop Grumman CO	0.000	0.120	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements M&S Architecture Requirements and Engineering-2 YX31	TBD/TBD	-	0.000	3.598	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements Mature M&S Inventory & CM Solution (Database) YX31	C/CPAF	Northrop Grumman CO	0.000	0.378	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements Comprehensive BMDS M&S Requirements Engineering YX31	C/CPAF	Northrop Grumman CO	0.000	2.946	Apr 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			
Simulation Architecture & Requirements Full Initiation: Standards and Conceptual Modeling YX31	TBD/TBD	-	0.000	2.260	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements Configuration Management Board YX31	TBD/TBD	-	0.000	0.920	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements Data Repository YX31	TBD/TBD	-	0.000	1.542	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements Mature Requirements Solution (Database) YX31	C/CPAF	Northrop Grumman	0.000	0.752	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Verification, Validation & Accreditation SBIRS, JTACS, Digital Modeling Support YX31	C/CPAF	Northrop Grumman CO	0.000	0.200	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Verification, Validation & Accreditation Establish Comprehensive Validation Program YX31	TBD/TBD	-	0.000	3.683		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Digital Modeling & Simulation BMDS	C/CPAF	Northrop Grumman	30.595	0.000		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			
DE SIM (Product Development) YX31		CO											
BMDS Digital Modeling & Simulation BMDS Threat Modeling (Product Development, Sustainment, O&M) YX31	C/CPAF	Northrop Grumman CO	13.548	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Digital Modeling & Simulation Missile Defense Space Warning Tool (MDST) YX31	C/CPAF	Northrop Grumman CO	4.324	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Digital Modeling & Simulation EADSIM(Prod Dev) YX31	C/FFP	SMDC AL	2.980	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS HWIL MDSE Core YX31	Various/ Various	Various AL	21.949	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS HWIL Ground Test - MDSE- Element Integration YX31	Various/ Various	Various AL	17.598	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS HWIL Lethality YX31	C/FFP	Various AL	5.060	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS HWIL Phenomenology YX31	C/FFP	Various Various	6.300	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS HWIL Engineering Change	C/FFP	Northrop Grumman	1.434	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</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			
Proposals (Event Driven) YX31		CO											
BMDS HWIL Single Stimulation Framework YX31	C/FFP	Various Various	4.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			117.566	22.170		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			
Simulation Architecture & Requirements Intl Events NATO Agreements Support YX31	C/CPAF	MDA DC	1.022	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements Intl Events Bilateral Agreement Support YX31	C/CPAF	Northrop Grumman CO	0.602	0.000		0.000		0.000		0.000	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</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			
BMDS HWIL Sim Center Infrastructure YX31	C/FFP	Madison Research Corp AL	6.690	3.326	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS HWIL ARC Infrastructure YX31	C/FFP	Colsa AL	21.102	10.820	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			29.416	14.146		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			
Simulation Architecture & Requirements International Support to DI YX31	TBD/TBD	- -	0.000	0.578	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements NATO ALTBMD Program Office YX31	TBD/TBD	- -	0.000	0.338	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements	TBD/TBD	- -	0.000	0.257	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</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			
International Agreements (BASIL, GE Annex E) YX31													
Simulation Architecture & Requirements International Agreements (US-GE Annex, US-UK Lethality) YX31	TBD/TBD	-	0.000	0.425	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Verification, Validation & Accreditation PA Integrated V&V YX31	C/CPAF	Northrop Grumman CO	3.395	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Verification, Validation & Accreditation GT Integrated V&V YX31	C/CPAF	Various AL	5.135	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Verification, Validation & Accreditation Gt Models & Anchoring YX31	C/CPAF	Various AL	0.486	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Verification, Validation & Accreditation Elem Integration VV&A YX31	C/CPAF	Various AL	1.021	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Verification, Validation & Accreditation Wargames & Exercises VV&A YX31	C/CPAF	Northrop Grumman CO	1.188	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS HWIL SPAWAR - Pacific, Tactical Comm Emulation (TCES) YX31	C/CPAF	Various AL	0.000	2.478	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</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			11.225	4.076		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			
Simulation Architecture & Requirements Government Salaries YX31	TBD/TBD	-	1.189	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements Government Travel-1 YX31	TBD/TBD	-	0.162	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements Government Travel-2 YX31	TBD/TBD	-	0.019	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Simulation Architecture & Requirements SETA YX31	TBD/TBD	-	2.029	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</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			
Verification, Validation & Accreditation FFRDC - VV&A/Architectures YX31	TBD/TBD	Various CO/MA/GA	3.828	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Verification, Validation & Accreditation Government Salaries YX31	TBD/TBD	-	1.188	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Verification, Validation & Accreditation Government Travel YX31	TBD/TBD	-	0.160	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Verification, Validation & Accreditation Government Training YX31	TBD/TBD	-	0.018	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Verification, Validation & Accreditation SETA YX31	TBD/TBD	-	1.645	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Digital Modeling & Simulation Government Salaries YX31	TBD/TBD	-	1.188	4.688		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Digital Modeling & Simulation Government Travel YX31	TBD/TBD	-	0.162	0.505		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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</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			
BMDS Digital Modeling & Simulation Government Training YX31	TBD/TBD	-	0.019	0.095		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS Digital Modeling & Simulation SETA YX31	TBD/TBD	-	1.301	2.452		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS HWIL SETA YX31	C/FFP	Various AL	3.036	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS HWIL Government Salaries YX31	TBD/TBD	SMDC AL	5.825	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS HWIL Government Travel YX31	TBD/TBD	SMDC AL	0.160	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
BMDS HWIL Government Training YX31	TBD/TBD	SMDC AL	0.040	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			21.969	7.740		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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</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	180.176	48.132	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</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
DSA-1Q2009	■																											
DSA-2Q2009		■																										
DSA-2Q2010							■																					
DSA-3Q2010								■																				
DSA-4Q2010										■																		
Ground Test-1Q2009-2Q2009	■	■																										
Ground Test-1Q2010-2Q2010					■	■																						
Ground Test-3Q2010							■																					
Ground Test-4Q2010										■																		
Exercises	■																											
ISIM-2Q2009		■																										
ISIM-2Q2010							■																					
TMSS-2Q2009		■																										
TMSS-2Q2010							■																					
TMSS-3Q2009			■																									
TMSS-3Q2010								■																				
Training-2Q2009		■																										
Training-2Q2010							■																					
MDSE-3Q2009			■																									
MDSE-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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</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
Wargames		■																										
MDST-2Q2009		■																										
MDST-2Q2010							■																					
Single Stimulation Framework-1Q2009	■																											
Single Stimulation Framework-2Q2010							■																					
Single Stimulation Framework-4Q2009				■																								
ISIM-4Q2009				■																								
Performance Assessments-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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
DSA-1Q2009	1	2009	1	2009
DSA-2Q2009	2	2009	2	2009
DSA-2Q2010	2	2010	2	2010
DSA-3Q2010	3	2010	3	2010
DSA-4Q2010	4	2010	4	2010
Ground Test-1Q2009-2Q2009	1	2009	2	2009
Ground Test-1Q2010-2Q2010	1	2010	2	2010
Ground Test-3Q2010	3	2010	3	2010
Ground Test-4Q2010	4	2010	4	2010
Exercises	1	2009	1	2009
ISIM-2Q2009	2	2009	2	2009
ISIM-2Q2010	2	2010	2	2010
TMSS-2Q2009	2	2009	2	2009
TMSS-2Q2010	2	2010	2	2010
TMSS-3Q2009	3	2009	3	2009
TMSS-3Q2010	3	2010	3	2010
Training-2Q2009	2	2009	2	2009
Training-2Q2010	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX31: <i>Modeling & Simulation</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
MDSE-3Q2009	3	2009	3	2009
MDSE-4Q2009	4	2009	4	2009
Wargames	2	2009	2	2009
MDST-2Q2009	2	2009	2	2009
MDST-2Q2010	2	2010	2	2010
Single Stimulation Framework-1Q2009	1	2009	1	2009
Single Stimulation Framework-2Q2010	2	2010	2	2010
Single Stimulation Framework-4Q2009	4	2009	4	2009
ISIM-4Q2009	4	2009	4	2009
Performance Assessments-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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</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
MD31: <i>Modeling & Simulation</i>	0.000	0.000	64.623	0.000	64.623	120.904	120.634	122.531	124.937	Continuing	Continuing
Quantity of RDT&E Articles	0	0	6	0	6	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the Modeling and Simulation (M&S) content previously planned in Project YX31 for FY 2009-FY 2010 is now captured in Project MD31.

While the PBR11 funding decreases in the table above, the total M&S program funding increases in FY 2011 because M&S funding for Digital Modeling and Simulation was moved to the Elements for execution in Element specific M&S requirements.

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 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.

A. Mission Description and Budget Item Justification

The mission of MDA's M&S program is to develop models and simulations of the BMDS in order to compare 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. As a result, MDA strives to develop M&S products and capabilities that are repeatable, consistent and provide confidence in the predicted performance of the BMDS. The M&S objective is to evolve the M&S to match, as appropriate, the real world performance of the BMDS and meet Warfighters needs. M&S's distinct capabilities are ingrained throughout the BMDS Elements and provide the Warfighter and Operational Test Agencies (OTA) with an evaluation capability for individual components and system-of-systems. MDA's M&S accredits system-level models and simulations by anchoring them to real-world events to support accurate and comprehensive assessments of the BMDS. Future M&S developments will focus on the model and simulation framework, BMDS Element models,

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
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<p>threat assessments and phenomenology and lethality modeling. The success of the missile defense program is enabled by quality M&S products and capabilities that prove with certainty that the BMDS technologies work.</p> <p>Modeling & Simulation: MDA's M&S systems provide analysis, decision-making and planning capabilities for Real-World Operations in support of the White House, Joint Staff, Services, NATO, COCOMs (EUCOM, PACOM, CENTCOM, STRATCOM [Military Utility Assessment]), OTA, Director of Operational Test & Evaluation, and Allies. Targeted M&S activities support all phases of BMDS development including BMDS design, Element modifications, flight test missions, ground tests, wargames, exercises, and performance assessment (PA). 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 definitions studies, to high-fidelity models used to support engineering development.</p> <p>To execute the M&S mission requires reliance and operation of two simulation frameworks which, when combined to meet specific M&S use case and user requirements with the appropriate fidelity, Element and component models form a single Objective Simulation Architecture version to enable BMDS performance in a simulated environment.</p> <p>The BMD Digital Simulations Architecture (DSA) is the primary 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 PA events, which provide critical system level performance data relative to all elements, system engineers, M&S developers, the OTA and Warfighters. The DSA-virtual architecture supports Element baseline integration, training, portions of ground testing and exercises.</p> <p>The BMD Single Stimulation Framework (SSF) utilizes Hardware-In-The Loop (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.</p> <p>The BMDS M&S uses the completed Critical Engagement Conditions (CEC's) and Empirical Measurement Events (EME's) data to reconstruct the flight test to perform M&S validation. These M&S Digital and HWIL tools are accredited for each application and for specific CEC's and EME's objectives. They are tools put through a rigorous verification and validation (V&V) process, reviewing coding and specifications, and comparing analyses against actual flight test results (anchoring). V&V planning support is required to develop the comprehensive V&V plan, test objectives development analysis execution planning, analysis for V&V reports and program office M&S certification.</p> <p>The BMDS M&S System is evolving into a fully integrated End-to-End HWIL/Digital system that provide a common source for truth and event control with an Initial Operational Capability (IOC) available in FY 2012. The final integrated system will merge the Single Stimulation Framework (SSF) and Digital Simulation 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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</i>
<p>(DSA) into one seamless M&S product that will meet both real-time and non-real time simulation activities. This combined framework called the Objective Simulation Framework (OSF) will host all simulated activities, events, scenarios, and Element and Threat models. The end-to-end M&S System will be used to conduct BMDS ground tests and PAs, component training, Wargames, flight tests, threat analysis, international events, and COCOM exercises.</p> <p>The Digital and HWIL End-to-End simulation of the BMDS requires an Integrated V&V Plan and Report (at both element and system level), and a system level Accreditation Plan and Report.</p> <p>System pre- and post-flight reconstruction: The M&S Program will support system pre-flight predictions for each system level flight test 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 prove 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. SPFR 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 environment 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 CEC's and EME's back to the real world event. SPFR is used for validation (anchoring) of models and simulations.</p> <p>Interdependencies: MDA's M&S program is key to ensuring missile defense is affordable and effective. Through the use of verified and validated models and accredited simulation tools, the MDA's M&S program provides the cost effective means to prove and explore the performance space of the BMDS beyond what can be physically tested under current range conditions. The SSF and DSA, as stand alone frameworks and as a combined Objective Simulation Framework (OSF) with appropriate element and component models, enhances the defensive capabilities to defend deployed forces, allies and friends against theater missile threats by enabling element integration, Warfighter training and exercises. M&S enables the concept exploration and functional analysis used to defend against rogue threats beyond 2030 by providing the cost effective capability to support BMDS design early in the acquisition life cycle. M&S HWIL and digital frameworks provide the efficient capability to prove the missile defense capability through rigorous testing process to include pre-test, ground test, flight test and post-test activities. Through conceptual simulation activities, M&S provides the capability to design and develop those technologies to hedge against future missile threats. Throughout the budget justification material, we have attempted to highlight interdependencies in order to explain fully the relationship between different parts of the proposed program and how the M&S program enables the required capabilities to meet the threat today and develop the capabilities to defeat those future threats. M&S interdependencies are key in BMDS performance evaluation strategy with models and simulations of the BMDS and require close coordination with the OTA, Elements, COCOMs, Army, Air Force, and numerous MDA organizations.</p> <p>Test: 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 determines how to validate our models and simulations so that our war fighting commanders have</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</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 FY 2011 M&S Program focuses on further correction of the deficiencies stated in the 2008 DOT&E BMDS Assessment Report to include:

- Executing BMDS scenarios that flight test cannot assess because of geographic and safety constraints with models and simulations
- Predicting system performance with the use of verified and validated models and simulations
- Executing SPFR to provide empirical data to confirm system performance and to further refine and validate models and simulations
- Continuing to jointly develop accreditation criteria between MDA & OTA
- Continuing to address the V&V of threat models, radar models, kill vehicle models and lethality models

MDA Element testing is based on an integrated, comprehensive, and phased test program as outlined in MDA`s Integrated Master Test Plan (IMTP). Element systems, subsystems, and components are tested early in development and are necessary prior to conducting BMD System-level testing. M&S Program Element level testing is funded as part of a developmental program and reflected in this Program Element (PE) submission. This PE also provides M&S Program participation in the consolidated MDA-wide System Test Program and the resources for the planning, design, execution and management of M&S in BMDS testing in accordance with the BMDS Test Policy, MDA Directive 3202.03 (Jan 2009). This applies to all flight, integrated ground, and distributed ground tests and post-test analysis and reconstructions listed in the IMTP.

Common Threat Engineering: Common threat engineering produces common and consistent adversary trajectory and signature data to enable BMDS and sub-system concept and requirements, design, verification and assessment. Common Threat data is key to the common truth used as part of the DSA and SSF to prove the BMDS. Common threat 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 initiatives. MDA M&S is used to support European and Russian cooperative activities, North Korean and Iranian pre- and post-flight launch analysis, and the enhanced Israeli Interceptor program.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
HWIL Modeling & Simulation See Description Below	0.000	0.000	29.414	0.000	29.414

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Plan, develop, integrate and test a common BMDS HWIL stimulation framework with the Elements for BMDS ground tests and demos</p> <p>Conduct BMDS HWIL stimulation framework V&V for BMDS ground tests and demos</p> <p>System engineering support to upgrade the BMDS stimulation framework to support wide band debris for BMDS sensors</p> <p>Initial integration of the BMDS stimulation framework with the additional MDA sensors</p> <p><i>FY 2011 OCO Plans:</i> NA</p>						
<p>BMDS Digital Modeling & Simulation</p> <p>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> Provide M&S tools and technical support, and modify code for model, threat, and scenario development</p> <p>Develop and incrementally upgrade the following digital products: DSA, I-SIM, Missile Defense Space Tool (MDST), Threat Modeling Simulation System (TMSS), Threat Generator External (TGx), Extended Air Defense Simulation (EADSIM)</p> <p>Provide M&S tools and technical support, and modify code for model, threat, and scenario development, for conducting National MD Conference Wargames, Congressional Wargames, Multinational Missile Defense Conference Wargames</p>		0.000	0.000	27.484	0.000	27.484

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</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> Develop and publish the Modeling and Simulations Capability Planning Specifications (CPS), System Performance Specifications (SPS), and System Interface Control Documents (ICD) for the Digital Simulation Architecture Framework build 3.0; Phenomenology, Lethality, Environments, Threat, and Communications; Single Stimulation Framework build 2.0. Verify and adjudicate ;stakeholder Modeling and Simulation need statements, capability statements, and capability packages for Epoch 1 testing and assessment in Performance Assessment 12, Ground Test 05 Campaign, Assured Response 05 and Terminal Fury 11. Provide updates and expand the over 170 model capability descriptions in the Missile Defense Agency’s Modeling and Simulation catalog. ; Execute traceability between the Modeling and Simulation requirements database and Modeling and Simulation product development. Leverage MDA’s system engineering processes to produce mature capability documents and specifications in support of Modeling and Simulation product development to enable Missile Defense Agency ground tests, training events, BMDS exercises, BMDS wargames, BMDS Performance Assessments and Missile Defense Agency Element integration.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	64.623	0.000	64.623

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			R-1 ITEM NOMENCLATURE				PROJECT				
0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)			PE 0603890C: Ballistic Missile Defense Enabling Programs				MD31: Modeling & Simulation				
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
• 0603881C: Ballistic Missile Defense Terminal Defense Segment											
• 0603882C: Ballistic Missile Defense Mid-Course Segment	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: Ballistic Missile Defense Boost Defense Segment	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: Ballistic Missile Defense Sensors	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: Ballistic Missile Defense System Interceptor	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: Ballistic Missile Defense Test and Targets	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
• 0603891C: SPECIAL PROGRAMS - MDA	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: BMD AEGIS	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: SPACE TRACKING & SURVEILLANCE SYSTEM	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: MULTIPLE KILL VEHICLE	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: BMD SYSTEM SPACE PROGRAM	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: BMD C2BMC	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: BMD HERCULES	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: BMD JOINT WARFIGHTER SUPPORT	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: DIRECTED ENERGY RESEARCH	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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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
• 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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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

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

MDA will transition using full and open competition 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

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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			
HWIL Modeling & Simulation GT System Mods & Upgrades MD31	TBD/TBD	AMRDEC AL	0.000	0.000		2.888	Oct 2010	0.000		2.888	Continuing	Continuing	Continuing
HWIL Modeling & Simulation Lethality/ Phenomenology Modeling MD31	TBD/TBD	AMRDEC AL	0.000	0.000		3.229	Oct 2010	0.000		3.229	Continuing	Continuing	Continuing
HWIL Modeling & Simulation Single Stimulation Framework & Objective Simulation Framework, Procure, Install, Test MD31	C/CPAF	Boeing AL	0.000	0.000		15.510	Oct 2010	0.000		15.510	Continuing	Continuing	Continuing
HWIL Modeling & Simulation M&S PA/ GT Product Level Requirements MD31	C/FFP	Mantech CO	0.000	0.000		4.607	Jul 2011	0.000		4.607	Continuing	Continuing	Continuing
HWIL Modeling & Simulation DSA/SSF Integration MD31	C/CPAF	Boeing AL	0.000	0.000		3.180	Oct 2010	0.000		3.180	Continuing	Continuing	Continuing
BMDS Digital Modeling & Simulation Digital Simulation Architecture MD31	C/CPAF	Northrop Grumman CO	0.000	0.000		15.386		0.000		15.386	Continuing	Continuing	Continuing
BMDS Digital Modeling & Simulation Performance	C/CPAF	Northrop Grumman CO	0.000	0.000		1.040		0.000		1.040	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			
Assessment M&S Requirements MD31													
M&S Architecture & Requirements M&S PA/GT Architecture, Requirements, Engineering MD31	C/FFP	Mantech CO	0.000	0.000		5.572	Jul 2011	0.000		5.572	Continuing	Continuing	Continuing
M&S Architecture & Requirements Mature Requirements Solution (Database) MD31	C/FFP	Mantech CO	0.000	0.000		0.790	Jul 2011	0.000		0.790	Continuing	Continuing	Continuing
M&S Architecture & Requirements Mature M&S Inventory & CM Solution (Database) MD31	C/FFP	Mantech CO	0.000	0.000		0.397	Jul 2011	0.000		0.397	Continuing	Continuing	Continuing
M&S Architecture & Requirements Configuration Mgt Board MD31	C/FFP	Mantech CO	0.000	0.000		0.966	Jul 2011	0.000		0.966	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		53.565		0.000		53.565			

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			
BMDS Digital Modeling & Simulation	Various/ Various	- -	0.000	0.000		8.006	Oct 2010	0.000		8.006	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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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			
Government Salaries MD31													
BMDS Digital Modeling & Simulation Government Travel MD31	Various/ Various	- -	0.000	0.000		0.505	Oct 2010	0.000		0.505	Continuing	Continuing	Continuing
BMDS Digital Modeling & Simulation Government Training MD31	Various/ Various	- -	0.000	0.000		0.095	Oct 2010	0.000		0.095	Continuing	Continuing	Continuing
BMDS Digital Modeling & Simulation Contractor Support Services MD31	Various/ Various	- -	0.000	0.000		2.452	Oct 2010	0.000		2.452	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		11.058		0.000		11.058			

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	64.623	0.000	64.623			

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

R-1 ITEM NOMENCLATURE

PE 0603890C: *Ballistic Missile Defense Enabling Programs*

PROJECT

MD31: *Modeling & Simulation*

	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 (AR-04A) 1Q2011																												
Assured Response (AR-04X) 4Q2011																												
Assured Response (AR-05A) 4Q2013																												
Assured Response (AR-06A) 1Q2015																												
COCOM Ex (GL12) 1Q2012																												
COCOM Ex (GL13) 1Q2013																												
COCOM Ex (GL14) 1Q2014																												
COCOM Ex (GL15) 1Q2015																												
COCOM Ex (GT12) 3Q2012																												
COCOM Ex (GT13) 3Q2013																												
COCOM Ex (GT14) 3Q2014																												
COCOM Ex (GT15) 3Q2015																												
COCOM Ex (GL11) 1Q2011																												
COCOM Ex (GT11) 3Q2011																												
COCOM Ex (TF11) 3Q2011																												
COCOM Ex (TF12) 3Q2012																												
COCOM Ex (TF13) 3Q2013																												
COCOM Ex (TF14) 3Q2014																												
COCOM Ex (TF15) 3Q2015																												
COCOM Ex (VS11) 1Q2011																												

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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 0603890C: *Ballistic Missile Defense Enabling Programs*

PROJECT

MD31: *Modeling & Simulation*

	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
COCOM Ex (VS12) 1Q2012													■															
COCOM Ex (VS13) 1Q2013																■												
COCOM Ex (VS14) 1Q2014																				■								
COCOM Ex (VS15) 1Q2015																										■		
COCOM WG (FEWg 2010) 1Q2011									■																			
COCOM WG (FEWg 2012) 1Q2013																■												
COCOM WG (FEWg 2014) 1Q2015																										■		
COCOM WG (NT12) 3Q2012																												
COCOM WG (NT14) 3Q2014																												
Congressional WG 2Q2011																												
Congressional WG 2Q2012																												
Congressional WG 2Q2013																												
Congressional WG 2Q2014																												
Congressional WG 2Q2015																												
DSA-F v1.0 4Q2011																												
DSA-P v2.0 3Q2011																												
DSA-P v3.0 3Q2012																												
DSA-P v4.0 3Q2013																												
DSA-P v5.0 3Q2014																												
DSA-P v6.0 3Q2015																												

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</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
DSA-V v2.0 4Q2011												■																
DSA-V v3.0 4Q2012															■													
DSA-V v4.0 4Q2013																												
DSA-V v5.0 4Q2014																												
DSA-V v6.0 4Q2015																												■
DSA-W v1.0 4Q2011													■															
Digital Simulation Architecture (DSA) v4.0 4Q2011													■															
Digital Simulation Architecture (DSA) v5.0 4Q2012																■												
Digital Simulation Architecture (DSA) v6.0 4Q2013																												
Digital Simulation Architecture (DSA) v7.0 4Q2014																												■
Digital Simulation Architecture (DSA) v8.0 4Q2015																												■
GTD-04 2Q2012																												
GTD-04 GDEx 3Q2012																												
GTD-04 OT 2Q2012																												
GTD-04 WF Trial Period 4Q2012																												
GTD-05 3Q2014																												■
GTD-05 GDEx 3Q2014																												■

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</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
GTD-05 OT 3Q2014																												
GTD-05 WF Trial Period 4Q2014																												
GTD-06 3Q2015																												
GTI-04 (EXE)																												
GTI-04 (INT)																												
GTI-04 OT 4Q2011																												
GTI-05 (EXE) 4Q2013																												
GTI-05 (INT) 3Q2013																												
GTI-05 OT 1Q2014																												
GTI-06 (EXE) 1Q2015																												
GTI-06 (INT) 3Q2014																												
GTX-04d																												
GTX-04e																												
GTX-05a 4Q2012																												
GTX-05b 1Q2013																												
GTX-06a 3Q2013																												
GTX-06b 4Q2013																												
GTX-06c 2Q2014																												
I-SIM v10.0 2Q2014																												
I-SIM v11.0 2Q2015																												

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</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
I-SIM v7.0 2Q2011										■																		
I-SIM v8.0 2Q2012														■														
I-SIM v9.0 2Q2013																			■									
Multi-National Missile Defense Conference WG 4Q2011																												
Multi-National Missile Defense Conference WG 4Q2012																												
Multi-National Missile Defense Conference WG 4Q2013																												
Multi-National Missile Defense Conference WG 4Q2014																												
Multi-National Missile Defense Conference WG 4Q2015																												■
Nat`l MD Conference WG 2Q2011																												
Nat`l MD Conference WG 2Q2012																												
Nat`l MD Conference WG 2Q2013																												
Nat`l MD Conference WG 2Q2014																												
Nat`l MD Conference WG 2Q2015																												
OSF v1.0																												
OSF v2.0																												
OSF v3.0																												

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</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
Performance /Technical Assessment (PA/TA11)																												
Performance /Technical Assessment (PA/TA13)																												
Performance /Technical Assessment (PA/TA14)																												
Performance Assessment (PA12 - Epoch 1)																												
Performance Assessment (PA15 - Epoch 2)																												
Single Stimulation Framework v2.0																												
Single Stimulation Framework v3.0 (2nd HWIL string)																												
TMSS v10.0																												
TMSS v11.0																												
TMSS v12.0																												
TMSS v13.0																												
TMSS v14.0																												
TMSS v9.0																												

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Assured Response (AR-04A) 1Q2011	4	2011	4	2011
Assured Response (AR-04X) 4Q2011	1	2011	1	2011
Assured Response (AR-05A) 4Q2013	4	2013	4	2013
Assured Response (AR-06A) 1Q2015	1	2015	1	2015
COCOM Ex (GL12) 1Q2012	1	2012	1	2012
COCOM Ex (GL13) 1Q2013	1	2013	1	2013
COCOM Ex (GL14) 1Q2014	1	2014	1	2014
COCOM Ex (GL15) 1Q2015	1	2015	1	2015
COCOM Ex (GT12) 3Q2012	3	2012	3	2012
COCOM Ex (GT13) 3Q2013	3	2013	3	2013
COCOM Ex (GT14) 3Q2014	3	2014	3	2014
COCOM Ex (GT15) 3Q2015	3	2015	3	2015
COCOM Ex (GL11) 1Q2011	1	2011	1	2011
COCOM Ex (GT11) 3Q2011	3	2011	3	2011
COCOM Ex (TF11) 3Q2011	3	2011	3	2011
COCOM Ex (TF12) 3Q2012	3	2012	3	2012
COCOM Ex (TF13) 3Q2013	3	2013	3	2013
COCOM Ex (TF14) 3Q2014	3	2014	3	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
COCOM Ex (TF15) 3Q2015	3	2015	3	2015
COCOM Ex (VS11) 1Q2011	1	2011	1	2011
COCOM Ex (VS12) 1Q2012	1	2012	1	2012
COCOM Ex (VS13) 1Q2013	1	2013	1	2013
COCOM Ex (VS14) 1Q2014	1	2014	1	2014
COCOM Ex (VS15) 1Q2015	1	2015	1	2015
COCOM WG (FEWg 2010) 1Q2011	1	2011	1	2011
COCOM WG (FEWg 2012) 1Q2013	1	2013	1	2013
COCOM WG (FEWg 2014) 1Q2015	1	2015	1	2015
COCOM WG (NT12) 3Q2012	3	2012	3	2012
COCOM WG (NT14) 3Q2014	3	2014	3	2014
Congressional WG 2Q2011	2	2011	2	2011
Congressional WG 2Q2012	2	2012	2	2012
Congressional WG 2Q2013	2	2013	2	2013
Congressional WG 2Q2014	2	2014	2	2014
Congressional WG 2Q2015	2	2015	2	2015
DSA-F v1.0 4Q2011	4	2011	4	2011
DSA-P v2.0 3Q2011	3	2011	3	2011
DSA-P v3.0 3Q2012	3	2012	3	2012
DSA-P v4.0 3Q2013	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
DSA-P v5.0 3Q2014	3	2014	3	2014
DSA-P v6.0 3Q2015	3	2015	3	2015
DSA-V v2.0 4Q2011	4	2011	4	2011
DSA-V v3.0 4Q2012	4	2012	4	2012
DSA-V v4.0 4Q2013	4	2013	4	2013
DSA-V v5.0 4Q2014	4	2014	4	2014
DSA-V v6.0 4Q2015	4	2015	4	2015
DSA-W v1.0 4Q2011	4	2011	4	2011
Digital Simulation Architecture (DSA) v4.0 4Q2011	4	2011	4	2011
Digital Simulation Architecture (DSA) v5.0 4Q2012	4	2012	4	2012
Digital Simulation Architecture (DSA) v6.0 4Q2013	4	2013	4	2013
Digital Simulation Architecture (DSA) v7.0 4Q2014	4	2014	4	2014
Digital Simulation Architecture (DSA) v8.0 4Q2015	4	2015	4	2015
GTD-04 2Q2012	2	2012	2	2012
GTD-04 GDEx 3Q2012	3	2012	3	2012
GTD-04 OT 2Q2012	2	2012	2	2012
GTD-04 WF Trial Period 4Q2012	4	2012	4	2012
GTD-05 3Q2014	3	2014	3	2014
GTD-05 GDEx 3Q2014	3	2014	3	2014
GTD-05 OT 3Q2014	3	2014	3	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
GTD-05 WF Trial Period 4Q2014	4	2014	4	2014
GTD-06 3Q2015	3	2015	3	2015
GTI-04 (EXE)	4	2011	4	2011
GTI-04 (INT)	3	2011	3	2011
GTI-04 OT 4Q2011	4	2011	4	2011
GTI-05 (EXE) 4Q2013	4	2013	4	2013
GTI-05 (INT) 3Q2013	3	2013	3	2013
GTI-05 OT 1Q2014	1	2014	1	2014
GTI-06 (EXE) 1Q2015	2	2015	2	2015
GTI-06 (INT) 3Q2014	4	2014	4	2014
GTX-04d	1	2011	1	2011
GTX-04e	3	2011	3	2011
GTX-05a 4Q2012	4	2012	4	2012
GTX-05b 1Q2013	1	2013	1	2013
GTX-06a 3Q2013	3	2013	3	2013
GTX-06b 4Q2013	4	2013	4	2013
GTX-06c 2Q2014	2	2014	2	2014
I-SIM v10.0 2Q2014	2	2014	2	2014
I-SIM v11.0 2Q2015	2	2015	2	2015
I-SIM v7.0 2Q2011	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
I-SIM v8.0 2Q2012	2	2012	2	2012
I-SIM v9.0 2Q2013	2	2013	2	2013
Multi-National Missile Defense Conference WG 4Q2011	4	2011	4	2011
Multi-National Missile Defense Conference WG 4Q2012	4	2012	4	2012
Multi-National Missile Defense Conference WG 4Q2013	4	2013	4	2013
Multi-National Missile Defense Conference WG 4Q2014	4	2014	4	2014
Multi-National Missile Defense Conference WG 4Q2015	4	2015	4	2015
Nat`l MD Conference WG 2Q2011	2	2011	2	2011
Nat`l MD Conference WG 2Q2012	2	2012	2	2012
Nat`l MD Conference WG 2Q2013	2	2013	2	2013
Nat`l MD Conference WG 2Q2014	2	2014	2	2014
Nat`l MD Conference WG 2Q2015	2	2015	2	2015
OSF v1.0	3	2013	3	2013
OSF v2.0	3	2014	3	2014
OSF v3.0	3	2015	3	2015
Performance /Technical Assessment (PA/TA11)	4	2011	4	2011
Performance /Technical Assessment (PA/TA13)	4	2013	4	2013
Performance /Technical Assessment (PA/TA14)	4	2014	4	2014
Performance Assessment (PA12 - Epoch 1)	4	2012	4	2012
Performance Assessment (PA15 - Epoch 2)	4	2015	4	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD31: <i>Modeling & Simulation</i>
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Event	Start		End	
	Quarter	Year	Quarter	Year
Single Stimulation Framework v2.0	3	2012	3	2012
Single Stimulation Framework v3.0 (2nd HWIL string)	2	2013	2	2013
TMSS v10.0	1	2012	1	2012
TMSS v11.0	1	2011	1	2011
TMSS v12.0	1	2013	1	2013
TMSS v13.0	1	2014	1	2014
TMSS v14.0	1	2015	1	2015
TMSS v9.0	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			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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>					YX32: <i>Quality, Safety, and Mission Assurance</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
YX32: <i>Quality, Safety, and Mission Assurance</i>	24.674	31.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	55.683
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budgets structure, the content of the previously planned in Project YX32 for FY11-FY15 are now captured in Project MD32.

A. Mission Description and Budget Item Justification

The Missile Defense Agency (MDA) Quality, Safety, and Mission Assurance (QSMA) group provides to the Agency the expertise necessary to ensure the success of the Ballistic Missile Defense System (BMDS). The Agency Director has emphasized the significant role of quality and safety in mission success and the importance of protecting people from catastrophic accidents and failures.

Over the past few years, using the Ground based Midcourse Defense (GMD) launch aborts as an example, the QSMA team has made dramatic improvements that impact the BMDS, present and future. A combination of enforcing the MDA assurance provisions on all mission critical suppliers, and establishing an audit program revealed significant shortfalls that prompted the Director to action. The audit findings, direct unbiased weekly reports, and GBI failures formed the rational for establishing the Mission Readiness Task Force (MRTF).

QSMA has made several quality overhauls through rigorous audits. In the past two years, the audit process has become more rigorous resulting in more relevant audit findings and subsequent corrective actions. Audit results are tracked for several months culminating in process improvements, enhancing statistical controls, cultural changes, and best practices.

The QSMA culture espouses near and long term priorities and solutions for MDA. Since QSMA was established in 2002, proactive efforts have turned ideas into BMDS solutions. Currently, two quality and safety initiatives are contractual requirements for all programs. These initiatives, MDA Assurance Provisions, (MAP), Government MDA Assurance Provisions, (GMAP), and the Parts, Materials, and Process Mission Assurance Plan (PMAP) standardize the way MDA does business relative to

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Exhibit R-2A, RDT&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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX32: <i>Quality, Safety, and Mission Assurance</i>
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quality, safety, and mission assurance. Currently, 7 programs have placed the MAP on contract. Also, Raytheon uses the MAP as a corporate standard, not only for MDA but all their defense programs.

QSMA facilitated a unique government and industry partnership which salvaged the Eagle Picher Company, a critical sole source battery supplier for 5 major MDA programs. Timely intervention with disciplined quality and safety guidance was key to restoring Eagle Picher as a stable supplier. Moreover, test failures have decreased, on-time deliveries have increased, and the supplier quality measurement rating increased greatly this year. Eagle Picher's successful turnaround prompted another government industry partnership to address the Pacific Scientific company in a similar situation. It also has embraced stakeholder involvement and is committed to resolving major issues. All indications show that Pacific Scientific is on the path to success.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Travel/PCS See Description Below <i>FY 2009 Accomplishments:</i> The FY09 planned program builds upon the previous year's development of expertise and closes the loop with BMDS processes such as risk management, non-conformance reporting, and Reliability, Maintainability, and Availability (RMA). Through QSMA administration of these processes QSMA is able to link as-built performance of the systems to systems engineering. This will ensure that the operational system further meets Agency requirements and that any anomalous behavior is documented, tracked, measured, and resolved. BMDS Independent Mission Assurance & Safety Assessments	24.674	31.009	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX32: <i>Quality, Safety, and Mission Assurance</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>Administer BMDS non-conformance, risk management, and Reliability, Maintainability, and Availability (RMA) process by providing the leadership and administrative resources necessary for ensuring effective operation and metric reporting.</p> <p>Conduct system analysis/assessments such as reliability prediction analysis, failure modes and effects criticality analysis, safety hazards analysis etc.</p> <p>Continue to perform independent mission assurance assessments on GMD, THAAD and Aegis test flight tests. By acquiring additional resources, increase system cognizance and provide greater depth in assessments.</p> <p>Continue independent assessments for significant ground flight tests. By acquiring additional resources, increase system cognizance and provide greater depth in assessments.</p> <p>Continue to provide Independent Readiness Review Team support by providing senior specialists.</p> <p>Manage the integrated MDA Software Metrics Program to provide information on the health of the BMDS to MDA management.</p> <p>Continue operating the BMDS Material and Failure Review Board to resolve significant Supplier non-conformances.</p> <p>Conduct independent Safety Assessments/Reviews of MDA programs and Elements to enhance BMDS safety</p> <p>Maintain the MDA Safety Review Board, MDA Range Safety Council and BMDS Safety Working Groups to ensure that all BMDS activities are conducted safely.</p> <p> Quality, Safety and Mission Assurance Audits</p> <p>Conduct up to 6 unannounced Agency large scale Mission Assurance audits to continue enhancement of quality in BMDS products.</p> <p>Perform 2 safety audits based on safety concerns</p> <p>Perform 2 post audit corrective action assessments as necessary to accelerate audit resolution.</p> <p>MDA Assurance Provisions (MAP) Implementation</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX32: <i>Quality, Safety, and Mission Assurance</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>Update MAP revision to address Lessons Learned, inputs from the Industry Specification Working Group, and to improve metric reporting throughout the Agency. Continue working with existing Programs Elements to get the MAP on contract and to track individual Program status.</p> <p>On-Site Support - Mission Assurance Representatives (MAR) & BMDS Safety Officers</p> <p>Expand on-site reporting to include engineers at key locations where design work occurs. Continue to increase on-site performance through further development of cognizant engineer data books aimed at improving the MARs systems engineering awareness. Expand BMDS Safety Officer Program by adding engineers to aid the 24/7 team in ensuring that the BMDS is operated safely when in test or operational modes. Engineering support shall provide greater knowledge of fire control loop. Provide further refinement in the end-of-week processing by metric processing on Quality Issues Tracking System. Manage the MDA BMDS Safety Officer Program to ensure that the BMDS is operated safely when in test or operational modes. Maintain and coordinate safety career training program. Continue performing weekly mission assurance and safety walk-downs. Using Supplier metrics, continue to pursue process improvements.</p> <p>MDA Parts and Materials Program</p> <p>Continue to provide technical support via the Center of Excellence (COE) to address Program Element and Supplier part and material issues arising from the Agency Part, Material, and Processes Board (PMPB); and the Program Element Parts, Materials, and Processes Control Boards (PMPCB). Agency</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX32: <i>Quality, Safety, and Mission Assurance</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>Intra-Agency & Industry Activities</p> <p>Perform the next yearly major Supplier Initiative. Leveraging the cooperation of several prime Supplier contracts, create a task force to address quality concerns associated with a particular supplier. Specification and Standards Working Group for Industry acceptance of core quality standards to be applied in Supplier contracts.</p> <p>Provide participation in the Defense Standardization Board to ensure that MDA has an equal voice in Continue the sharing of lessons learned with NASA, National Reconnaissance Office (NRO) and other DOD organizations.</p> <p>Maintain the Range Safety mediation, augmentation and commonality program.</p> <p>Safety and Occupational Health</p> <p>Continue management oversight of MDA safety policies and requirements addressed in DoD safety directives.</p> <p>Perform all required Occupational Safety and Health Inspections of MDA facilities</p> <p>Maintain MDA's Safety and Quality Concerns Hotline · Conduct required Federal and Department of Defense safety training</p> <p>Represent MDA at Office of Secretary of Defense (OSD) level safety meetings and task forces</p> <p>Ensure safety and occupational health involvement in facilities planning</p> <p>Prepare reports for MDA, DOD and other Federal safety presentations.</p> <p>Support quality, mission assurance, and safety audits and assessments.</p> <p>Proactively ensure a safe working environment for all MDA employees and operations through compliance and enforcement of OSHA (Occupational Safety and Health Administration) and DoD directives</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>		PROJECT YX32: <i>Quality, Safety, and Mission Assurance</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Conduct safety risk assessments per The Department of Defense Standards Practice for System Safety, of all test and operational systems to ensure catastrophic risks remain improbable. Provide non-advocate safety oversight /support to Agency key engineering and configuration management forums.</p> <p>Conduct system analysis/assessments such as reliability prediction analysis, failure modes and effects criticality analysis, safety hazards analysis etc., to lower flight and operational system risks. Maintain the MDA Safety Review Board, MDA Range Safety Council and BMDS Safety Working Groups to ensure that all BMDS activities are conducted safely. Quality, Safety and Mission.</p> <p>Mission Assurance</p> <p>Provide non-advocate independent mission assurance oversight/support to Agency key engineering and configuration management forums.</p> <p>Perform non-conformance reporting, tracking, and migration for all major flight and ground test Theater High Altitude Ariel Defense (THAAD), Ground Based Missile Defense (GMD) and Aegis operations. Perform independent mission assurance assessments on GMD, THAAD and Aegis test flight tests systems, including participation in requirement verification forums.</p> <p>Conduct system analysis/assessments such as reliability prediction analysis, failure modes and effects criticality analysis, safety hazards analysis etc., to lower flight and operational system risks. Continue supporting the BMDS Material and Failure Review Board to resolve significant Supplier non-conformances.</p> <p>Provide technical expertise in internal ``Top Level Decision`` technical meetings to identify and determine if a mission assurance/safety/quality subject is properly represented and/or needs to be elevated to the Director.</p> <p>Assurance Audits</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX32: <i>Quality, Safety, and Mission Assurance</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>Conduct no-knock full scale Mission Assurance audits (approx 40 people for 2 weeks), approximately corrective action assessments, and safety audits as necessary at key mission critical suppliers. Mission assurance audits identify Supplier deficiencies in design, test, manufacturing, quality and safety. These audits have generated over a thousand findings, holding the Program Offices and Suppliers accountable to resolve all issues. Accountability has been enhanced as these audits have played a significant role in the award fee process.</p> <p>Mission Assurance Representatives (MAR)</p> <p>These representatives perform government on-site quality and mission assurance support at 23 sites. The MARs ensure that MDA mission critical components / assemblies follow and employ MDA QSMA requirements and other best industry practices for design, test and manufacturing. They provide on-site, ``boots-on-the-ground``, technical expertise identify design and manufacturing process flaws early in the production cycle to facilitate a low cost resolution. MARs walk the production floor daily to address operational issues, meet with technical counterparts to address proper root-cause and resolution, and provide Supplier management direct access to MDA government to address Supplier concerns. By functioning as the Agency`s on-site ``eyes and ears`` the MARs effectively ensure Program Offices are acutely aware of Supplier issues.</p> <p>Perform weekly mission assurance and safety walk-downs with the Defense Contract Management Agency (DCMA). By working closely with DCMA quality counterparts, the MAR-DCMA team forms an effective force to resolve major issue.</p> <p>Increase on-site support performance through industry best practice training for solder workmanship, electrostatic sensitive device requirements, foreign object debris, etc.</p> <p>BMDS Safety Officers (BSOs)</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX32: <i>Quality, Safety, and Mission Assurance</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
• 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

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Exhibit R-2A, RDT&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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX32: <i>Quality, Safety, and Mission Assurance</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX32: <i>Quality, Safety, and Mission Assurance</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 execution of an effective Quality, Safety and Mission Assurance program is carried out in collaboration with subject matter expertise found in the Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), Science, Engineering and Technical Assistance (SETA), and Industry.

E. Performance Metrics

N/A

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX32: <i>Quality, Safety, and Mission Assurance</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			
Travel/PCS OGA Quality Surge Support & Core YX32	TBD/TBD	NSWC Corona CA, VA	3.150	3.100	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Travel/PCS Mission Assurance/Audits YX32	TBD/Various	SRS Tech VA, MD	1.500	10.526	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Travel/PCS OGA Crane PMP YX32	TBD/TBD	NSWC Crane IN, VA	2.350	1.716	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Travel/PCS S/W Acquisition YX32	TBD/TBD	Hill PA, VA	0.400	0.400	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Travel/PCS Pedigree, DCRs Review YX32	TBD/TBD	Aerospace, SEI PA, CA, VA	0.500	2.500	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Travel/PCS Parts & Material Expertise YX32	TBD/TBD	AMRDEC AL	0.800	1.615	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
	C/FFP	SRS	4.086	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX32: <i>Quality, Safety, and Mission Assurance</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			
Travel/PCS Safety & Quality Audits YX32		-											
Travel/PCS Govt Sept YX32	TBD/TBD	NSWC VA Beach VA	0.300	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Travel/PCS Parts Material Pro YX32	TBD/TBD	NSWC Crane IN, VA	2.378	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			15.464	19.857		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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT YX32: <i>Quality, Safety, and Mission Assurance</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			
Travel/PCS QS Civilian Salaries YX32	TBD/TBD	MDA VA,MD,AL,CA,AZ,HI,AK,MA,NJ,FL,AR,UT,MH	8,005	9,852	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Travel/PCS Travel/PCS YX32	TBD/ Various	MDA VA,MD,AL,CA,AZ,HI,AK,MA,NJ,FL,AR,UT,MH	1,205	1,300	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			9.210	11.152		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
	24.674	31.009		0.000	0.000	0.000		

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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD32: <i>Quality, Safety, and Mission Assurance</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
MD32: <i>Quality, Safety, and Mission Assurance</i>	0.000	0.000	32.881	0.000	32.881	33.094	30.326	30.885	31.219	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 budgets structure, the contents of the previously planned FY09-FY10 are in Project YX32.

A. Mission Description and Budget Item Justification

Provide Mission Assurance Representatives (MAR) which are ``boots on the ground`` and the ``Eyes and Ears`` for the MDA Director at government and contractor facilities. These are Government Mission Assurance and Quality experts provide oversight ranging from production work to the executive management. Conduct QS Mission Assurance Audits which are one of MDA`s most effective methods to effect change among the MDA contractors and suppliers. Focus on processes and procedures; audits performed on contractual requirements, internal requirements and industry best corrective action assessments. Provide Subject Master Experts that attend all technical reviews, i.e. Design, test, and mission readiness reviews, to ensure mission assurance principles, quality practices and procedures are implemented across the BMDS. Develop overarching quality guidance such as the MDA assurance Provisions (MAP) for MDA. Review vehicle pedigree documentation ensure all integration and testing rework and repair is performed within approved processes. Provide technical expertise in internal ``Top Level Decision`` technical meetings to identify and determine is a mission assurance/safety/quality subject is properly represented and /or needs to be elevated to the Director.

Quality

Provide on -site full up Quality Assurance coverage on all flight test to ensure mission success and all processes and procedures are adhere to, and no short cuts or deviations occur. Provide quality Subject Matter Experts that attend all technical reviews, i.e. Design, test and mission readiness reviews, to ensure quality practices and procedures are implemented across BMDS. Develop overarching quality requirement documentation such as the MAP for MDA. Ensures the integrity and standards are maintained on all system parts and processes through manufacturing and implementation. Provided quality for on-site formal recording and resolution of non-conformances and anomalies during test per MDA/BMDS requirement Initiate and lead on-site ``Joint Government and Industry Team`` field support and expertise to assist when critical sole source suppliers are failing. Team conducts stake holder initiatives to revamp sole source suppliers by assisting them in getting healthy and perform at ``world class`` level. Provide on-site full up Quality Assurance coverage on all ground test to ensure mission success and all processes and procedures are adhered to and no short cuts or deviations occur.

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Safety

Responsible for the Safety and Occupational Health for NCR, HSV, Ft. Greely, and VAFB. Responsible for ensuring the complete overall safety of workforce for Civilian, Contractor and Military personnel. Ensure overall System Safety. Verification and assurance that the BMDS system is safety compliant from design development through operational (software, mechanical design, and operations). Provide 24-7 On-site support to ensure operational safety of systems. Verify that all systems are functioning and tracking against actual verified targets and all associated processes and procedures are strictly followed.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Travel/PCS See Description Below <i>FY 2009 Accomplishments:</i> NA <i>FY 2010 Plans:</i> NA <i>FY 2011 Base Plans:</i> The FY11 planned Quality and Mission Assurance program maintains on-site quality, and mission assurance oversight at key suppliers, creates a consistent set of QSMA acquisition requirements for each new contract, provides safety and quality operations for flight tests, ruthlessly pursues root cause and correction of anomalies, and continues to infuse best industry practices into program supplier operations. With QS as a direct report to the Agency Director, it provides a non-advocate, independent perspective on Supplier and Agency operations across the Ballistic Missile Defense System. The planned Safety program maintains on-site safety oversight at key suppliers and government facilities, creates a consistent set of safety acquisition requirements for each new contract, provides safety operations for flight tests, ruthlessly pursues root cause and correction of anomalies and or discrepancies.	0.000	0.000	32.881	0.000	32.881

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Exhibit R-2A, RDT&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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD32: <i>Quality, Safety, and Mission Assurance</i>
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B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Conduct required Federal and Department of Defense safety training Represent MDA at Office of Secretary of Defense (OSD) level safety meetings and task forces. Prepare reports for MDA, DOD and other Federal institutions. Support quality, mission assurance, and safety audits and assessments. <i>FY 2011 OCO Plans:</i> NA					
Accomplishments/Planned Programs Subtotals	0.000	0.000	32.881	0.000	32.881

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
	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD32: <i>Quality, Safety, and Mission Assurance</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>
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>											
• 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 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD32: <i>Quality, Safety, and Mission Assurance</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.

The execution of an effective Quality, Safety and Mission Assurance program is carried out in collaboration with subject matter expertise found in the Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), Science, Engineering and Technical Assistance (SETA), and Industry.

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Exhibit R-2A, RDT&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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD32: <i>Quality, Safety, and Mission Assurance</i>

E. Performance Metrics

N/A

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD32: <i>Quality, Safety, and Mission Assurance</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			
Travel/PCS OGA Quality Surge Support & Core MD32	Various/ Various	NSWC CORONA CA, VA	0.000	0.000		3.100	Oct 2010	0.000		3.100	Continuing	Continuing	Continuing
Travel/PCS Mission Assurance/Audits MD32	C/FFP	TBD VA, MD	0.000	0.000		10.526	Oct 2010	0.000		10.526	Continuing	Continuing	Continuing
Travel/PCS OGA Crane PMP MD32	Various/ Various	NSWC Crane IN, VA	0.000	0.000		1.716	Oct 2010	0.000		1.716	Continuing	Continuing	Continuing
Travel/PCS S/W Acquisition MD32	Various/ Various	Hill PA, VA	0.000	0.000		0.400	Oct 2010	0.000		0.400	Continuing	Continuing	Continuing
Travel/PCS Pedigree, DCRs Review MD32	TBD/TBD	Aerospace, SEI PA, CA, VA	0.000	0.000		2.500	Oct 2010	0.000		2.500	Continuing	Continuing	Continuing
Travel/PCS Parts & Material Expertise MD32	Various/ Various	AMRDEC AL	0.000	0.000		1.615	Oct 2010	0.000		1.615	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		19.857		0.000		19.857			

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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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD32: <i>Quality, Safety, and Mission Assurance</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

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			
Travel/PCS QS Civilian Salaries MD32	TBD/TBD	MDA VA, MD, AI, CA, AZ, HI, AK.MA,	0.000	0.000		11.373	Jan 2011	0.000		11.373	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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	PROJECT MD32: <i>Quality, Safety, and Mission Assurance</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			
		NJ, FLM AR, UT, MH											
Travel/PCS Travel/PCS MD32	TBD/ Various	MDA VA, MD, AI, CA, AZ, HI, AK.MA, NJ, FLM AR, UT, MH	0.000	0.000		1.651	Oct 2010	0.000		1.651	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		13.024		0.000		13.024			

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	0.000	0.000		32.881		0.000		32.881			

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 0603890C: <i>Ballistic Missile Defense Enabling Programs</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>	15.256	13.569	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	28.825
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	15.256	13.569	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
FY 2011 OCO Plans: NA					
Accomplishments/Planned Programs Subtotals					
	15.256	13.569	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>
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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</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
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• 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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• 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 0603890C: <i>Ballistic Missile Defense Enabling Programs</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 0603890C: <i>Ballistic Missile Defense Enabling Programs</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	16.916	0.000	16.916	17.138	14.878	14.857	17.141	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	16.916	0.000	16.916

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Exhibit R-2A, RDT&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 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>				PROJECT MD40: <i>Program-Wide Support</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												
Accomplishments/Planned Programs Subtotals						0.000	0.000	16.916	0.000	16.916		
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	
• 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 0603890C: <i>Ballistic Missile Defense Enabling Programs</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>
• 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
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	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 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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• 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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