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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	355.870	402.769	373.563	-	373.563	331.203	314.193	336.749	346.560	Continuing	Continuing
YX24: <i>Systems Engineering & Integration</i>	94.785	-	-	-	-	-	-	-	-	0.000	94.785
MD24: <i>System Engineering & Integration</i>	-	124.040	133.890	-	133.890	97.521	101.666	111.826	112.062	Continuing	Continuing
YX28: <i>Intelligence & Security</i>	20.024	-	-	-	-	-	-	-	-	0.000	20.024
MD28: <i>Intelligence & Security</i>	-	15.905	18.865	-	18.865	16.773	15.627	15.226	16.195	Continuing	Continuing
YX29: <i>Producibility and Manufacturing Technology</i>	41.619	-	-	-	-	-	-	-	-	0.000	41.619
MD29: <i>Producibility & Manufacturing Technology</i>	-	36.575	-	-	-	-	-	-	-	0.000	36.575
YX30: <i>BMD Information Management Systems</i>	109.324	-	-	-	-	-	-	-	-	0.000	109.324
MD30: <i>BMD Information Management Systems</i>	-	111.829	116.508	-	116.508	112.919	96.783	105.018	109.678	Continuing	Continuing
YX31: <i>Modeling & Simulation</i>	47.478	-	-	-	-	-	-	-	-	0.000	47.478
MD31: <i>Modeling & Simulation</i>	-	64.623	56.617	-	56.617	59.393	57.473	62.187	63.775	Continuing	Continuing
YX32: <i>Quality, Safety, and Mission Assurance</i>	29.184	-	-	-	-	-	-	-	-	0.000	29.184
MD32: <i>Quality, Safety, and Mission Assurance</i>	-	32.881	33.045	-	33.045	30.725	28.548	28.091	30.078	Continuing	Continuing
ZX40: <i>Program-Wide Support</i>	13.456	-	-	-	-	-	-	-	-	0.000	13.456
MD40: <i>Program-Wide Support</i>	-	16.916	14.638	-	14.638	13.872	14.096	14.401	14.772	Continuing	Continuing

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 2010 are now captured in Projects MD24, MD28, MD29, MD30, MD31, and MD32 for FY2011-FY2016.

 Beginning in FY 2012, funding from MD29 was transferred to the SM-3 Block IIB Program Element (0603902C).

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For FY 2011-FY 2016, Ballistic Missile Defense Capability Assessment (BCA) portion of the Integrated Master Test Plan (IMTP) was transferred from Test and Targets (MD04) to Systems Engineering & Integration (MD24).

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense (BMD) System Enabling Programs provide the Missile Defense Agency with the critical processes needed to integrate element missile defense systems into a layered BMDS providing the capability required by BMD Review, while improving protection performance with increased defended area, and minimizing force structure costs. The Enabling Programs, embedded within a single Program Element, independently evaluate the integrated BMD System methodology, threat, manufacturing maturity, technical safeguards, and mission assurance effectiveness while simultaneously assessing whether the System is proficient at maintaining its integrity and superiority with advances in technology development.

The MDA Enabling Programs are:

- (YX 24 & MD24) Systems Engineering and Integration - Systems Engineering and Integration leads the integration of the BMD System using Element and Component capabilities to provide the Warfighter with the ability to defend the United States and its friends and allies from ballistic missile attacks. Systems Engineering defines and develops integrated BMD System capability improvements such as Aegis Ashore through BMD level control of system requirements, and allocates those requirements to the Element and Component levels most capable of supporting intercepts in a particular Phased Adaptive Approach phase.
- (YX31 & MD31) Modeling and Simulation - As missile defense technologies continually advance and the threat changes, Modeling and Simulation develops system-level models, simulations, and environments, then evaluates performance of the Elements, Components, and overall BMD System.
- (YX 29 & MD29) Producibility and Manufacturing Technology - Producibility and Manufacturing provides technical 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.
- (YX32 & MD32) Quality, Safety, and Mission Assurance - Quality, Safety, and Mission Assurance has the distinct management role of improving quality, safety, and mission assurance throughout the product life cycle of design, manufacturing, test and system operation, in order to achieve a safe and reliable BMD System.
- (YX28 & MD28) Intelligence and Security - 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 performance predictions. Security is also provided as an Enabling Program to apply the same level of system capability protection across the entire BMDS.
- (YX30 & MD30) Information Management Systems - Information Management is vital to the efficient operation and safeguarding of all information, from development to fielding new BMDS capabilities.

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B. Program Change Summary (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	358.751	402.769	468.673	-	468.673
Current President's Budget	355.870	402.769	373.563	-	373.563
Total Adjustments	-2.881	-	-95.110	-	-95.110
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	4.490	-			
• SBIR/STTR Transfer	-6.851	-			
• Other Adjustment Detail	-0.520	-	-95.110	-	-95.110

Change Summary Explanation

The FY 2012 \$95.110 million dollar decrease in this program element is the result of the Propulsion Technology content and associated funding moving to the Standard Missile-3 Block IIB PE 0603902C, \$21.924 million in efficiency savings and MDA programmatic changes.

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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>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
<i>YX24: Systems Engineering & Integration</i>	94.785	-	-	-	-	-	-	-	-	0.000	94.785
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project YX24 transferred to Project MD24 in FY 2011.

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

	FY 2010	FY 2011	FY 2012
Title: See Project MD24 for FY 2010 Accomplishments			
Articles:	94.785 0	-	-
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	94.785	-	-

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

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD24: <i>System Engineering & Integration</i>	-	124.040	133.890	-	133.890	97.521	101.666	111.826	112.062	Continuing	Continuing
Quantity of RDT&E Articles	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 2010 is now captured in Project MD24 for FY 2011 - FY 2016.

For FY 2011 - FY 2016, the Ballistic Missile Defense System (BMDS) Capability Assessment (BCA) portion of the 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 (SE&I) continues to develop and improve the integrated Ballistic Missile Defense System architectures, engineer major improvements to regional Ballistic Missile Defense capabilities, and provide system improvements that enable earlier Ballistic Missile Defense engagements. SE&I develops technical roadmaps, knowledge points, and capability trades at the Ballistic Missile Defense System level to balance integration and improvement efforts. The SE&I workforce, including Industry and Contractor Support Services (CSS), also provides analysis, decision-making and planning activities for real-world operations to the 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. Systems Engineering and Integration is the single team that applies its technical expertise, tools, and facilities across many disciplines and specialties to lead the collaborative effort to define, design, test and integrate the Ballistic Missile Defense System. System Engineering and Integration (SE&I) Major Program Goals:

- Develop, design, test and integrate the layered Ballistic Missile Defense System and improve Ballistic Missile Defense performance
- Develop a four-Phased Adaptive Approach architecture to respond to the rapid proliferation of short and medium range ballistic missiles, provide a more effective missile defense capability for North Atlantic Treaty Organization territories and enhance U.S. homeland defense.
- Develop the Ballistic Missile Defense System functional and performance requirements for the Phased Adaptive Approach
- Document the functional and performance requirements for the Phased Adaptive Approach in a Future Systems Capability document and Capability Planning Specifications
- Provide system-level support to the Elements for definition, design, and integration of the Ballistic Missile Defense System capabilities
- Provide technical direction to Element and Component developers
- Produce controlling specifications and analysis to drive the Ballistic Missile Defense System design
- Establish and enforce design and construction standards
- Lead collaborative and cross-Element and cross-Component engineering

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<p>Verify and Assess through testing and Ballistic Missile Defense System performance and capabilities</p> <ul style="list-style-type: none"> -Develop Ballistic Missile Defense System Performance Assessment parameters -Identify the Critical Engagement Conditions and data required to develop the test campaigns that will demonstrate regional defense performance, and verify and assess the capability of each Phased Adaptive Approach -Define the test objectives necessary to anchor Ballistic Missile Defense System-level models and simulations -Monitor ground and flight test execution and identify Ballistic Missile Defense System issues -Identify Ballistic Missile Defense System capabilities and limitations <p>Analyze Architecture Alternatives and New Technologies</p> <ul style="list-style-type: none"> -Provide detailed analysis to support MDA leadership and US policy decisions -Pursue architecture alternatives that are complementary to and interoperable with North Atlantic Treaty Organization systems and other theaters around the world; more adaptable and flexible to counter threat advances; and that provide increased defended areas over time -Develop architecture frameworks and operational concepts for emerging capabilities -Establish technical roadmaps for future defense capabilities -Leverage recent advances in sensor and interceptor technologies to aggressively counter growing regional threats with a more powerful and agile system -Evaluate mature capabilities using Engineering and Manufacturing Readiness Level assessments to analyze risks in advance of manufacturing processes -Develop anti-tamper approaches to enable international fielding of the Ballistic Missile Defense System <p>Products: Fundamental to the System Engineering and Integration (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 to update system design and interface requirements; integration plans and schedules; test objectives that include the collection of data needed to anchor the system representative models and simulations, assessment through ground and flight test results and fielding plans. Ballistic Missile Defense Systems Engineering provides significant and thorough guidance through the Ballistic Missile Defense System Description Document (BMD SDD) and Ballistic Missile Defense System Specifications (BMD SS) for Elements to design, build, and integrate the Ballistic Missile Defense System. The Ballistic Missile Defense System Interface Control Documents (SICDs), the Capability Assessment Plan (CAP), the Modeling and Simulation Master Plan (MSMP), and the Master Integration Plan (MIP) provide additional guidance to the Ballistic Missile Defense System Elements and Components. A brief description of some of the remaining, yet equally essential, System Engineering products follows:</p> <ul style="list-style-type: none"> -Capability Needs Document (CND) - describes the future capability requirements at a high level -Achievable Capabilities List (ACL) - a determination based on technology maturity, affordability, and emerging threat assessments of what capabilities desired by the Warfighter are achievable -Adversary Capabilities Document (ACD) - provides an engineering threat reference that details overall feasible threat space and representative Systems, including countermeasures -Analysis Guidance Document (AGD) - sets common analysis scenarios for system/Element/Component assessments and evaluations 		

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<p>-Future System Capability Document (FSCD) - documents the functional and performance objectives for future capabilities</p> <p>-Capability Planning Specification (CPS) - documents the preliminary requirements for new programs and specific upgrades for the BMD 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>-Element/Component Characterizations for Analysis (E/CCA) - a database of Element, Component, and 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: System Engineering and Integration`s disciplined engineering process consists of setting technical objectives and goals, understanding the threat, exploring alternative system design concepts, performing design trades to update the Ballistic Missile Defense System Specification, implementing the updated requirements, verifying that the specified design is properly built, integrated and fielded, and then assessing how well the system meets performance goals. This process occurs in a collaborative 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 Single Acquisition Master Plan (SAMP).</p> <p>The system engineering process defines required system-wide behavior, validates Element system designs, and assesses and verifies system capabilities in 5 stages: 1) Future concepts and planning; 2) Requirements and Design; 3) Integrated Master Test Plan Engineering; 4) Integration; and 5) Verification and Assessment. Additional engineering efforts which cross multiple stages of the system engineering process include the Countermeasures/Counter-countermeasures (CM/CCM), Threat Systems Engineering, Engineering Analysis and Quick Response Team, and Anti-Tamper and Engineering Manufacturing Readiness Levels Development programs.</p> <p>The Ballistic Missile Defense System Future Concepts directorate conducts the first step stage of the System Engineering and Integration 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 engineering process.</p> <p>The Design and Specification directorate performs the second step of the engineering process using data developed during the planning process and collaborates with the Ballistic Missile Defense System Element and Component engineers to develop functional performance, interface, and design suitability requirements. Using standard, commercially available system engineering tools, Design and Specification develops, defines, and specifies the detailed Ballistic Missile Defense System design. Design and Specification activities culminate in System/Subsystem Requirements Reviews to ensure correct technical execution and understanding needed to realize the Phased Adaptive Approach (PAA) and increase the flexibility and effectiveness of the Ballistic Missile Defense System.</p> <p>Integration and Assessment conducts the third, fourth, and fifth stages of the Systems Engineering and Integration (SE&I) process to prove that Missile Defense works: 3) horizontal integration of software and hardware; 4) test integration, verification and model validation; and 5) operational assessments with the Warfighter to facilitate fielding. However, Integration and Assessment is involved in a coordinating role during the first two phases of SE&I, of formulating how the Elements and Components of the BMDS will be delivered and integrated for testing and capability delivery.</p>		

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<p>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. Systems Engineering and Integration (SE&I) builds a time-phased Master Integration Plan that defines integration phases for incremental Ballistic Missile Defense System capabilities and allocates to those integration phases the functionality and performance requirements captured in the Ballistic Missile Defense System Description Document and Ballistic Missile Defense System Specification. These bundled sets of capabilities, along with their associated model data validation requirements, form the basis of the required test program in the Integrated Master Test Plan and Ballistic Missile Defense System Level Testing. Horizontal integration includes participation in Element level design reviews to ensure Ballistic Missile Defense System specifications are being properly implemented.</p> <p>During test integration, verification, and model validation, engineering studies and analyses enable the allocation of test requirements to individual test events, design of test architectures, definition of target requirements, and generation of appropriate scenarios for ground and flight tests, in order to collect the required model validation data. Along with the support of the Director of Operational Test and Evaluation (DOT&E), System Engineering and Integration works with the Services' Operational Test Agencies (OTA) to incorporate operational test requirements under development to ensure the incremental capability being transferred to the Warfighter will be operationally effective, suitable, and survivable. System Engineering and Integration participates in test failure review boards, identifies shortfalls in data collection, and reallocates objectives to future test events until all identified model validation data is collected. Suitability data is collected through the Joint Reliability and Maintainability Engineering Team (JRMET) and quarterly data scoring boards with the Elements, to Warfighter commanders and increases the confidence levels in the predicted performance of the Ballistic Missile Defense System.</p> <p>Finally, System Engineering and Integration 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 (SEAR) summarizing the verification and assessment activities. This assessment activity links the Warfighter community and the Systems Engineering team, and provides sustaining engineering and analysis for configuration management, operations, and sustainment of Ballistic Missile Defense System capabilities. A permanent on-site presence in the Warfighter Support Center provides the Joint Functional Component Command-Integrated Missile Defense (JFCC-IMD) quick responses to Ballistic Missile Defense System operational capability questions. Additionally, Warfighter requested changes and modifications to the designed system are facilitated through the Prioritized Capabilities List, Modification and Fielding Request Lists, and the Warfighter Involvement Process, which is linked through Systems Engineering & Integration.</p> <p>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. 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 Red Team, an external organization funded by MDA that develops countermeasures based solely on information obtained from public domain sources.</p>		

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APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	MD24: <i>System Engineering & Integration</i>

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 (BMDS) against the projected adversary capabilities and conceptual countermeasures; identified and characterized counter-countermeasure options to mitigate Ballistic Missile Defense System (BMDS) risks posed by these adversary capabilities and countermeasures, and performed the system-level engineering required to identify the Ballistic Missile Defense System (BMDS) baseline changes to implement and integrate the options into the operational system baseline. The White Team, an team of senior experts, reviewed the adversary capabilities and conceptual countermeasures posed by the Black Team and risk assessments and mitigation approaches presented by the Blue Team; presented 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.

The Threat Systems Engineering team specifies adversary missile capabilities, defines parametric threat space, develops real world test scenarios, establishes system level and common and consistent threat data to support all five stages of the system engineering process, and provides threat input to key system engineering products such as the Ballistic Missile Defense System Description Document, System Specification, and the Integrated Master Test Plan. Threat Systems Engineering incorporates adversary missile capabilities and characterizations in the Adversary Data Packages (ADP) that drives Ballistic Missile Defense System design and analysis, ground tests, flight tests, digital simulations, and pre-mission analysis activities. Threat Systems engineering products directly support the Phased Adaptive Approach (PAA) and International Cooperative Programs such as the enhanced Israeli Interceptor program, US-Japan Cooperative Program, and other North Atlantic Treaty Organization cooperative programs.

The Engineering Analysis and Quick Response Team provides 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. The team produces analyses for each stage of the systems engineering process, provides the technical basis and rationale for developing and balancing the integrated, layered Ballistic Missile Defense System, as well as performance predictions for each phase of the Phased Adaptive Approach.

The BMDS Engineering Technology Protection and Standards consists of three individual programs: Ballistic Missile Defense System, Anti-Tamper, and Engineering Manufacturing Readiness Levels (EMRLs). 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. Robust Anti-Tamper solutions support coalition warfare and extend the effective operational life of the Ballistic Missile Defense System. 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.

BMDS Level Testing: In conjunction with the Director for Test, the Director for Engineering supplies test objectives that define the basic test development and ensure BMDS requirements are being met by the BMD System under test. Systems Engineering plays a key role in Ballistic Missile Defense test design and development through definition and tracking of the Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs), as documented in the Integrated Master Test Plan (IMTP). The CECs and EMEs ensure that the design of the BMDS test includes data collection to show proper system operation; they also provide validation, verification, and assessment data for the digital models and simulations used to predict Ballistic Missile Defense System performance. These models, along with the rigorous test and verification process, will inform fielding decisions and operations.

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System Pre- and Post-Flight Reconstruction: System Engineering and Integration (SE&I) supports 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 confidence in Flight Test execution by predicting element performance and exercising element interfaces. This work also ensures the flight test will collect the required data (including CECs and EMEs) and the data management plan will support System Post-Flight Reconstruction (SPFR) objectives. System Post-Flight Reconstruction uses a hardware-in-the-loop (HWIL) and/or a Digital Modeling and Simulation Environment to replicate the day of flight for the Ballistic Missile Defense System configuration, including the actual environmental conditions and target dynamics observed in the test. The results of this process increase confidence in the models and simulations by anchoring the results to the real world event, with emphasis on the Critical Engagement Conditions and Empirical Measurement Events. System Post-Flight Reconstruction is used for validation (anchoring) of models and simulations.

Interdependencies: Integrated ballistic missile defense capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide the most accurate track of enemy ballistic missile threats that may cross regions and fly higher and faster, as well as a more diverse and effective set of weapons and sensors for the Combatant Commander to defeat the attack; all connected by a unifying Command and Control Battle Management and Communications (C2BMC). Integrated Ballistic Missile Defense capabilities can result in an effort funded in one Program Element being critical to the success of efforts in other Program Elements. Such results are referred to as interdependencies. Throughout the budget justification material, System Engineering's interdependencies with the MDA directorates and the Ballistic Missile Defense System Elements and Components are highlighted in order to explain fully the relationship between different parts of the proposed program.

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

	FY 2010	FY 2011	FY 2012
<p>Title: Future Concepts and Planning</p> <p style="text-align: right;">Articles:</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for FY 2010 accomplishments is reported in prior year Budget Project YX24 (\$5,254)</p> <ul style="list-style-type: none"> -Provided updates to the Ballistic Missile Defense (BMD) System Description Document (SDD) for new capabilities, including the Phased Adaptive Approach (PAA) -Developed and updated Capability Needs Documents (CNDs) for the Phased Adaptive Approach -Developed and updated Capability Planning Specifications (CPSs) for the Phased Adaptive Approach -Drafted Future System Concepts Document -Conducted three System Concept Reviews (SCRs) for Phased Adaptive Approach -Maintained the Systems Engineering Plan -Executed approved Agency Lethality Plan -Updated Technical Objectives and Goals (TOG) measurement standards -Provided first principle Verification and Validation Plan for first principle code Virtual Data 	<p>-</p> <p>0</p>	<p>11.754</p> <p>0</p>	<p>8.033</p> <p>0</p>

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011
<p>-Developed and executed full scale United States/United Kingdom (US/UK) Numerical Test Bed benchmark tests</p> <p>FY 2011 Plans:</p> <p>-Complete the future capability System Concept review (Part 3) refining the baseline for the future BMDS architecture and the allocation of functional and performance requirements</p> <p>-Conduct analyses and support analysis of alternatives for Precision Tracking Space System, Standard Missile 3 Block IIB, and Airborne Infrared planning</p> <p>-Update the Future Systems Capability Document based on results of ongoing trade studies and architectural balancing activities</p> <p>-Update the Capability Planning specifications for Precision Tracking Space System (PTSS) and the future Command and Control, Battle Management, and Communications (C2BMC) Components</p> <p>-Support the execution of the Aegis Weapon System 5.1 BMD Standard Missile-3 (SM-3) Block IIA System Requirements Review</p> <p>-Conduct joint United States/United Kingdom virtual debris data benchmark testing that provides unique, threat representative, data points crucial in anchoring first principle and fast running debris prediction codes</p> <p>-Conduct two sub-scale virtual debris data benchmark tests against non-reentry vehicle objects</p> <p>-Complete work to add uncertainty estimation to virtual debris data predictions</p> <p>-Add ability to predict small debris to increase accuracy and fidelity of radar debris scene modeling</p> <p>-Provide 50+ virtual debris data sets to fill debris modeling data gaps</p> <p>-Assess and add emerging threats to Missile Defense Agency lethality prediction models</p> <p>-Support the North Atlantic Treaty Organization Consequence of Intercept Analysis team (COIAT) with intercept consequence technical analysis</p> <p>-Maintain the Ballistic Missile Defense System (BMDS) System Engineering Plan ensuring synchronization of Element System Engineering Plans with the document</p> <p>FY 2012 Plans:</p> <p>-Update the concept capability documentation based on results of ongoing trade studies and technology development experiments</p> <p>-Refine the Capability Planning specifications for Precision Tracking Space System (PTSS) and the future C2BMC components</p> <p>-Support technology development reviews for Precision Tracking Space System (PTSS), and Standard Missile-3 (SM-3) Block IIB and ABIR in support of follow on development efforts.</p> <p>-Develop the Capability Planning Specification for the Aegis 5.x weapon system & the Standard Missile 3 (SM-3) Block IIB</p> <p>-Produce an updated Ballistic Missile Defense System Lethality Program Plan to encompass lethality assessment, collateral effects and consequences</p> <p>-Assess and add emerging threats to Missile Defense Agency lethality prediction models</p>			

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p>-Support Defense Threat Reduction Agency (DTRA)/Missile Defense Agency efforts to provide consequence model predictive capabilities</p> <p>-Maintain the System Engineering Plan ensuring synchronization of Element System Engineering Plans with the System document</p> <p>Title: Countermeasures/Counter-Countermeasures (CM/CCM)</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for FY 2010 accomplishments is reported in prior year Budget Project YX24 (\$1,785)</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 kill vehicles and Forward-Based Radars (FBRs).</p> <p>-Completed study on the lethality of kill vehicles and potential advanced discrimination techniques to improve Ballistic Missile Defense System (BMDS) lethality</p> <p>FY 2011 Plans:</p> <p>-Initiate the characterization of the Ballistic Missile Defense System architecture and elements assessed to be employed in the defense of Europe from ballistic missile attack based solely on open sources of information, basic scientific principles, and engineering judgment</p> <p>-Define three generic threat systems that may be encountered in a defense of Europe</p> <p>-Assess the European defense architecture for potential weaknesses and vulnerabilities</p> <p>-Initiate development of conceptual countermeasures to exploit assessed weaknesses</p> <p>-Initiate assessment of Ballistic Missile Defense System capabilities in regional engagement scenarios against short to intermediate range adversary ballistic missiles</p>		-	1.000	-
		0	0	-
		-	26.843	30.653
		0	0	0
<p>Title: Requirements and Design</p> <p>Description: See Description Below</p>				

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2010
<p><i>FY 2010 Accomplishments:</i> Funding for FY 2010 accomplishments is reported in prior year Budget Project YX24 (\$21,505)</p> <ul style="list-style-type: none"> -Supported System Design Reviews following Element Preliminary Design Reviews to determine the maturity of the technical baseline and plans for integration, test and verification prior to execution -Performed technical evaluation of emerging adversary characteristics to be included within future Adversary Data Packages (ADPs) -Developed revised Ballistic Missile Defense System Specification Document, and Ballistic Missile Defense System Interface Control Documents to document content approved for design initiation or refinement and integration into the Ballistic Missile Defense System (BMDS) and concepts demonstrating the most potential for improving Ballistic Missile Defense System (BMDS) effectiveness and integrated them into Ballistic Missile Defense System (BMDS) program planning -Conducted engineering analyses and performed trade studies for system design and implementation products to include Ballistic Missile Defense System Interface Control Documents -Provided updated requirements traceability and certification guidance and conducted detailed System/Element requirements reconciliation to resolve technical disconnects and ensured common requirements understanding and intent <p><i>FY 2011 Plans:</i></p> <ul style="list-style-type: none"> -Conduct Engineering Reviews for MDA Engineering: -Conduct Ballistic Missile Defense System/Subsystem Design Reviews following Element Requirement Reviews to assess the maturity of the technical baseline at both the System and Subsystem levels, as well as the plans for integration, test and verification prior to execution -Continue technical evaluation of emerging adversary characteristics to be included within future Adversary Data Packages (ADP) -Develop updates to the Ballistic Missile Defense System Description Document, Ballistic Missile Defense System Specifications, and Ballistic Missile Defense System Interface Control Documents to document integrated system build content approved for design, development and integration -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 -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><i>FY 2012 Plans:</i></p> <ul style="list-style-type: none"> -Conduct Engineering Reviews for MDA Engineering, which include new Phased Adaptive Approach capabilities: 			
			FY 2011
			FY 2012

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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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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
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<ul style="list-style-type: none"> -Conduct Ballistic Missile Defense System/Subsystem Design Reviews following Element Requirement Reviews to assess the maturity of the technical baseline at both the System and Subsystem levels, as well as the plans for integration, test and verification prior to execution -Ensure requirements for the new Phased Adaptive Approach capabilities are adequately addressed -Continue technical evaluation of emerging adversary characteristics to be included within future Adversary Data Packages -Develop updates to the Ballistic Missile Defense System Description Document, Ballistic Missile Defense System Specification, and Ballistic Missile Defense System Interface Control Documents to document integrated system build content approved for design, development and integration, including new Phased Adaptive Approach capabilities (e.g., Phase III and IV documentation in the Ballistic Missile Defense System Description Document) -Conduct engineering analyses and perform trade studies for system design and development products, including the Ballistic Missile Defense System Specification and Ballistic Missile Defense System Interface Control Documents -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 			
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Title: IMTP Engineering, Integration, Verification and Assessment	-	23.173	22.265
Articles:	0	0	0

Description: See Description Below

FY 2010 Accomplishments:

Funding for FY 2010 accomplishments is reported in prior year Budget Project YX24 (\$22,801)

- 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 delivery of Ballistic Missile Defense System content, and the Planning Allocation Matrix (PAM) tool to enable 2010-2015 integration, test, and assessment and verification activities. The Master Integration Plan defines the 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
- Assessed test risks and tracked and resolved anomalies occurring in ground testing in order to reduce flight test risks
- Provided engineering inputs for Integrated Master Test Plan (IMTP) updates
- Defined test objectives and provided scenario support for all system-level test events, including identification of Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs)

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p>-Defined and executed required performance assessments to provide information needed for Capability Delivery Readiness Reviews and incremental capability deliveries</p> <p>-Conducted integration, provided test execution support, and verified Phased Adaptive Approach (PAA) capabilities</p> <p>FY 2011 Plans:</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 test definition, 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 System Engineering and Integration, 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>-Provide monthly updates for Ballistic Missile Defense System verification status</p> <p>FY 2012 Plans:</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>-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>-Provide monthly updates for Ballistic Missile Defense System verification status</p> <p>-Conduct BMD System Critical Design Review to document requirements used for performance assessments of incremental deliveries.</p>				
Title: Systems Engineering, Engineering Analysis and Quick Response Team		-	28.024	43.328
		Articles: 0	0	0
Description: See Description Below				

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 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 Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p><i>FY 2010 Accomplishments:</i> Funding for FY 2010 accomplishments is reported in prior year Budget Project YX24 (\$20,296)</p> <ul style="list-style-type: none"> -Conducted system-level performance analyses to support the Ballistic Missile Defense System (BMDS) architecture and Systems Engineering -Developed expected BMD System performance for each Phased Adaptive Approach (PAA) stage as input to system architecture and design efforts -Updated Element/Component Characterizations for Analysis (E/CCA) to ensure consistent inputs for system performance predictions -Continued to maintain the Effectiveness Metrics Standard (EMS) necessary for systematic presentation of alternatives to MDA senior leadership and the Combatant Commanders (COCOMs) and Services -Provided engineering technical assessments in Ballistic Missile Defense System (BMDS) and Element programs to examine critical areas as designated by the MDA's Director for Engineering -Provided analysis and assessment support to the Combatant Commands to respond to Warfighter requests for analyses and requests for information -Conducted performance analyses to support MDA summer studies <p><i>FY 2011 Plans:</i></p> <ul style="list-style-type: none"> -Conduct system level performance analysis to support Ballistic Missile Defense System Architecture and Systems Engineering -Develop expected BMD System performance for each Phased Adaptive Approach phase as input to System architecture and design effort -Provide analysis in support of various BMD System Reviews -Update the Element/Component Characterizations for Analysis (E/CCA) with latest performance data to improve capability -Maintain the Effective Metrics Standard (EMS) necessary for systematic presentation of alternatives to MDA senior leaders and the Combatant Commanders -Provide engineering technical assessments in Ballistic Missile Defense System and Element programs to examine critical areas as designated by the Director for Engineering -Provide analysis and assessment support to the Combatant Commands to respond to Warfighter requests for analyses and requests for information <p><i>FY 2012 Plans:</i></p> <ul style="list-style-type: none"> -Conducts overall Systems Engineering and Integration program operations and management. -Conduct system level performance analysis to support Ballistic Missile Defense System Architecture and Systems Engineering 				

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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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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
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-Develop expected performance for each Phased Adaptive Approach phase as input to System architecture and design effort
 -Conduct technical analyses and provide engineering assessments of the Standard Missile 3 Block IIB
 -Update the Element/Component Characterizations for Analysis (E/CCA) with latest performance data to improve capability
 -Maintain the Effective Metric Standard (EMS) necessary for systematic presentation of alternatives to MDA senior leaders and the Combatant Commanders
 -Provide engineering technical assessments in Ballistic Missile Defense System and Element programs to examine critical areas as designated by the Director for Engineering
 -Provide analysis and assessment support to the Combatant Commands to respond to Warfighter requests for analyses and requests for information

Title: Threat Engineering	-	9.978	3.205
Articles:	0	0	0

Description: See Description Below

FY 2010 Accomplishments:

Funding for FY 2010 accomplishments is reported in prior year Budget Project YX24 (\$15,223)

-Maintained and updated the agency-wide common and consistent Ballistic Missile Defense System (BMDS) threat to provide data for future Ballistic Missile Defense System (BMDS) design, verification, and assessment
 -Continued to update adversary missile capabilities and characterizations consistent with projected threat environment for the Ballistic Missile Defense System (BMDS) Builds
 -Produced all the threat data required to enable Ballistic Missile Defense System (BMDS) System Ground Test (GT-03), FY-10 Ballistic Missile Defense System (BMDS) Performance Assessment (PA-04) and Technical Assessment-10 (TA-10), and Fiscal Year 2010 wargames and exercises as documented in the Ballistic Missile Defense System (BMDS) Integrated Master Test Plan (IMTP)
 -Produced scenario data for Element and Component design and assessment for Ballistic Missile Defense System (BMDS) Build-D updates, including all phases of the Phased Adaptive Approach (PAA)
 -Developed threat data for special projects
 -Validated that Ballistic Missile Defense System (BMDS) test targets for Joint Flight Test, Standard Missile-3 (JFTM-03), Flight Test, Ground-Based Interceptor-06 (FTG-06), and Flight Test, Terminal High Altitude Area Defense (THAAD) Interceptor-11/12 (FTT-11/12) are threat representative

FY 2011 Plans:

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<ul style="list-style-type: none"> -Develop a parametric threat space to support all phases of the BMDS Phased Adaptive Approach -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 Phased Adaptive Approach (PAA) -Produce all the threat data required to enable Ballistic Missile Defense System Ground Tests for Phased Adaptive Approach Phase-1, Flight Tests, Ballistic Missile Defense System Performance Assessment, war games and exercises as documented in the Ballistic Missile Defense System Integrated Master Test Plan -Produce parametric threat space and scenario data for Element and Component design and assessment for Ballistic Missile Defense System in accordance to the Phased Adaptive Approach -Develop threat data for special projects -Deliver analysis of threat representations of Ballistic Missile Defense System test targets, including analysis for Flight Test, Ground-Based Interceptor-06a (FTG-06a), Flight Test, Standard Missile-15 (FTM-15), and Flight Test, Terminal High Altitude Area Defense (THAAD)-24 (FTT-24) <p>FY 2012 Plans:</p> <ul style="list-style-type: none"> -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 Phased Adaptive Approach 				
<p>Title: Anti-Tamper and Engineering Manufacturing Readiness Levels Development</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for FY 2010 accomplishments is reported in prior year Budget Project YX29 (\$3,091)</p> <ul style="list-style-type: none"> -Evaluated software modification effort started in FY 2008 to determine its likely effectiveness against reverse engineering -Developed protective anti-tamper technologies focused on key management, authentication, and active-response (penalties) for the Ballistic Missile Defense System (BMDS) -Developed low/no power anti-tamper technologies to enable active response capabilities for the Ballistic Missile Defense System (BMDS) -Evaluated performance of multiple integrated anti-tamper technologies 		<p>Articles:</p> <p>-</p> <p>0</p>	<p>4.587</p> <p>0</p>	<p>6.521</p> <p>0</p>

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
<p>-Conducted assessments on anti-tamper technologies to evaluate likely effectiveness</p> <p>-Initiated transition plans and tailor above anti-tamper technologies for utilization on and protection of the Ballistic Missile Defense System (BMDS)</p> <p>-Worked with the Ballistic Missile Defense System (BMDS) to identify critical technologies and identify anti-tamper solutions</p> <p>FY 2011 Plans:</p> <p>-Evaluate software modification efforts to determine likely effectiveness against reverse engineering</p> <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>FY 2012 Plans:</p> <p>Anti-Tamper:</p> <p>-Evaluate software modification efforts to determine likely effectiveness against reverse engineering</p> <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>			

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
-Use Engineering and Manufacturing Readiness Levels to assess the maturity of Missile Defense Agency (MDA) development programs, and to report readiness for transition to production, in a standard format across all MDA Elements				
Title: Independent Technical Assessment		-	11.043	9.324
		Articles: 0	0	0
Description: See Description Below				
FY 2010 Accomplishments: Funding for FY 2010 accomplishments is reported in prior year Budget Project YX04 (\$4,830)				
-The Ballistic Missile Defense System Capability Assessment (BCA) Team performed independent analyses and assessments for the MDA Director, and for the MDA Director for Engineering. These assessments included Failure Investigations, system architecture studies, and test event data analysis.				
-The BCA Team conducted non-advocate assessments of Ballistic Missile Defense System (BMDS) capabilities and fielding readiness, including independent reviews of BMDS Test Incident Reports, evaluation of modeling and simulation status, and identification of unverified failures.				
-The Ballistic Missile Defense System Capability Assessment (BCA) Team identified mitigation approaches for system performance issues				
-The Ballistic Missile Defense System Capability Assessment (BCA) Team lead the Collaborative Analysis and Assessment Forum (CAAF) consisting of Users and Stakeholders (e.g., Operational Test Agency, Engineering Verification Team, and BCA Team) for the Performance Assessment digital simulation event. Produced an assessment of the system-level digital simulation model fidelity using flight test and post-flight reconstruction runs in Hardware-in-the-Loop.				
FY 2011 Plans:				
-Perform independent analyses and assessments for the MDA Director and MDA Director for Engineering including Failure Investigations, system architecture studies, and test event data analysis.				
-Conduct non-advocate assessments of the BMDS capabilities and limitations prior to capability delivery decisions to determine fielding readiness. These assessments include Defense of the Homeland, Defense of Israel and Theater/Regional BMD.				
-Conduct extensive, first-hand analysis of all data collected in BMD test events (digital, hardware-in-the-loop, and flight test). Analysis is key to developing understanding of BMD operations and performance.				
-Identify mitigation approaches for system performance issues uncovered during the course of analysis and assessment.				

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012	
<p>-Monitor the progress in improving digital simulation Performance Assessment events and produce an independent assessment of the validity of the models and simulations.</p> <p>-Produce independent assessments of each Capability Delivery for Terminal High Altitude Defense, Patriot, Aegis Ballistic Missile Defense (BMD), forward-based Army-Navy Transportable Radar Surveillance (AN/TPY-2) and Command, Control, Battle Management and Communications (C2BMC) in support of fielding readiness for Phased Adaptive Approach.</p> <p>FY 2012 Plans:</p> <p>-Conduct non-advocate assessments of the BMDS capabilities and limitations prior to capability delivery decisions to determine fielding readiness. These assessments include Defense of the Homeland, Phased Adaptive Approach (PAA), Defense of Israel and Theater/Regional BMD configurations (e.g., SITE B).</p> <p>-Perform independent analyses and assessments for the MDA Director and MDA Director for Engineering including investment prioritization, system architecture studies, design reviews, and failure investigations.</p> <p>-Monitor the development and recommend improvements to the digital simulation enterprise based on an evaluation of the validity of component-, Element- and System-level models (and frameworks) and participation in Performance Assessment and other digital Modeling and Simulation events.</p>					
<p>Title: Knowledge Centers</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for Knowledge Centers was not previously identified in FY10 (YX24).</p> <p>FY 2011 Plans:</p> <p>-Identified and mitigated BMDS element (C2BMC, Interceptor, Space, and Sensor) technical risks, and served as independent technical advisors to the BMDS program offices.</p> <p>-Provided independent review of BMDS Knowledge Point closure, and participated in Failure Review Boards as necessary.</p> <p>FY 2012 Plans:</p> <p>-Identify and mitigate BMDS element (C2BMC, Interceptor, Space, and Sensor) technical risks, and serve as independent technical advisors to BMDS program offices.</p> <p>-Provide independent review of BMDS Knowledge Point closure, and participate in Failure Review Boards as necessary.</p>		Articles:	- 0	7.638 0	9.443 0
<p>Title: Risk Management</p>		Articles:	- 0	- 0	1.118 0

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
<p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for Risk Management was not previously identified in FY10 (YX24)</p> <p>FY 2011 Plans: Funding for Risk Management was not previously identified in FY11 (MD24)</p> <p>FY 2012 Plans: -Review, approve and configuration manage program risks across the BMDS.</p>			
Accomplishments/Planned Programs Subtotals	-	124.040	133.890

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

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing

D. Acquisition Strategy

NA

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Future Concepts and Planning Industry MD24	C/CPAF	Boeing:VA	5.074	6.329	Oct 2010	4.326	Oct 2011	-		4.326	Continuing	Continuing	Continuing
Future Concepts and Planning CSS MD24	C/CPFF	Cobham:CA	2.859	2.027	Oct 2010	1.385	Oct 2011	-		1.385	Continuing	Continuing	Continuing
Future Concepts and Planning FFRDC/UARC MD24	MIPR	SNL:CA	0.579	0.363	Oct 2010	0.248	Oct 2011	-		0.248	Continuing	Continuing	Continuing
Future Concepts and Planning FFRDC/UARC MD24	MIPR	LLNL:CA	0.696	0.408	Oct 2010	0.279	Oct 2011	-		0.279	Continuing	Continuing	Continuing
Future Concepts and Planning CSS MD24	C/CPFF	CSC:VA	3.143	2.263	Oct 2010	1.546	Oct 2011	-		1.546	Continuing	Continuing	Continuing
Future Concepts and Planning Various MD24	MIPR	Various:Various	0.430	0.364	Oct 2010	0.249	Oct 2011	-		0.249	Continuing	Continuing	Continuing
Countermeasures/Counter-Countermeasures (CM/CCM) CSS MD24	C/CPFF	CSC:VA	0.548	0.265	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Countermeasures/Counter-Countermeasures (CM/CCM) CSS - 2009876285863 MD24	C/CPFF	Cobham:CA	0.548	0.133	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Countermeasures/Counter-Countermeasures (CM/CCM) FFRDC/UARC MD24	MIPR	IDA:VA	0.126	0.038	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Countermeasures/Counter-Countermeasures (CM/CCM) FFRDC/UARC - 2009876285872 MD24	MIPR	MIT-LL:MA	-	0.480	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
	C/CPFF	STS, LLC:VA	0.169	0.084	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Countermeasures/Counter-Countermeasures (CM/CCM) CSS MD24													
Countermeasures/Counter-Countermeasures (CM/CCM) Industry MD24	C/CPAF	Boeing:VA	0.716	-		-		-		-	Continuing	Continuing	Continuing
Requirements and Design Industry MD24	C/CPAF	Boeing:VA	15.970	15.125	Oct 2010	17.274	Oct 2011	-		17.274	Continuing	Continuing	Continuing
Requirements and Design CSS MD24	C/CPFF	CSC:VA	4.571	5.408	Oct 2010	6.174	Oct 2011	-		6.174	Continuing	Continuing	Continuing
Requirements and Design CSS - 2009876311542 MD24	C/CPFF	Cobham:CA	3.784	4.845	Oct 2010	5.532	Oct 2011	-		5.532	Continuing	Continuing	Continuing
Requirements and Design FFRDC/UARC MD24	MIPR	MIT/LL:MA	0.777	0.474	Oct 2010	0.542	Oct 2011	-		0.542	Continuing	Continuing	Continuing
Requirements and Design Other DoD MD24	MIPR	NSWC:IN	1.880	0.904	Oct 2010	1.032	Oct 2011	-		1.032	Continuing	Continuing	Continuing
Requirements and Design FFRDC/UARC MD24	MIPR	LLNL:CA	0.103	0.087	Oct 2010	0.099	Oct 2011	-		0.099	Continuing	Continuing	Continuing
Requirements and Design FFRDC/UARC - 20111166101531 MD24	MIPR	JHU-APL:VA	2.274	-		-		-		-	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment Industry MD24	C/CPAF	Boeing:VA	5.160	11.819	Oct 2010	15.371	Oct 2011	-		15.371	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment CSS MD24	C/CPFF	CSC:VA	2.528	4.403	Oct 2010	2.000	Oct 2011	-		2.000	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment CSS - 2009876330489 MD24	C/CPFF	Cobham:CA	2.731	3.939	Oct 2010	2.000	Oct 2011	-		2.000	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and	FFRDC	JHU APL:VA	0.903	2.086	Oct 2010	2.004	Oct 2011	-		2.004	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Assessment FFRDC/UARC - 2009876330497 MD24													
IMTP Engineering, Integration, Verification and Assessment FFRDC/UARC - 2009876330502 MD24	MIPR	MITRE:VA	0.201	0.463	Oct 2010	0.445	Oct 2011	-		0.445	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment FFRDC/UARC - 2009876330508 MD24	MIPR	SNL:CA	0.302	0.463	Oct 2010	0.445	Oct 2011	-		0.445	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment FFRDC MD24	MIPR	Aerospace:CA	0.405	-		-		-		-	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team Industry MD24	C/CPAF	Boeing:VA	5.081	21.299	Oct 2010	32.929	Oct 2011	-		32.929	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team CSS MD24	C/CPFF	CSC:VA	2.752	2.802	Oct 2010	4.333	Oct 2011	-		4.333	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team CSS - 2009876376622 MD24	C/CPFF	Cobham:CA	2.752	2.242	Oct 2010	3.466	Oct 2011	-		3.466	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team FFRDC/UARC MD24	MIPR	Aerospace:VA	0.487	-	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team FFRDC/UARC - 2009876376631 MD24	MIPR	MITRE:VA	1.207	1.681	Oct 2010	2.600	Oct 2011	-		2.600	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering, Engineering Analysis and Quick Response Team FFRDC/UARC - 2009876376636 MD24	FFRDC	JHU-APL:VA	0.767	-	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team FFRDC/UARC MD24	MIPR	MIT/LL:MA	0.434	-	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team FFRDC/UARC - 20107176282869 MD24	MIPR	LLNL:CA	0.293	-	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Threat Engineering CSS MD24	C/CPFF	CSC:VA	1.246	1.905	Oct 2010	0.612	Oct 2011	-		0.612	Continuing	Continuing	Continuing
Threat Engineering CSS - 2009876348723 MD24	C/CPFF	Cobham:CA	0.706	1.890	Oct 2010	0.607	Oct 2011	-		0.607	Continuing	Continuing	Continuing
Threat Engineering FFRDC/UARC MD24	FFRDC	JHU APL:VA	0.861	0.704	Oct 2010	0.226	Oct 2011	-		0.226	Continuing	Continuing	Continuing
Threat Engineering FFRDC/UARC - 2009876348731 MD24	MIPR	MIT-LL:MA	1.379	3.032	Oct 2010	0.974	Oct 2011	-		0.974	Continuing	Continuing	Continuing
Threat Engineering FFRDC/UARC - 2009876348736 MD24	MIPR	SNL:CA	1.448	2.030	Oct 2010	0.652	Oct 2011	-		0.652	Continuing	Continuing	Continuing
Threat Engineering FFRDC/UARC MD24	MIPR	LLNL:CA	0.448	0.417	Oct 2010	0.134	Oct 2011	-		0.134	Continuing	Continuing	Continuing
Threat Engineering CSS MD24	C/CPFF	Schafer:VA	3.389	-		-		-		-	Continuing	Continuing	Continuing
Threat Engineering Industry MD24	C/CPAF	Boeing:VA	2.783	-		-		-		-	Continuing	Continuing	Continuing
Anti-Tamper and Engineering Manufacturing Readiness	MIPR	NSWC Crane:IN	1.070	1.604	Oct 2010	2.280	Oct 2011	-		2.280	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Levels Development Anti-Tamper Support MD24													
Anti-Tamper and Engineering Manufacturing Readiness Levels Development CSS/Travel MD24	C/CPFF	DRC, Cobham:CA	1.531	0.561	Oct 2010	0.798	Oct 2011	-		0.798	Continuing	Continuing	Continuing
Anti-Tamper and Engineering Manufacturing Readiness Levels Development Commonality and Standards MD24	C/CPFF	DRAPER:MA	0.400	2.422	Oct 2010	3.443	Oct 2011	-		3.443	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC MD24	MIPR	Aerospace:CA	5.843	2.762	Oct 2010	2.331	Oct 2011	-		2.331	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC - 20091295307334 MD24	FFRDC	JHU APL:VA	2.200	1.546	Oct 2010	1.305	Oct 2011	-		1.305	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC - 20091295307338 MD24	FFRDC	Draper :MA	1.446	-		-	Oct 2011	-		-	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC - 20091295307342 MD24	MIPR	GTRI:GA	3.681	1.656	Oct 2010	1.399	Oct 2011	-		1.399	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC - 20091295307347 MD24	MIPR	JPL:CA	0.931	-		-	Oct 2011	-		-	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC - 20091295307352 MD24	MIPR	MIT/LL:MA	7.214	3.202	Oct 2010	2.704	Oct 2011	-		2.704	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC - 20091295307356 MD24	MIPR	MITRE:VA	4.243	1.877	Oct 2010	1.585	Oct 2011	-		1.585	Continuing	Continuing	Continuing
	MIPR	ORNL:TN	0.746	-		-	Oct 2011	-		-	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Independent Technical Assessment FFRDC/UARC - 20091295307359 MD24													
Independent Technical Assessment FFRDC/UARC - 20091295307364 MD24	MIPR	LLNL:CA	0.240	-		-	Oct 2011	-		-	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC MD24	MIPR	Aerospace:CA	-	1.912	Oct 2010	2.365	Oct 2011	-		2.365	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20111165433044 MD24	MIPR	MIT/LL:MA	-	1.050	Oct 2010	1.298	Oct 2011	-		1.298	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20111165433048 MD24	FFRDC	MITRE:VA	-	0.812	Oct 2010	1.004	Oct 2011	-		1.004	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20111165433055 MD24	FFRDC	JHU/APL:VA	-	0.967	Oct 2010	1.195	Oct 2011	-		1.195	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20111165433058 MD24	FFRDC	SDL:MA	-	0.096	Oct 2010	0.119	Oct 2011	-		0.119	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20111165433063 MD24	MIPR	Draper:MA	-	0.755	Oct 2010	0.933	Oct 2011	-		0.933	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20111165433067 MD24	MIPR	GTRI:GA	-	1.009	Oct 2010	1.247	Oct 2011	-		1.247	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20111165433072 MD24	MIPR	JPL:CA	-	0.490	Oct 2010	0.606	Oct 2011	-		0.606	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/UARC - 20111165433077 MD24	MIPR	ORNL:TN	-	0.382	Oct 2010	0.472	Oct 2011	-		0.472	Continuing	Continuing	Continuing
	MIPR	SEI:PA	-	0.064	Oct 2010	0.079	Oct 2011	-		0.079	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Knowledge Centers FFRDC/UARC - 2011116543308 MD24													
Knowledge Centers OGA MD24	MIPR	ARMDEC:AB	-	0.025	Oct 2010	0.031	Oct 2011	-		0.031	Continuing	Continuing	Continuing
Knowledge Centers Other MD24	MIPR	Northrop Grumman:VA	-	0.076	Oct 2010	0.094	Oct 2011	-		0.094	Continuing	Continuing	Continuing
Risk Management CSS MD24	C/CPFF	Cobham:CA	-	-		0.656	Oct 2011	-		0.656	Continuing	Continuing	Continuing
Risk Management Other MD24	MIPR	DAU:VA	-	-		0.026	Oct 2011	-		0.026	Continuing	Continuing	Continuing
Risk Management Other - 20111165612359 MD24	MIPR	MDA/DOI:VA	-	-		0.044	Oct 2011	-		0.044	Continuing	Continuing	Continuing
Risk Management FFRDC/UARC MD24	MIPR	MITRE:VA	-	-		0.392	Oct 2011	-		0.392	Continuing	Continuing	Continuing
Subtotal			112.055	124.040		133.890		-		133.890			

Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
IMTP Engineering, Integration, Verification and Assessment BMDs Level Testing MD24	C/CPAF	Boeing:VA	12.057	-		-		-		-	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment BMDs Level Testing - 20098275381727 MD24	C/CPFF	CSC:VA	2.462	-		-		-		-	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment BMDs Level Testing - 20098275381733 MD24	FFRDC	JHU APL:VA	1.731	-		-		-		-	Continuing	Continuing	Continuing
	C/CPAF	Boeing:VA	4.585	-		-		-		-	Continuing	Continuing	Continuing

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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

Events	Start		End	
	Quarter	Year	Quarter	Year
Adversary Data Package (ADP) - FY2010	1	2010	1	2010
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
Adversary Data Package (ADP) - FY2016	1	2016	1	2016
Aegis Ashore Critical Design Review	4	2011	4	2011
Aegis Ashore Preliminary Design Review	3	2011	3	2011
Aegis Ashore System Design Review	2	2011	2	2011
Aegis Ashore System Requirements Review	2	2011	2	2011
Aegis BMD 5.1 Critical Design Review (CDR)	4	2014	4	2014
Aegis BMD 5.1 Preliminary Design Review (PDR)	4	2013	4	2013
Aegis BMD 5.1 System Design Review (SDR)	4	2012	4	2012
Aegis BMD 5.1 System Requirements Review (SRR)	3	2011	3	2011
Airborne Infrared Sensors Program - Delta Critical Design Review (CDR)	1	2012	1	2012
Airborne Infrared Sensors Program - Delta System Concept Review (SCR)	1	2011	1	2011
Airborne Infrared Sensors Program - Delta System Requirements Review (SRR) / Preliminary Design Review (PDR)	2	2011	2	2011
BMD System Critical Design Review (CDR)	2	2012	2	2012
Ballistic Missile Defense System Description Document (BMD SDD) - FY2010	4	2010	4	2010
Ballistic Missile Defense System Description Document (BMD SDD) - FY2012	1	2012	1	2012
Ballistic Missile Defense System Description Document (BMD SDD) - FY2014	1	2014	1	2014

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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>

Events	Start		End	
	Quarter	Year	Quarter	Year
Ballistic Missile Defense System Description Document (BMD SDD) - FY2016	1	2016	1	2016
Ballistic Missile Defense System Design Review - FY2011	3	2011	3	2011
Ballistic Missile Defense System Design Review - FY2012	3	2012	3	2012
Ballistic Missile Defense System Design Review - FY2013	3	2013	3	2013
Ballistic Missile Defense System Design Review - FY2014	3	2014	3	2014
Ballistic Missile Defense System Design Review - FY2015	3	2015	3	2015
Ballistic Missile Defense System Design Review - FY2016	3	2016	3	2016
Ballistic Missile Defense System Interface Control Documents (SICD) - FY2010	2	2010	2	2010
Ballistic Missile Defense System Interface Control Documents (SICD) - FY2012	3	2012	3	2012
Ballistic Missile Defense System Interface Control Documents (SICD) - FY2014	3	2014	3	2014
Ballistic Missile Defense System Interface Control Documents (SICD) - FY2016	3	2016	3	2016
Ballistic Missile Defense System Specification (BMD SS) - FY2010	4	2010	4	2010
Ballistic Missile Defense System Specification (BMD SS) - FY2011	2	2011	2	2011
Ballistic Missile Defense System Specification (BMD SS) - FY2013	2	2013	2	2013
Ballistic Missile Defense System Specification (BMD SS) - FY2015	2	2015	2	2015
Capability Assessment Plan (CAP) / Update - FY2010	4	2010	4	2010
Deliver Engineering Change Plans for Counter-Countermeasure Improvements - FY2010	4	2010	4	2010
Element Preliminary Design Reviews - FY2010	2	2010	2	2010
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

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Events	Start		End	
	Quarter	Year	Quarter	Year
Element Preliminary Design Reviews - FY2016	2	2016	2	2016
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2010	2	2010	2	2010
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) - 2Q - FY2016	2	2016	2	2016
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2010	4	2010	4	2010
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
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2016	4	2016	4	2016
Enhanced Command, Control, Battle Management, and Communications (C2BMC) Delta Critical Design Review (CDR)	1	2012	1	2012
Enhanced Command, Control, Battle Management, and Communications (C2BMC) Delta System Concept Review (SCR)	2	2011	2	2011
Enhanced Command, Control, Battle Management, and Communications (C2BMC) Delta System Requirements Review (SRR)/Preliminary Design Review (PDR)	2	2011	2	2011
Incremental Capability Delivery Support - FY2010	4	2010	4	2010
Incremental Capability Delivery Support - FY2011	2	2011	2	2011
Incremental Capability Delivery Support - FY2012	2	2012	2	2012
Incremental Capability Delivery Support - FY2013	2	2013	2	2013

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Events	Start		End	
	Quarter	Year	Quarter	Year
Incremental Capability Delivery Support - FY2014	2	2014	2	2014
Incremental Capability Delivery Support - FY2015	2	2015	2	2015
Incremental Capability Delivery Support - FY2016	2	2016	2	2016
Integrated Master Assessment Plan (IMAP) - FY2016	2	2016	2	2016
Integrated Master Assessment Plan (IMAP) / Update - FY2011	2	2011	2	2011
Integrated Master Assessment Plan (IMAP) / Update - FY2012	2	2012	2	2012
Integrated Master Assessment Plan (IMAP) / Update - FY2013	2	2013	2	2013
Integrated Master Assessment Plan (IMAP) / Update - FY2014	2	2014	2	2014
Integrated Master Assessment Plan (IMAP) / Update - FY2015	2	2015	2	2015
Master Integration Plan (MIP) - FY2010	4	2010	4	2010
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
Master Integration Plan (MIP) - FY2016	4	2016	4	2016
Phased Adaptive Approach (PAA) Capability Planning Specifications (CPS) - FY2010	4	2010	4	2010
Phased Adaptive Approach (PAA) Capability Planning Specifications (CPS) - FY2011-PTSS	2	2011	2	2011
Phased Adaptive Approach (PAA) Capability Planning Specifications (CPS) - FY2011-C2BMC	4	2011	4	2011
Phased Adaptive Approach (PAA) Capability Planning Specifications (CPS) - FY2012	4	2012	4	2012
Phased Adaptive Approach (PAA) System Concept Review (SCR) 2010	1	2010	1	2010
Phased Adaptive Approach (PAA) System Concept Review (SCR) 2010	3	2010	3	2010
Phased Adaptive Approach (PAA) System Concept Review (SCR) 2010	4	2010	4	2010

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Events	Start		End	
	Quarter	Year	Quarter	Year
Phased Adaptive Approach (PAA) System Concept Review (SCR) 2011	1	2011	1	2011
Precision Tracking Space System Concept Review (SCR)	4	2010	4	2010
Precision Tracking Space System First Article Critical Design Review	1	2013	1	2013
Precision Tracking Space System First Article Preliminary Design Review	1	2012	1	2012
Precision Tracking Space System First Article System Requirements Review	2	2011	2	2011
Provide Independent Assessments to MDA - FY2010	4	2010	4	2010
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
Provide Independent Assessments to MDA - FY2016	4	2016	4	2016
System Engineering Assessment Report (SEAR) - FY2010	4	2010	4	2010
System Engineering Assessment Report (SEAR) - FY2011	2	2011	2	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 Engineering Assessment Report (SEAR) - FY2016	1	2016	1	2016
System Engineering Plan (SEP) Update - FY2010	2	2010	2	2010
System Engineering Plan (SEP) Update - FY2011	2	2011	2	2011
System Engineering Plan (SEP) Update - FY2012	2	2012	2	2012
System Engineering Plan (SEP) Update - FY2013	2	2013	2	2013
System Engineering Plan (SEP) Update - FY2014	2	2014	2	2014

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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>

Events	Start		End	
	Quarter	Year	Quarter	Year
System Engineering Plan (SEP) Update - FY2015	2	2015	2	2015
System Engineering Plan (SEP) Update - FY2016	2	2016	2	2016
System/Subsystem Requirements Review - FY2011	2	2011	2	2011
System/Subsystem Requirements Review - FY2013	1	2013	1	2013
System/Subsystem Requirements Review - FY2015	1	2015	1	2015
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2010	4	2010	4	2010
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
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2016	4	2016	4	2016
Update Phased Adaptive Approach Capability Planning Specifications (CPS) - FY2011	4	2011	4	2011
Update Phased Adaptive Approach Capability Planning Specifications (CPS) - FY2012	4	2012	4	2012
Update Phased Adaptive Approach Capability Planning Specifications (CPS) - FY2013	4	2013	4	2013
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY2011	2	2011	2	2011
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY2013	1	2013	1	2013
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY2015	1	2015	1	2015
Update to Ballistic Missile Defense System Interface Control Documents (SICD) - FY2011	3	2011	3	2011
Update to Ballistic Missile Defense System Interface Control Documents (SICD) - FY2013	3	2013	3	2013
Update to Ballistic Missile Defense System Interface Control Documents (SICD) - FY2015	3	2015	3	2015
Update to Ballistic Missile Defense System Specification (BMD SS) - FY2011	2	2011	2	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Events	Start		End	
	Quarter	Year	Quarter	Year
Update to Ballistic Missile Defense System Specification (BMD SS) - FY2013	2	2013	2	2013
Update to Ballistic Missile Defense System Specification (BMD SS) - FY2015	2	2015	2	2015
Update to Integrated Master Test Plan (IMTP) - 2Q - FY2011	2	2011	2	2011
Update to Integrated Master Test Plan (IMTP) - 2Q - FY2012	2	2012	2	2012
Update to Integrated Master Test Plan (IMTP) - 2Q - FY2013	2	2013	2	2013
Update to Integrated Master Test Plan (IMTP) - 2Q - FY2014	2	2014	2	2014
Update to Integrated Master Test Plan (IMTP) - 2Q - FY2015	2	2015	2	2015
Update to Integrated Master Test Plan (IMTP) - 2Q - FY2016	2	2016	2	2016
Update to Integrated Master Test Plan (IMTP) - 4Q - FY2011	4	2011	4	2011
Update to Integrated Master Test Plan (IMTP) - 4Q - FY2012	4	2012	4	2012
Update to Integrated Master Test Plan (IMTP) - 4Q - FY2013	4	2013	4	2013
Update to Integrated Master Test Plan (IMTP) - 4Q - FY2014	4	2014	4	2014
Update to Integrated Master Test Plan (IMTP) - 4Q - FY2015	4	2015	4	2015
Update to Integrated Master Test Plan (IMTP) - 4Q - FY2016	4	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX28: <i>Intelligence & Security</i>	20.024	-	-	-	-	-	-	-	-	0.000	20.024
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project YX28 has been transferred to Project MD28

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

	FY 2010	FY 2011	FY 2012
Title: See Project MD28 for FY 2010 Accomplishments			
Articles:	20.024 0	-	-
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	20.024	-	-

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

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD28: <i>Intelligence & Security</i>	-	15.905	18.865	-	18.865	16.773	15.627	15.226	16.195	Continuing	Continuing
Quantity of RDT&E Articles	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 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 and fulfills MDA`s current and future prioritized intelligence requirements in an accurate and timely manner; 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 and critical technologies and to support and protect MDA and BMDS personnel, facilities, information and activities from criminal, terrorist and Foreign Intelligence and Security Service targeting/threats.
- Consistently, 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

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 Ballistic Missile Defense System (BMDS) system vulnerabilities (via BMDS information assurance). Specifically, the Intelligence and Security program activities support the overarching MDA objectives of defending the homeland against a limited ballistic missile attack; defending U.S. forces, allies and partners against regional threats; and developing flexible capabilities that can be adapted as threats evolve.

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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>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 Ballistic Missile Defense System (BMDS) System Engineer, who uses the threats to develop and change the BMDS. This information reduces 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.</p> <p>2) Counterintelligence: Pursuant to Executive Order 12333, (US Intelligence Activities), DoD Directive O-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) for further investigative action.</p> <p>-Counterintelligence Collection and Reporting: Pursuant to DoD Instruction S-5240.17, the Counterintelligence Division systematically collects counterintelligence information from U.S. and foreign partner intelligence, counterintelligence, security and law enforcement entities through routine liaison and other activities associated with multi-national Ballistic Missile Defense (BMD) conferences overseas, RDT&E activities and BMDS deployments worldwide. The Counterintelligence Division also conducts briefings and debriefings of MDA personnel who travel overseas and passes on any relevant information to the U.S. 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 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, Ballistic Missile Defense System (BMDS) technologies, administrative and mission networks or infrastructure.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

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>	MD28: <i>Intelligence & Security</i>

-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, continental U.S. (CONUS)/Outside 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 pursuant to DoD Instruction 5240.5, and computer forensics examinations in support of investigations resulting from reported insider threats and/or foreign computer intrusions.

-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 outside the continental U.S. (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 U.S. Intelligence Community, as appropriate.

-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.

3) BMDS Information Assurance Division: This division assists the Ballistic Missile Defense System (BMDS) to manage and deploy Information Assurance/Computer Network Defense (IA/CND) 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 IA/CND 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 interfaces with relevant information assurance experts to assess requirements, documentation and IA/CND 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 Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: BMDS Information Assurance	-	2.688	2.798
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for FY 2010 Accomplishments is reported in prior year budget project YX28 (\$2,301).			

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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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>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
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<p>Ballistic Missile Defense System (BMDS) Information Assurance Division: The BMDS Information Assurance Division executes the mission of the BMDS Information Assurance Functional Manager. It is responsible for the following functions:</p> <ul style="list-style-type: none"> -Fulfilling the DoD Instruction 8500.2 and 8510.01 policy-mandated roles 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 and managing matrixed Information Assurance staff. -Defining the Ballistic Missile Defense System (BMDS) Information Assurance/Computer Network Defense (IA/CND) architecture in conjunction with systems engineering. -Defining Information Assurance requirements consistently, comprehensively and definitively at each stage of the acquisition lifecycle. -Interfacing with the Intelligence Community to define cyber security threats relevant to the BMDS. <p>FY 2010 BMDS Information Assurance Program:</p> <ul style="list-style-type: none"> -Fulfilled DoD 8500.2 and 8510.01 policy-mandated roles of the Information Assurance Manager and Information Assurance Officer for the overarching Ballistic Missile Defense System (BMDS). -Defined information assurance requirements for continental U.S. (CONUS) and non-CONUS based BMDS assets consistently, comprehensively and definitively. -Enhanced the Information Assurance posture of the BMDS by delivering expert, responsive, relevant Information Assurance/Computer Network Defense (IA/CND) products and services supporting the Program Managers to meet BMDS and Element IA/CND needs and requirements. -Assisted in the sustainment of an acceptable IA/CND security posture for the MDA Director, through various initiatives at each stage of the program`s lifecycle. <p>FY 2011 Plans:</p> <p>FY 2011 BMDS Information Assurance Program:</p> <ul style="list-style-type: none"> -Fulfill DoD Instruction 8500.2 and 8510.01 policy-mandated roles of the Information Assurance Manager and Information Assurance Officer for the overarching BMDS. -Define Information Assurance/Computer Network Defense (IA/CND) requirements for continental U.S. (CONUS) and non-CONUS based BMDS assets consistently, comprehensively and definitively. 			
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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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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>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
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-Continue to assess the Information Assurance/Computer Network Defense (IA/CND) security architecture to address gaps/disconnects, to enhance interoperability, and realize efficiencies across all mission systems. Define the ``As Built`` and ``To Be`` IA/CND Architectural Concepts to support technical assessments and IA/CND design solutions and implementation recommendations.

-Develop and document technical requirements and interfaces to execute an Integrated IA/CND Net-centric Architectural Concept.

-Continue to enhance the information assurance posture of the BMDS by delivering expert, responsive, relevant IA/CND products and services supporting the Program Managers to meet BMDS and IA/CND needs and requirements.

-Continue to assist in the sustainment of an acceptable IA/CND security posture for the MDA Director, through various initiatives at each stage of the program`s lifecycle.

FY 2012 Plans:

FY 2012 Ballistic Missile Defense System (BMDS) Information Assurance Planned Program:

-Continue to fulfill DoD Instruction 8500.2 and 8510.01 policy-mandated roles of the Information Assurance Manager and Information Assurance Officer for the overarching Ballistic Missile Defense System (BMDS).

-Continue to define Information Assurance/Computer Network Defense (IA/CND) requirements for continental U.S. (CONUS) and non-CONUS based BMDS assets consistently, comprehensively and definitively.

-Continue to assess the IA/CND security architecture to address gaps/disconnects, to enhance interoperability, and realize efficiencies across all mission systems. Define the ``As Built`` and ``To Be`` IA/CND Architectural Concepts to support technical assessments and IA/CND design solutions and implementation recommendations.

-Develop and document technical requirements and interfaces to execute an Integrated IA/CND Net-centric Architectural Concept.

-Continue to enhance the information assurance posture of the BMDS by delivering expert, responsive, relevant IA/CND products and services supporting the Program Managers to meet BMDS and IA/CND needs and requirements.

-Continue to assist in the sustainment of an acceptable IA/CND security posture for the MDA Director, through various initiatives at each stage of the program`s lifecycle.

Title: Counterintelligence	-	4.362	4.503
Articles:	0	0	0

Description: See Description Below

FY 2010 Accomplishments:

Funding for FY 2010 Accomplishments is reported in prior year budget project YX28 (\$4,167).

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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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>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
<p>-The Counterintelligence Division fostered new collaborative partnerships with National and DoD intelligence, counterintelligence and Law Enforcement agencies to share or exchange criminal, terrorist and foreign intelligence threat related information targeting MDA personnel, facilities, information and activities worldwide.</p> <p>-The Counterintelligence Division leveraged available DoD counterintelligence resources in support of the MDA flight tests, conferences, and deployment initiatives worldwide.</p> <p>-The Counterintelligence Division leveraged Foreign Counterintelligence Program funding in support of the MDA Counterintelligence in Cyberspace and insider threat programs.</p> <p>-The Counterintelligence Division implemented a new Counterintelligence Covering Agent methodology to integrate defensive counterintelligence products and services into 15 MDA Research, Development and Acquisition programs to protect critical program information, and test and evaluation activities from foreign intelligence service collection activities.</p> <p>-The Counterintelligence Division continued to keep MDA senior leadership and supported Research, Development and Acquisition program managers informed of criminal, terrorist and foreign intelligence threats to personnel, information, technologies and test activities by conducting counterintelligence research and analysis and producing high fidelity counterintelligence products.</p> <p>-The Counterintelligence Division validated its new Technical Surveillance Countermeasures Program by conducting 26 technical surveillance countermeasures services to detect, neutralize, and/or exploit a wide variety of hostile and foreign penetration technologies that are used to obtain unauthorized access to MDA classified and sensitive information.</p> <p>-The Counterintelligence Division executed Base Realignment and Closure (BRAC) actions in accordance with the MDA BRAC master plan.</p> <p><i>FY 2011 Plans:</i> FY 2011 Counterintelligence 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 deploys organic counterintelligence teams to conduct defensive counterintelligence activities in support of MDA fielding initiatives worldwide under the Phased Adaptive Approach and Foreign Military Sales Programs.</p> <p>-The Counterintelligence Division will procure and field updated secure video telecommunications systems for the Colorado Springs and Huntsville Regional Counterintelligence Offices in support of flight tests, conferences and overseas deployments.</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>			

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 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 Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p>-The Counterintelligence Division continues to support all MDA flight tests to detect, deter, or neutralize criminal, terrorist and foreign intelligence collection threats targeting MDA and Ballistic Missile Defense System (BMDS) technologies, personnel, facilities and activities.</p> <p>-The Counterintelligence Division continues 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> <p>-The Counterintelligence Division continues 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>FY 2012 Plans: FY 2012 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 Ballistic Missile Defense System (BMDS) technologies.</p> <p>-The Counterintelligence Division will deploy organic counterintelligence teams to conduct defensive counterintelligence activities in support of BMDS fielding initiatives under the Phased Adaptive Approach and Foreign Military Sales Programs.</p> <p>-The Counterintelligence Division will continue to procure and field updated secure voice and data communications systems in support of MDA flight tests, conferences and BMDS deployment initiatives under the Phased Adaptive Approach and Foreign Military Sales Program.</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>Title: Intelligence</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for FY 2010 Accomplishments is reported in prior year budget project YX28 (\$11,321).</p> <p>The Intelligence Requirements Division is the single intelligence requirements integration office within MDA and its designated intermediary with the Intelligence Community and continues to maintain a consistent dialog with the Intelligence Community to</p>		<p>Articles:</p> <p>-</p> <p>0</p>	<p>8.855</p> <p>0</p>	<p>11.564</p> <p>0</p>

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 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 Programs (\$ in Millions, Article Quantities in Each)				FY 2010
<p>ensure they have a focused, prioritized, and complete understanding of the vast requirements for foreign intelligence necessary to build a comprehensive Ballistic Missile Defense System (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>The Intelligence Requirement Office:</p> <ul style="list-style-type: none"> -Managed the intelligence collection requirements and engage the Intelligence Community to ensure MDA requirements are documented, validated, collected, and understood. Intelligence tasks included planning intelligence collections support for missile defense tests and documenting requirements in Intelligence Community management systems, and 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. -Maintained 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. -Provided to all levels of builders of missile defense intelligence requirements the most up-to-date and accurate intelligence which requires a detailed understanding of the BMDS developer`s and senior leadership`s particular requirements. -Provided 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. -Maintained 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>FY 2011 Plans: FY 2011 Intelligence Program:</p> <p>The Intelligence Requirements Office:</p> <ul style="list-style-type: none"> -Acts as the single intelligence requirements integration office within MDA and its designated intermediary with the Intelligence Community and maintain a consistent dialog with the Intelligence Community to ensure they have a focused, prioritized, and 				
				FY 2011
				FY 2012

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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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>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
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<p>complete understanding of the vast requirements for foreign intelligence necessary to build a comprehensive Ballistic Missile Defense System (BMDS).</p> <p>-Manages 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, and 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>-Maintains 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>-Provides 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>-Provides 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 will 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>FY 2012 Plans: FY 2012 Intelligence Planned Program:</p> <p>The Intelligence Requirements Office will:</p> <p>-Continue to be the single intelligence requirements integration office within MDA and its designated intermediary with the Intelligence Community and maintain a consistent dialog with the Intelligence Community to ensure they have a focused, prioritized, and complete understanding of the vast requirements for foreign intelligence necessary to build a comprehensive BMDS.</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, and 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>			
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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
<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 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>-Fully characterize all ballistic missile threat systems from high priority countries for use by the MDA Systems Engineer, Program Managers, and Director for Test to perform modeling, simulation, and testing of the BMDS. The MDA Director for Engineering uses this intelligence to build the Adversary Data Package used by all Program Elements and MDA Test as the ballistic missile threat document utilized to build and test the BMDS. The Director, MDA has offered and authorized this two year resource augmentation to NASIC as bridge funding while USAF/NASIC realign resources within the MIP to accommodate these requirements.</p> <p>-Propose, develop, and execute a cyber study. The study will continue the demonstration of the effectiveness of using models and simulation to support all-source S&TI analysis of the impact of cyber threats to a U.S. tactical military network. The term model and simulation will be interchangeable and includes both hardware and software. The details of the aspects of the specific network to be addressed shall be provided by the Government.</p>			
Accomplishments/Planned Programs Subtotals	-	15.905	18.865

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

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	690.054	436.482	290.452		290.452	318.745	309.894	340.969	320.638	Continuing	Continuing
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,022.019	1,346.181	1,161.001		1,161.001	1,040.949	925.943	856.839	875.969	Continuing	Continuing
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	172.419	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	172.419

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603892C: <i>BMD AEGIS</i>	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	148.506	112.678	96.353		96.353	53.577	47.592	32.289	34.308	Continuing	Continuing
• 0603896C: <i>BMD C2BMC</i>	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing

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.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMDs Information Assurance IA/CND Support MD28	SS/FFP	Booz Allen Hamilton:McLean, VA	4.428	2.688	Oct 2010	2.798		-		2.798	Continuing	Continuing	Continuing
Counterintelligence Analysis and Support MD28	C/FFP	QinetiQ Inc:Fairfax, VA	12.643	4.262	Oct 2010	4.503		-		4.503	Continuing	Continuing	Continuing
Counterintelligence Analysis and Support - 2 MD28	MIPR	Various:Various	0.500	0.100	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Intelligence Intelligence Watch MD28	SS/CPAF	MDIOC-Northrop Grumman:Colorado Springs, CO	8.840	2.346	Oct 2010	2.487		-		2.487	Continuing	Continuing	Continuing
Intelligence Analysis and Support MD28	C/FFP	Booz Allen Hamilton:McLean VA	15.629	5.294	Oct 2010	5.477		-		5.477	Continuing	Continuing	Continuing
Intelligence Intelligence Applications MD28	MIPR	SMDC:Huntsville, AL	3.124	1.191	Oct 2010	1.600		-		1.600	Continuing	Continuing	Continuing
Intelligence Intelligence Collections MD28	MIPR	NASIC:Wright-Patterson AFB, OH	-	-		1.300		-		1.300	Continuing	Continuing	Continuing
Subtotal			45.164	15.881		18.165		-		18.165			

Remarks
MDIOC - Missile Defense Integration & Operations Center

Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX29: <i>Producibility and Manufacturing Technology</i>	41.619	-	-	-	-	-	-	-	-	0.000	41.619
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

Project YX29 has been transferred to project MD29.

A. Mission Description and Budget Item Justification

Project YX29 transferred to Project MD29 in FY 2011.

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

	FY 2010	FY 2011	FY 2012
Title: See Project MD29 for FY 2010 Accomplishments	41.619	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	41.619	-	-

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

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency									DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 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>			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD29: <i>Producibility & Manufacturing Technology</i>	-	36.575	-	-	-	-	-	-	-	0.000	36.575
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 Block IIB Program Element, 0603902C.

A. Mission Description and Budget Item Justification

The Manufacturing and Producibility/Enabling Technology effort focuses on technology development for future generation interceptors. This project's goal is to improve the Ballistic Missile Defense System (BMDS) by applying producibility tools; 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. This project is supporting SM3 Block IIB in Seeker, Divert and Attitude Control System development, light weight structures and batteries. MDA assesses and reports transition readiness using Engineering Manufacturing Readiness Levels and exit criteria metrics (i.e., Critical Knowledge Points). Producibility and Manufacturing/Enabling Technology conducts Industrial Capability Assessments (ICAs) across the BMDS Industrial Base to identify production gaps created by material supplier changes, loss of manufacturing base, and movement of US production overseas.

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

	FY 2010	FY 2011	FY 2012
Title: Power Systems	-	0.300	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget YX29 (\$4,387).			
-Completed Lean Six Sigma Projects, Value Stream Mappings and Rapid Improvement Events at Eagle Picher Technologies which increased production efficiency by 25 batteries per month, benefiting MDA and all DoD missile programs at Eagle Picher Technologies			
-Completed Computer Assisted Production Planning/Paperless Manufacturing capability for large format lithium oxyhalide weapons batteries			
-Developed replacements for obsolete materials critical for MDA battery production			
-Began space grade Lithium-ion cell evaluation to achieve ground test validation for MDA use			

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 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 Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p>-Continued modeling for Lithium-ion cells in space applications -Enabled \$7M cost avoidance on joint Title III space grade Lithium-ion cell production effort at Quallion LLC</p> <p>FY 2011 Plans: -Continue Lean Six Sigma Projects, with DoD battery industrial base manufacturers. -Continue testing of space grade Lithium-ion cells from multiple suppliers.</p> <p>FY 2012 Plans: Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 Block IIB Program Element (0603902C).</p>				
<p>Title: Radiation Hardening</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget YX29 (\$6,405).</p> <p>-Conducted electronics and sensor nuclear survivability testable protocol testing for the BMDS. This included sensor chip assembly testing of Kill Vehicle long wave infrared and visible sensors relative to High Altitude Exoatmospheric Nuclear Survivability -Used nuclear survivability tested parts from FY 2008 and FY 2009 to build prototype Common Inertial Measurement Unit engineering development units in an effort to lead to low rate initial production of a nuclear survivable Common Inertial Measurement Unit (CIMU) -Verified that a small number of nuclear survivable parts needed further radiation hardening. This radiation environment part testing demanded new Small Business Innovation Research parts to fully meet the applicable MDA standards -This will improve the radiation hardening of Common Inertial Measuring Units and kill vehicle processors.</p> <p>FY 2011 Plans: -Conduct Kill Vehicle control and electronics Radiation Hardness Assurance Missile Defense Agency Parts, Materials, and Processes Mission Assurance Plan (PMAP) protocol testing for the BMDS. -Leverage 2006 through 2010 research into Radiation Hardened electronics and Inertial Measurement Units technology and fabricate prototype Radiation Hardened IMUs and conduct an extensive ground testing program.</p> <p>FY 2012 Plans:</p>		<p>Articles:</p> <p>- 0</p>	<p>3.800 0</p>	<p>- 0</p>

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 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 Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 Block IIB Program Element (0603902C).				
<p>Title: Manufacturing Process Improvements</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget YX29 (\$3,837).</p> <p>-Demonstrated feasibility of a counterfeit/obsolete parts and materials mission assurance tool at Raytheon Missile Systems. -Partnered with the Navy to support a Strategic Obsolescence Initiative (SOI) which will enable of Diminishing Manufacturing Sources and Material Shortages (DMSMS) Case Management Collaboration across the multiple tools that are supporting these organizations.</p> <p>FY 2011 Plans: -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>FY 2012 Plans: Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 Block IIB Program Element (0603902C).</p>		-	0.700	-
		0	0	0
		Articles:		
<p>Title: Electro-Optics/Infrared (EO/IR)</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget YX29 (\$18,738).</p> <p>-Completed multiple low (3-5 units) quantity production and radiation optical materials specimen testing of both improved performance and radiation tolerant next generation sensor subsystems/component technologies. The planned sensor technologies were : 1) both one and two color digital (up to 200 frames/second) Focal Plane Arrays, 2) a common power and data bus architecture/connectors, and a common dual-use split-cryocooler configuration, 3) subwavelength gratings in lieu of coatings</p>		-	5.783	-
		0	0	0
		Articles:		

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 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 Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p>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>FY 2011 Plans: -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 to assess technology and supplier (to include Small Business Innovation Research) readiness:</p> <p>-Silicon Carbide versus Aluminum versus Beryllium optical [lightweight, low emissivity (which is a Noise Equivalent Irradiance component) and low cost] telescopes with lightweight Coefficient of Thermal Expansion matched canister-sunshade materials with associated reflective and anti-reflective coatings ranging from 4-8 aperture and varying F (aperture/effective focal length) numbers.</p> <p>-One color with dynamic (sub-wavelength grating) filter and two color Focal Plane Arrays (FPAs) comparing analog versus digital (up to 1000 frames/sec reduced power) Readout Integrated Circuits with dynamic integration times for varying backgrounds exercising frame summing algorithms designed to lower sensor Noise Equivalent Irradiance and weight.</p> <p>FY 2012 Plans: Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 Block IIB Program Element (0603902C).</p>				
<p>Title: Radar RF/Electronics</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget YX29 (\$2,950).</p> <p>-Conducted electronics and sensor nuclear survivability testable protocol testing for the Ballistic Missile Defense System (BMDS). This included sensor chip assembly testing of Kill Vehicle long wave infrared and visible sensors relative to High Altitude Exoatmospheric Nuclear Survivability.</p> <p>-Used the nuclear survivability tested parts from FY 2008 and FY 2009 for building prototype Common Inertial Measurement Unit engineering development units in an effort to lead to low rate initial production of a nuclear survivable Common Inertial Measurement Unit (CIMU).</p>		<p>Articles:</p> <p>-</p> <p>0</p>	<p>-</p> <p>0</p>	<p>-</p> <p>0</p>

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 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 Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p>-The development of the X-Band Gallium Nitride (GaN) monolithic microwave integrated circuits (MMIC) power amplifiers will improve TPY-2 range performance and discrimination when inserted.</p> <p>FY 2011 Plans: None.</p> <p>FY 2012 Plans: None.</p>				
<p>Title: Propulsion</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for FY2010 accomplishments are reported in prior year budget project YX29 (\$2,965).</p> <p>-Completed low cost Liquid Divert and Attitude Control System (DACS) critical design review to support technology development activities for possible application to SM-3 Block IIB. -Successfully conducted the advanced controllable solid DACS divert subsystem test to demonstrate innovations in small business innovative research projects including braided Carbon-Silicon Carbide thruster nozzles, advanced actuators and embedded thrusters -Completed material characterization efforts for advanced insulators, high temperature ceramic matrix composite materials for propulsion system components</p> <p>FY 2011 Plans: -Complete the fabrication and system flight environmental testing for a low cost liquid divert and attitude control system. This effort will provide data on the technical maturity of the low cost liquid divert and attitude control system design. -Complete fabrication and conduct static hot-fire test of a solid divert attitude control system divert subsystem to demonstrate technology for advanced controllable solid divert and attitude control system for SM-3 Block IIB applications. This program will demonstrate advanced control, including extinguishment and advanced lightweight materials durability. -Conduct initial trade studies to prioritize investment strategy for divert and attitude control system technologies for SM-3 Block IIB applications. These trade studies include characterization of ultra high temperature material and trades on divert thrusters, ACS thrusters, and gas generator components.</p>		<p>Articles:</p> <p>- 0</p>	<p>24.332</p> <p>0</p>	<p>-</p> <p>0</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 MD29: <i>Producibility & Manufacturing Technology</i>		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p>-Conduct initial trade studies and design analyses for third stage rocket motor attitude control system, thrust vector control system and case material in order to minimize inert mass and increase controllability. These efforts will provide a prioritized list of technologies to improve the SM-3 Block IIB missile performance.</p> <p>-Execute technology risk reduction efforts for divert and attitude control system and third stage rocket motor components. These efforts will focus on reducing risk and improving technical maturity of component technologies in actuators, valves, high temperature materials, structural insulators, propellants, and supporting items.</p> <p>-Provide resources to Air Force Research Laboratory to manage test activities in support of static hot-fire test of the high performance liquid upper stage breadboard demonstration unit. This test will demonstrate integrated components for a liquid upper stage to assess component item maturity.</p> <p>FY 2012 Plans: Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 Block IIB Program Element (0603902C).</p> <p>Title: Advanced Materials & Structures</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget YX29 (\$2,337).</p> <p>-Completed material characterization and design of experiments effort to improved carbonization yields of Lyocell</p> <p>-Developed, tested, demonstrated and delivered prototypes to Standard Missile-3 Block IIA Program Office for further testing and in support of Preliminary Design Review (PDR) several advanced materials product technologies to include compact antenna tray and window, strake leading edge, main strake, aft strake cover, guidance section main housing, guidance section aft plate and front cover</p> <p>-Conducted aerothermal testing for advanced materials and rain erosion preliminary screen tests for new materials for Standard Missile-3 Block IIA strake</p> <p>FY 2011 Plans: -Develop, test, demonstrate and deliver two compact antennae with a composite tray and window to the Standard Missile 3 (SM-3) Block IIB program office.</p> <p>-Conduct additional aero thermal testing for advanced materials and rain erosion tests for new radome materials.</p> <p>FY 2012 Plans:</p>		-	1.660	-
		0	0	0

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 IIB Program Element (0603902C).			
Accomplishments/Planned Programs Subtotals	-	36.575	-

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

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603902C: <i>STANDARD</i> <i>MISSILE-3 BLOCK IIB (SM-3 IIB)</i>	0.000	0.000	123.456		123.456	433.106	384.647	401.141	394.803	Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Power Systems Battery Efforts MD29	MIPR	NSWC CRANE:CRANE IN	5.058	0.300	Dec 2010	-		-		-	0.000	5.358	5.358
Power Systems Lithium-Ion modeling MD29	C/FFP	Quallion:SYLMAR CA	1.150	-		-		-		-	0.000	1.150	1.150
Power Systems Lean initiatives MD29	C/FFP	Tiburon:ALEXANDRIA VA	1.060	-		-		-		-	0.000	1.060	1.060
Power Systems BMDS Program Battery MD29	MIPR	NSWC CRANE:CRANE IN	2.918	-		-		-		-	0.000	2.918	2.918
Power Systems Thermal Battery Process Improvements MD29	C/FFP	Enser:ST PETERSBURG FL	0.400	-		-		-		-	0.000	0.400	0.400
Radiation Hardening Radiation Hardening MD29	C/CPFF	KEARFOTT:LITTLE FALLS NJ	10.954	-		-		-		-	0.000	10.954	10.954
Radiation Hardening Radiation Hardening - 201012148141803 MD29	MIPR	CRANE:CRANE, IN	-	0.250	Dec 2010	-		-		-	0.000	0.250	0.250
Radiation Hardening MEMS IMU MD29	FFRDC	DRAPER LABS:Cambridge, MA	-	0.300	Dec 2010	-		-		-	0.000	0.300	0.300
Radiation Hardening COMMON INERTIAL MEASURING UNIT MD29	C/CPFF	KEARFOTT:LITTLE FALLS, NJ	-	2.500	Feb 2011	-		-		-	0.000	2.500	2.500
Manufacturing Process Improvements BMDS SUPPLY CHAIN MD29	C/CPFF	Advanced Technology Institute:NORTH CHARLESTON SC	2.886	-		-		-		-	0.000	2.886	2.886
Manufacturing Process Improvements Continuous Process Improvement MD29	C/CPFF	Dynamics Research Corp (DRC):ANDOVER MA	2.445	0.575	Jan 2011	-		-		-	0.000	3.020	3.845
Manufacturing Process Improvements Commercial Off-The-Shelf MD29	MIPR	NSWC CRANE:CRANE IN	0.795	0.125	Jan 2011	-		-		-	0.000	0.920	0.920
Electro-Optics/Infrared (EO/IR) EO/IR MD29	C/CPFF	FIBERTEK:HERNDON VA	5.695	1.000	Jan 2011	-		-		-	0.000	6.695	6.695
	C/CPFF		4.400	-		-		-		-	0.000	4.400	4.400

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

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Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Electro-Optics/Infrared (EO/IR) EO/IR - 20098204697769 MD29		MILTEC:HUNTSVILLE AL											
Electro-Optics/Infrared (EO/IR) EO/IR - 20098204697773 MD29	MIPR	NASA:WALLOPS ISLAND VA	7.450	-		-		-		-	0.000	7.450	7.450
Electro-Optics/Infrared (EO/IR) EO/IR - 20098204697777 MD29	C/CPFF	AXSYS:ROCHESTER MI	5.603	-		-		-		-	0.000	5.603	5.603
Electro-Optics/Infrared (EO/IR) EO/IR - 20098204697783 MD29	C/CPFF	Electro-Optics Center:UNIVERSITY PARK PA	11.151	0.500	Jan 2011	-		-		-	0.000	11.651	12.000
Electro-Optics/Infrared (EO/IR) EO/IR MD29	MIPR	DMEA:MCCLELLAN CA	2.200	-		-		-		-	0.000	2.200	2.200
Electro-Optics/Infrared (EO/IR) SENSOR MD29	C/CPFF	TBD:TBD	-	3.200	Feb 2011	-		-		-	0.000	3.200	3.200
Radar RF/Electronics BULK Semi-Insulating Gallium Nitride FOR Radio Frequency MD29	C/CPFF	AIR FORCE (AFRL):ALBUQUERQUE NM	1.395	-		-		-		-	0.000	1.395	2.095
Radar RF/Electronics RELIABILITY TESTING MD29	MIPR	NAVAL RESEARCH LAB:WASHINGTON DC	0.700	-		-		-		-	0.000	0.700	0.900
Radar RF/Electronics TRI-SERVICE RELIABILITY TESTING MD29	MIPR	AFRL:ALBUQUERQUE NM	1.655	-		-		-		-	0.000	1.655	1.955
Radar RF/Electronics 100mm Semi-Insulating Silicon Carbide SUBSTRATES MD29	MIPR	AFRL:ALBUQUERQUE NM	1.950	-		-		-		-	0.000	1.950	2.439
Propulsion PROPULSION EXTINGUISHABLE DACS MD29	C/CPFF	AEROJET:SACRAMENTO CA	11.250	0.650	Oct 2010	-		-		-	0.000	11.900	11.900
Propulsion PROPULSION - 20098204823348 MD29	MIPR		2.226	0.500	Oct 2010	-		-		-	0.000	2.726	2.726

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

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Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		NSWC CARDEROCK:BETHESDA MD											
Propulsion PROPULSION - 20098204823353 MD29	MIPR	NAVAL AIR WARFARE CENTER WEAPONS DIV:CHINA LAKE CA	0.156	-		-		-		-	0.000	0.156	0.000
Propulsion PROPULSION MD29	C/CPFF	AMPAC:NIAGRA, NY	-	2.900	Jan 2011	-		-		-	0.000	2.900	2.900
Propulsion PROPULSION (DACS) MD29	C/CPFF	TBD Vendor:TBD Location	-	8.774	Jan 2011	-		-		-	0.000	8.774	8.774
Propulsion PROPULSION (TSRM) MD29	C/CPFF	AEROJET:SACRAMENTO, CA	-	3.754	Jan 2011	-		-		-	0.000	3.754	3.754
Propulsion PROPULSION (TSRM) - 201012148221022 MD29	C/CPFF	ATK:ELKTON, MD	-	3.754	Jan 2011	-		-		-	0.000	3.754	3.754
Propulsion PROPULSION MD29	MIPR	AFRL:EDWARDS AFB, CA	4.000	0.800	Oct 2010	-		-		-	0.000	4.800	4.800
Propulsion VLS Study MD29	MIPR	NSWC Dahlgren:Dahlgren, VA	-	0.525	Dec 2010	-		-		-	0.000	0.525	0.525
Advanced Materials & Structures ADVANCED MATERIALS MD29	C/CPFF	SMDC/SAN DIEGO COMPOSITES:SAN DIEGO CA	-	0.350	Jan 2011	-		-		-	0.000	0.350	0.350
Advanced Materials & Structures ADVANCED MATERIALS - 20098204860438 MD29	MIPR	SMDC :HUNTSVILLE, AL	-	0.625	Jan 2011	-		-		-	0.000	0.625	0.625
Advanced Materials & Structures ADVANCED MATERIALS - 20098204860442 MD29	MIPR	DEFENSE CONTRACT MAGANGEMENT AGENCY/ IAC:ALEXANDRIA VA	-	0.060	Dec 2010	-		-		-	0.000	0.060	0.060
Advanced Materials & Structures ADVANCED MATERIALS MD29	MIPR	UHT:HOLLOMAN, AFB	-	0.100	Jan 2011	-		-		-	0.000	0.100	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

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Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Materials & Structures VALUE ENGINEERING MD29	MIPR	AMRDEC:HUNTSVILLE, AL	-	0.025	Jan 2011	-		-		-	0.000	0.025	0.000
Subtotal			87.497	31.567		-		-		-	0.000	119.064	121.646

Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Power Systems CONTRACT SUPPORT SERVICES (CSS) MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
Radiation Hardening CSS MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
Radiation Hardening OTHER DOD MD29	MIPR	SMDC:HUNTSVILLE AL	0.343	-		-		-		-	0.000	0.343	0.343
Manufacturing Process Improvements JOINT DEFENSE MANUFACTURING TECHNOLOGY PANEL MD29	C/CPFF	TIBURON:ALEXANDRIA VA	0.806	-		-		-		-	0.000	0.806	0.806
Manufacturing Process Improvements CSS MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
Electro-Optics/Infrared (EO/IR) CSS MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
Electro-Optics/Infrared (EO/IR) AVIONICS SUPPORT MD29	C/CPFF	DRAPER LABS:CAMBRIDGE, MA	-	0.333	Dec 2010	-		-		-	0.000	0.333	0.333
Radar RF/Electronics CSS MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
Propulsion CSS MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
	MIPR		0.343	-		-		-		-	0.000	0.343	0.343

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

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Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Propulsion OTHER DOD MD29		SMDC:HUNTSVILLE AL											
Propulsion PROPULSION MD29	C/CPFF	SPACE DYNAMIC LAB:UTAH	-	0.170	Nov 2010	-		-		-	0.000	0.170	0.170
Advanced Materials & Structures CSS MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
Advanced Materials & Structures OTHER DOD MD29	MIPR	SMDC:HUNTSVILLE AL	0.354	-		-		-		-	0.000	0.354	0.354
Subtotal			12.563	0.503		-		-		-	0.000	13.066	13.066

Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Management Services (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Power Systems GOVT SALARIES AND TRAVEL MD29	Allot	MDA:ARLINGTON VA	0.754	-		-		-		-	0.000	0.754	0.000
Radiation Hardening GOVT SALARIES AND TRAVEL MD29	Allot	MDA:ARLINGTON VA	0.754	-		-		-		-	0.000	0.754	0.000
Radiation Hardening MiDAESS MD29	C/CPFF	MiDAESS:Huntsville, AL	-	0.750	Jan 2011	-		-		-	0.000	0.750	0.750
Manufacturing Process Improvements GOVT	Allot	MDA:ARLINGTON VA	0.754	-		-		-		-	0.000	0.754	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total		Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost			
SALARIES AND TRAVEL MD29														
Electro-Optics/Infrared (EO/IR) GOVERNMENT SALARIES AND TRAVEL MD29	Allot	MDA:ARLINGTON VA	0.754	-		-		-		-	0.000	0.754	0.000	
Electro-Optics/Infrared (EO/IR) MiDAESS MD29	C/CPFF	MiDAESS:Huntsville, AL	-	0.750	Jan 2011	-		-		-	0.000	0.750	0.750	
Radar RF/Electronics GOVT SALARIES AND TRAVEL MD29	Allot	MDA:ARLINGTON VA	0.754	-		-		-		-	0.000	0.754	0.000	
Propulsion GOVT SALARIES AND TRAVEL MD29	Allot	MDA:ARLINGTON VA	0.754	0.200	Oct 2010	-		-		-	0.000	0.954	0.000	
Propulsion CSS/MiDAESS MD29	C/CPFF	MiDAESS:Huntsville, AL	-	2.305	Jan 2011	-		-		-	0.000	2.305	2.305	
Advanced Materials & Structures GOVT SALARIES AND TRAVEL MD29	Allot	MDA:ARLINGTON VA	0.754	-		-		-		-	0.000	0.754	0.000	
Advanced Materials & Structures MiDAESS MD29	C/CPFF	MiDAESS:Huntsville, AL	-	0.500	Jan 2011	-		-		-	0.000	0.500	0.500	
Subtotal			5.278	4.505		-		-		-	0.000	9.783	4.305	
Project Cost Totals			105.338	36.575		-		-		-	0.000	141.913	139.017	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Controllable Solid Divert Attitude Control System static sub-system test	3	2011	3	2011
HPLUS Static Hot Fire Test	3	2011	3	2011
Low Cost Liquid Divert Attitude Control System Static Subsystem Test - 4/11	4	2011	4	2011
Nuclear Trial Testing - 1Q2010	1	2010	1	2010
Nuclear Survivability Testing - 2Q2010	2	2010	2	2010
Nuclear Survivability Testing - 3Q2010	3	2010	3	2010
Nuclear Survivability Testing - 4Q2010	4	2010	4	2010
Transmit Receive Module Reliability Testing 4Q2010	4	2010	4	2010
Controllable Solid Divert and Attitude Control System Development and Test 2Q2010	2	2010	2	2010
Dorsal and Control Surface Cost Reduction 1Q2010	1	2010	1	2010
Dorsal and Control Surface Cost Reduction 2Q2010	2	2010	2	2010
Dorsal and Control Surface Cost Reduction 3Q2010	3	2010	3	2010
Dorsal and Control Surface Cost Reduction 4Q2010	4	2010	4	2010
Specialized Solutions 1Q2010	1	2010	1	2010
Specialized Solutions 2Q2010	2	2010	2	2010
Specialized Solutions 3Q2010	3	2010	3	2010
Specialized Solutions 4Q2010	4	2010	4	2010
Radar Sub-Array demonstrator -2Q2010	2	2010	2	2010
Radar Sub-Array demonstrator - 3Q2010	3	2010	3	2010
Radar Sub-Array demonstrator - 4 Q2010	4	2010	4	2010
Lithium-Ion Battery Management System Line	1	2010	4	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX30: <i>BMD Information Management Systems</i>	109.324	-	-	-	-	-	-	-	-	0.000	109.324
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project YX30 has been transferred to project MD30.

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

	FY 2010	FY 2011	FY 2012
Title: See Project MD30 for FY 2010 Accomplishments			
Articles:	109.324 0	-	-
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	109.324	-	-

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

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD30: <i>BMD Information Management Systems</i>	-	111.829	116.508	-	116.508	112.919	96.783	105.018	109.678	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense (BMD) Information Management Systems Project funds the Information Technology (IT), Information Assurance (IA) and telecommunications infrastructure of the Agency. The information management, cyber security, information assurance and telecommunications infrastructure is critical to the day-to-day functions of the MDA Director, MDA senior leaders and all MDA personnel to communicate (classified and unclassified) with each other, Congress, senior DoD and other U.S. government agency personnel, Combatant Commanders, North Atlantic Treaty Organization (NATO) partners, and other industry partners. Communication among these organizations facilitates the MDA mission of developing and fielding an integrated Ballistic Missile Defense System (BMDS) to defend the United States, our deployed forces, allies and friends against all ranges of enemy ballistic missiles in all phases of flight. The MDA information technology, cyber security, information assurance 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 information technology, cyber security, information assurance 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. This infrastructure is required to sustain access to the Secret Internet Protocol Router Network (SIPRNET), Non secure Internet Protocol Router Network (NIPRNET), MDA classified and unclassified networks, classified and unclassified video conferencing services, test and business knowledge data centers, the Defense Research Engineering Network (DREN). These mission critical functions provide for the efficient operation and safeguarding of all agency information in locations supporting MDA around the world including Alabama, Alaska, California, Colorado, Hawaii, the National Capital Region, New Mexico, United Kingdom, Israel and Japan. This project funds information management/ information technology operations for multiple systems in existing and new facilities at Dahlgren, Virginia and during the MDA transition to Huntsville, Alabama and Alexandria, Virginia.

To support the Director's intent to significantly improve all layers of our Ballistic Missile Defense System (BMDS), this project funds several Information Technology (IT) mission critical functions. These mission critical functions provide for the efficient operation and safeguarding of Agency information in compliance with DoD policies and in keeping with the President's declaration that "cyber threat is one of the most serious economic and national security challenges we face as a nation". The mission critical functions of this project include:

- Operational support to provide critical day-to-day IT support to the Agency mission at locations IT in Alabama, Virginia, Colorado, California, Alaska and New Mexico as well as locations in Europe, Japan and Israel
- Information Technology enterprise architecture that is compliant with DoD and Federally mandated standards for the business and mission support activities of the MDA
- Interaction with the U.S. Cyber Command for instructions and regulatory guidance and reporting requirements

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	MD30: <i>BMD Information Management Systems</i>

- 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
- Cyber Security implementation of information technology policies, guidance, planning, oversight, and monitoring to ensure continued compliance with DoD mandated initiatives, statutes, regulations, directives, and policies
- Implementation of an MDA Decision Support System to focus on integration of the technical, schedule and resource baselines for data retrieval, visualization, and automated programmatic analyses to support and improve decision making processes

The Cost Categories under the R-3 Section II. Support Costs for General IT Services reflects cost increases which are due to an internal realignment between the five major Support Cost Categories in this Project to reflect the current business model for General IT Services. MDA has realigned CIO IT Civilian Pay from Program Wide Support in FY 2012, as reflected in R-3 Section II Support Costs.

The BMD Information Management Systems project MD30 includes the following five mission critical Information Technology (IT) functional efforts:

-General IT Services

The General IT Services mission critical function consists of IT support services required to operate and maintain the classified and unclassified IT infrastructure in the National Capital Region including the Aegis Program Office at Dahlgren, Virginia; several MDA locations in Huntsville, Alabama region; the Colorado Springs, Colorado region; Edwards Air Force Base, California; Kirtland Air Force Base, New Mexico; Edwards Air Force Base, California; MDA`s enclave at Ft Greely and Elmendorf AFB, Alaska. This includes IT operations and maintenance, help desk services and hardware maintenance and software licensing 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 (IAVAs) issued by the U.S. Cyber Command. This mission critical function also funds planning, programming, budget and execution support and Federal and DoD IT compliance reporting. The funding supports operations and maintenance of new facilities in Huntsville, Alabama; Dahlgren, Virginia; and Fort Belvoir, Virginia. This function provides the infrastructure necessary for planning and coordination of the Director`s RDT&E, operation and maintenance, and upgrade initiatives for the Ballistic Missile Defense System (BMDS).

-Knowledge and Information Management

In accordance with the Clinger Cohen Act and DoD directives, this mission critical function provides for the licensing and sustainment of DoD approved enterprise information applications. This function 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 Ballistic Missile Defense (BMD) Asset Management System, Decision Support System (DSS), BMDS Integrated Master Schedule, Electronic Records Management System, Electronic Tasking (E-Tasker), Integrated

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	MD30: <i>BMD Information Management Systems</i>

Acquisition Environment, data management tool, financial management tools, personnel tracking system, MDA Identify and Management Infrastructure application, Computer-Aided Facilities Management, the MDA Employee Development Center, the Program Resource Internet Database Environment (PRIDE), and the MDA Standard Procurement System (SPS). This function 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. This function provides the infrastructure necessary for planning and coordination of the Director’s RDT&E, operations and maintenance, and upgrade initiatives for the Ballistic Missile Defense System (BMDS).

-Unified Communications

The Unified Communications mission critical function supports leased communications (classified and unclassified wide area networks, metropolitan area networks, and local area networks), telecommunications (local and long distance telephone services and secure and non secure mobile and desktop telephony devices), management, engineering, systems integration, operations, maintenance and technical support services. These services are provided at MDA locations including the National Capital Region; Huntsville, Alabama; Colorado Springs, Colorado and interceptor sites at Fort Greely and Elmendorf, Alaska; Kirtland Air Force Base, New Mexico and Vandenberg Air Force Base, California. This includes classified and unclassified voice and data circuits, video teleconferencing and sustainment of Video Over Internet Protocol (VoIP) capability to enhance resolution and control 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. Also included are planning efforts to ensure that the policies and budget are in place to support 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) Information Technology (IT) budget reporting policies. This function provides the infrastructure necessary for planning and coordination of the Director’s RDT&E, operations and maintenance, and upgrade initiatives for the BMDS.

-Cyber Security and Information Assurance

The Cyber Security and Information Assurance mission critical function 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 cyber security, information assurance, computer network defense, network situational awareness, and certification and accreditation activities to comply with the Global Information Grid Information Assurance Strategic Plan and Goals, DoD information assurance directives, instructions and guidelines. Additionally, the cyber security and 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 cyber security and 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 U.S. Cyber Command 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 function ensures the Information Technology (IT) support structure is sustained at an appropriate level to meet the Director’s operational availability across multiple environments and locations.

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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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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-Information Technology (IT) Sustainment Engineering

This mission critical function provides project planning, sustainment engineering efforts, and Information Technology (IT) equipment and consumables for MDA general IT services and business systems to ensure compliance with Federal and DoD enterprise standards. Engineering efforts are essential to ensure the continuity of IT services necessary for the design, development, modeling, and testing of the Ballistic Missile Defense System (BMDS). Information Technology consumables consist 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. This function provides the infrastructure necessary for planning and coordination of the Director's RDT&E, operations and maintenance, and upgrade initiatives for the BMDS.

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

	FY 2010	FY 2011	FY 2012
<p>Title: General IT Services</p> <p style="text-align: right;">Articles:</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: \$42,672</p> <ul style="list-style-type: none"> -Sustained Information Technology (IT) operational services 8 hours a day, 5 days a week for administrative and business information systems -Implemented information assurance vulnerability assessment control improvements in accordance with established Plan of Action and Milestones -Monitored networks for user compliance with DoD policies, and report incidents -Funded hardware and software licenses for IT operational systems -Tested and implemented software application upgrades -Maintained the network and help desk services -Provided planning, budgeting, and management oversight of IT projects -Provided web-based training to MDA users on new applications and upgrade -Monitored networks for user compliance with DoD policies and reported incidents -Maintained MDA IT system interface configuration control and asset management -Maintained asset accountability of IT equipment in accordance with DoD policies -Supported in/out processing operations and relocation of MDA personnel -Funding for these FY 2010 accomplishments are reported in prior year budget project YX30 <p>FY 2011 Plans:</p> <ul style="list-style-type: none"> -Sustain Information Technology (IT) operational services 8 hours a day, 5 days a week for administrative and business information systems 	<p>-</p> <p>0</p>	<p>31.621</p> <p>0</p>	<p>57.377</p> <p>0</p>

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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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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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
<p>-Implement information assurance vulnerability assessment control improvements in accordance with established Plan of Action and Milestones</p> <p>-Monitor networks for user compliance with DoD policies, and report incidents</p> <p>-Fund hardware and software licenses for IT operational systems</p> <p>-Test and implement software application upgrades</p> <p>-Maintain the network and help desk services</p> <p>-Provide planning, budgeting, and management oversight of IT projects</p> <p>-Provide web-based training to MDA users on new applications and upgrade</p> <p>-Monitor networks for user compliance with DoD policies and reported incidents</p> <p>-Maintain MDA IT system interface configuration control and asset management</p> <p>-Maintain asset accountability of IT equipment in accordance with DoD policies</p> <p>-Support in/out processing operations and relocation of MDA personnel.</p> <p><i>FY 2012 Plans:</i></p> <p>-Sustain Enterprise Network Operations Security Center (ENOSC) 24 hours a day, 7 days a week (this effort was previously reported in Cyber Security and Information Assurance)</p> <p>-Sustain 8 hours a day, 5 days a week IT operations of Federal Office Building II in the National Capital Region and the Wynn Drive facility in Huntsville, Alabama until decommissioned.</p> <p>-Sustain IT operational services 8 hours a day, 5 days a week for administrative and business information systems</p> <p>-Implement information assurance vulnerability assessment control improvements in accordance with established Plan of Action and Milestones</p> <p>-Monitor networks for user compliance with DoD policies, and report incidents</p> <p>-Fund hardware and software licenses for Information Technology (IT) operational systems (previously report in Knowledge and Information Management)</p> <p>-Test and implement software application upgrades</p> <p>-Maintain the network and help desk services</p> <p>-Provide planning, budgeting, and management oversight of IT projects</p> <p>-Provide web-based training to MDA users on new applications and upgrade</p> <p>-Monitor networks for user compliance with DoD policies and reported incidents</p> <p>-Maintain MDA IT system interface configuration control and asset management</p> <p>-Support in/out processing operations and relocation of MDA personnel</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
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<p>-Maintain asset accountability of IT equipment in accordance with DoD policy -Fund MDA CIO Office civilian salaries</p> <p>Defense Efficiency - As part of the Department of Defense reform agenda, reductions reported for General IT Services in FY 2012 are \$2.639M.</p>			
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Title: Cyber Security and Information Assurance	-	18.780	13.779
Articles:	0	0	0

Description: See Description Below

FY 2010 Accomplishments:

- \$11,023
- Achieved a letter grade of ``A`` on the Defense Information Systems Agency Command Cyber Readiness Inspection
 - Funded recurring hardware maintenance and software licenses for Information Assurance (IA) monitoring systems
 - Monitored and defended MDA mission, test, and administrative information systems on a 24 hours a day, 7 days a week basis, 365 days a year
 - Collected, analyzed, and reported vulnerability and cyber warfare attack metrics to the MDA Chief Information Officer (CIO), MDA leadership, and U.S. Cyber Command
 - Revised and updated Information Assurance certification packages for administrative and business information technology systems reported to DoD and Office of Management and Budget
 - Ensured MDA mission, test, and administrative systems are operated securely in accordance with DoD Information Assurance Certification and Accreditation policies
 - Managed the Information Assurance Workforce Improvement Program to certify CIO Information Assurance professionals and reported compliance in accordance with Federal Information Security Management Act (FISMA) and DoD Manual 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
 - Funding for these FY 2010 accomplishments are reported in prior year budget project YX30

FY 2011 Plans:

- Fund recurring hardware maintenance and software licenses for Information Assurance (IA) monitoring systems

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 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>		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p>-Monitor and defend MDA mission, test, and administrative information systems on a 24 hours a day, 7 days a week basis, 365 days a year</p> <p>-Collect, analyze, and report vulnerability and cyber warfare attack metrics to the MDA Chief Information Officer (CIO), MDA leadership, and U.S. Cyber Command</p> <p>- Revise and update Information Assurance certification packages for administrative and business information technology systems reported to DoD and Office of Management and Budget</p> <p>-Ensure MDA mission, test, and administrative systems are operated securely in accordance with DoD Information Assurance Certification and Accreditation policies</p> <p>-Manage the Information Assurance Workforce Improvement Program to certify CIO Information Assurance professionals and report compliance in accordance with Federal Information Security Management Act (FISMA) and DoD Manual 8570.1, achieving the DoD certification goal</p> <p>-Complete annual Information Assurance user training for the MDA workforce</p> <p>-Provide Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs</p> <p>FY 2012 Plans:</p> <p>-Fund recurring hardware maintenance and software licenses for IA monitoring systems</p> <p>-Monitor and defend mission, test, and administrative information systems on a 24 hours a day, 7 days a week, 365 days a year basis</p> <p>-Collect, analyze, and report vulnerability and cyber warfare attack metrics to the MDA Chief Information Officer (CIO), MDA leadership, and U.S. Cyber Command</p> <p>-Revise and update Information Assurance certification packages for administrative and business information technology systems reported to DoD and Office of Management and Budget</p> <p>-Ensure MDA mission, test, and administrative systems are operated securely in accordance with DoD Information Assurance Certification and Accreditation policies</p> <p>-Manage the Information Assurance Workforce Improvement Program to certify CIO Information Assurance professionals and report compliance in accordance with Federal Information Security Management Act (FISMA) and DoD Manual 8570.1, achieving the DoD certification goal</p> <p>-Complete annual Information Assurance user training for the MDA workforce</p> <p>-Maintain asset accountability of Information Technology equipment in accordance with DoD policies</p> <p>-Provide Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs</p>				

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011				
APPROPRIATION/BUDGET ACTIVITY 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>			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)				FY 2010	FY 2011	FY 2012
-Fund MDA CIO Office civilian salaries						
Title: Unified Communications				Articles:	-	20.398
				0	0	20.101
Description: See Description Below						
FY 2010 Accomplishments: \$18,626						
<ul style="list-style-type: none"> -Supported unified communications requirements during the transition to new facilities in Huntsville, AL and Alexandria, VA -Funded recurring leased circuits (wide area, local area and metropolitan area networks), maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment (classified and unclassified mobile and telephony devices) -Operated, monitored, and sustained recurring classified and unclassified telecommunications equipment to comply with DoD policies and Global Information Grid architecture plan -Operated, monitored, and sustained recurring classified and unclassified wireless services -Operated, monitored, and sustained recurring operations for agency wide video teleconference rooms and equipment -Provided and implemented engineering solutions for all unified communication services -Funding for these FY 2010 accomplishments are reported in prior year budget project YX30 						
FY 2011 Plans:						
<ul style="list-style-type: none"> -Compete, award and transition to a new operations, maintenance and engineering services contract for the MDA Video Telecommunications infrastructure -Support unified communications requirements during the transition to new facilities in Huntsville, AL and Alexandria, VA -Fund recurring leased circuits (wide area, local area and metropolitan area networks), maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment (classified and unclassified mobile and telephony devices) -Operate, monitor, and sustain recurring classified and unclassified telecommunications equipment to comply with DoD policies and Global Information Grid architecture plan -Operate, monitor, and sustain recurring classified and unclassified wireless services -Operate, monitor, and sustain recurring operations for agency wide video teleconference rooms and equipment -Provide and implement engineering solutions for all unified communication services 						
FY 2012 Plans:						
-Fund recurring leased circuits (wide area, local area and metropolitan area networks) maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment						

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 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>			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012	
<p>-Operate, monitor, and sustain recurring classified and unclassified telecommunications equipment (classified and unclassified mobile and telephony devices) to comply with DoD policies and Global Information Grid architecture plan</p> <p>-Operate, monitor, and sustain recurring classified and unclassified wireless services</p> <p>-Operate, monitor, and sustain recurring operations for agency wide video teleconference rooms and equipment</p> <p>-Provide and implement engineering solutions for all unified communication services</p> <p>-Fund MDA CIO Office civilian Salaries</p> <p>Defense Efficiency - As part of the Department of Defense reform agenda, reductions reported for Unified Communications in FY 2012 are \$2.181M.</p>					
<p>Title: Knowledge and Information Management</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: \$26,261</p> <p>-Managed MDA business applications and sustained financial and contractual support systems</p> <p>-Managed software assessment program and conducted reviews of proposed software applications for DoD compliance</p> <p>-Sustained the Ballistic Missile Defense System (BMDS) Integrated Master Schedule and the Ballistic Missile Defense (BMD) Asset Management Tool</p> <p>-Conducted privacy impact surveys and supported compliance reporting</p> <p>-Managed MDA web-based training programs for information assurance, business applications, workforce certification, security, and ethics</p> <p>-Sustained MDA Knowledge Online services</p> <p>-Funding for these FY 2010 accomplishments are reported in prior year budget project YX30</p> <p>FY 2011 Plans:</p> <p>-Deliver a prototype Decision Support System implementing industry best practice data retrieval capabilities for retrieving data from the Ballistic Missile Defense System technical, schedule and resource baselines</p> <p>-Manage MDA business applications and sustain financial and contractual support systems</p> <p>-Manage software assessment program and conduct reviews of proposed software applications for DoD compliance</p> <p>-Sustain the Ballistic Missile Defense System (BMDS) Integrated Master Schedule and the Ballistic Missile Defense (BMD) Asset Management Tool</p>		Articles:	-	28.983	13.433
		0	0	0	

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 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>		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<ul style="list-style-type: none"> -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 MDA Knowledge Online services <p>FY 2012 Plans:</p> <ul style="list-style-type: none"> -Manage MDA business applications and sustain 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 MDA Knowledge Online services -Fund MDA CIO Office civilian salaries 				
<p>Title: IT Sustainment Engineering</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: \$10,742</p> <ul style="list-style-type: none"> -Sustained Information Technology (IT) services across the MDA Enterprise and maintain critical spares inventory -Architected and developed plans to repair general IT service and business systems -Performed analysis, tracked, and reported metrics on equipment lifecycle and average time to repair -Planned, engineered and implemented sustainment projects for general IT service and business systems -Procured, received, inventoried, and managed IT equipment to include network devices and desktop and laptop computers -Funding for these FY 2010 accomplishments are reported in prior year budget project YX30 <p>FY 2011 Plans:</p> <ul style="list-style-type: none"> -Sustain Information Technology (IT) services across the MDA Enterprise and maintain critical spares inventory -Architect and develop plans to repair general IT service and business systems -Perform analysis, track, and report metrics on equipment lifecycle and average time to repair -Plan, engineer and implement sustainment projects for general IT service and business systems 		<p>Articles:</p> <p>-</p> <p>0</p>	<p>12.047</p> <p>0</p>	<p>11.818</p> <p>0</p>

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Procure, receive, inventory, and manage IT equipment to include network devices and desktop and laptop computers			
<i>FY 2012 Plans:</i>			
-Sustain Information Technology (IT) services across the MDA Enterprise and maintain critical spares inventory			
-Architect and develop plans to repair general IT service and business systems			
-Perform analysis, track, and report metrics on equipment lifecycle and average time to repair			
-Plan, engineer and implement sustainment projects for general IT service and business systems			
-Revise and test contingency plans for IT systems across the MDA enterprise			
-Procure, receive, inventory, and manage IT equipment to include network devices, desktop and laptop computers			
-Fund MDA CIO Office civilian salaries			
Defense Efficiency - As part of the Department of Defense reform agenda, reductions reported for IT Sustainment Engineering for FY 2012 are \$.406M.			
Accomplishments/Planned Programs Subtotals	-	111.829	116.508

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	690.054	436.482	290.452		290.452	318.745	309.894	340.969	320.638	Continuing	Continuing
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,022.019	1,346.181	1,161.001		1,161.001	1,040.949	925.943	856.839	875.969	Continuing	Continuing
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	172.419	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	172.419
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
	253.157	270.189	296.554		296.554	377.845	416.052	430.969	452.448	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
<i>• 0603891C: SPECIAL PROGRAMS - MDA</i>											
<i>• 0603892C: BMD AEGIS</i>	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
<i>• 0603893C: SPACE TRACKING & SURVEILLANCE SYSTEM</i>	148.506	112.678	96.353		96.353	53.577	47.592	32.289	34.308	Continuing	Continuing
<i>• 0603895C: BMD SYSTEM SPACE PROGRAM</i>	11.913	10.942	7.951		7.951	6.781	6.465	6.496	6.915	Continuing	Continuing
<i>• 0603896C: BMD C2BMC</i>	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
<i>• 0603897C: BMD HERCULES</i>	45.250	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	45.250
<i>• 0603898C: BMD JOINT WARFIGHTER SUPPORT</i>	58.105	68.726	41.225		41.225	58.089	55.961	56.479	60.684	Continuing	Continuing
<i>• 0603901C: DIRECTED ENERGY RESEARCH</i>	0.000	98.688	96.329		96.329	91.953	93.134	92.304	95.003	Continuing	Continuing
<i>• 0603902C: STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)</i>	0.000	0.000	123.456		123.456	433.106	384.647	401.141	394.803	Continuing	Continuing
<i>• 0603904C: MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing
<i>• 0603906C: REGARDING TRENCH</i>	5.785	7.529	15.797		15.797	9.092	6.997	5.493	2.064	Continuing	Continuing
<i>• 0603907C: SEA BASED X-BAND RADAR (SBX)</i>	157.739	153.056	177.058		177.058	172.622	162.628	185.934	173.587	Continuing	Continuing
<i>• 0603911C: BMD EUROPEAN CAPABILITY</i>	47.342	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	47.342
<i>• 0603913C: ISRAELI COOPERATIVE</i>	195.652	121.735	106.100		106.100	99.873	95.819	96.840	103.977	Continuing	Continuing
<i>• 0604880C: LAND-BASED SM-3</i>	0.000	281.378	306.595		306.595	149.320	60.628	41.417	154.842	Continuing	Continuing
<i>• 0604881C: SM-3 BLOCK IIA CO-DEVELOPMENT</i>	247.825	318.800	424.454		424.454	357.194	279.444	203.553	25.165	Continuing	Continuing
<i>• 0604883C: PRECISION TRACKING SPACE SYSTEM</i>	0.000	66.969	160.818		160.818	272.881	302.344	273.623	331.205	Continuing	Continuing
	0.000	111.671	46.877		46.877	49.948	49.173	33.035	34.249	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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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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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0604884C: <i>AIRBORNE INFRARED (ABIR)</i>											

D. Acquisition Strategy

In FY 2011, the MDA will award a competitive contract for the Video Teleconference Collaboration Services to be performed at all MDA locations.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
General IT Services IT Operations MD30	C/CPAF	Northrop Grumman:Various MDA Locations	24.931	21.062	Oct 2010	32.025		-		32.025	Continuing	Continuing	Continuing
General IT Services IT Management Support/Portfolio/CRMs MD30	C/CPAF	Northrop Grumman:Various MDA Locations	2.490	1.773	Oct 2010	2.101		-		2.101	Continuing	Continuing	Continuing
General IT Services General IT Advisory and Assistance Services MD30	C/FFP	TBD:TBD	4.395	5.841	Oct 2010	1.817		-		1.817	Continuing	Continuing	Continuing
General IT Services Civilian Travel/PCS MD30	Allot	MDA Civilian Travel:Civilian	-	0.396	Oct 2010	0.817		-		0.817	Continuing	Continuing	Continuing
General IT Services IT Hardware/Software Licenses and Maintenance MD30	C/FP	Various:Various	8.845	2.549		14.563		-		14.563	Continuing	Continuing	Continuing
General IT Services MDA CIO General IT Services Civilian Pay MD30	Allot	MDA Civilian Pay:Various MDA Locations	-	-		6.054		-		6.054	Continuing	Continuing	Continuing
Cyber Security and Information Assurance MDA Information Assurance Certification MD30	C/CPAF	Northrop Grumman:Various MDA Locations	-	2.257	Oct 2010	2.771		-		2.771	Continuing	Continuing	Continuing
Cyber Security and Information Assurance Information Assurance Advisory and Assistance Services MD30	C/FFP	TBD:TBD	3.709	4.647	Oct 2010	3.343		-		3.343	Continuing	Continuing	Continuing
	C/FFP		1.475	1.397	Oct 2010	1.385		-		1.385	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Cyber Security and Information Assurance DIACAP Certification/ Accreditation Support MD30		Northrop Grumman: Various MDA Locations											
Cyber Security and Information Assurance DEERS/RAPIDS/Active Client/ Card Support MD30	MIPR	Various :Various	0.080	0.083	Oct 2010	0.090		-		0.090	Continuing	Continuing	Continuing
Cyber Security and Information Assurance Identify Protection Support MD30	C/CPAF	WHS:VA	0.170	0.172	Oct 2010	0.179		-		0.179	Continuing	Continuing	Continuing
Cyber Security and Information Assurance COMSEC MD30	C/CPAF	Northrop Grumman: Various MDA Locations	0.647	0.667	Oct 2010	0.319		-		0.319	Continuing	Continuing	Continuing
Cyber Security and Information Assurance IAVA Operations and Support MD30	C/CPAF	Northrop Grumman: Various MDA Locations	2.212	2.904	Oct 2010	2.573		-		2.573	Continuing	Continuing	Continuing
Cyber Security and Information Assurance ENOSC (moved to General IT Services for FY 2012) MD30	C/CPAF	Northrop Grumman: Various MDA Locations	1.397	6.653	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Cyber Security and Information Assurance MDA CIO Information Assurance Civilian Pay MD30	Allot	MDA Civilian Pay: Various MDA Locations	-	-		3.119		-		3.119	Continuing	Continuing	Continuing
Unified Communications Leased Communications - LAN/WAN MD30	MIPR	DISA/DREN:IL	3.830	4.934	Oct 2010	4.110		-		4.110	Continuing	Continuing	Continuing
Unified Communications WAN Engineering Sustainment Support MD30	C/CPAF	Northrop Grumman: Various MDA Locations	1.361	0.985	Jan 2011	0.990		-		0.990	Continuing	Continuing	Continuing
	C/FP	Various: Various	5.000	4.268	Oct 2010	5.971		-		5.971	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

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Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Unified Communications Leased Telecom Wireless/ Local/Long Distance MD30													
Unified Communications Advisory and Assistance Services MD30	C/FFP	TBD:TBD	1.503	1.440	Oct 2010	0.552		-		0.552	Continuing	Continuing	Continuing
Unified Communications VTC Operations MD30	C/CPAF	TBD:TBD	5.961	8.771	Oct 2010	7.194		-		7.194	Continuing	Continuing	Continuing
Unified Communications MDA CIO Unified Communications Civilian Pay MD30	Allot	MDA Civilian Pay:Various MDA Locations	-	-		1.284		-		1.284	Continuing	Continuing	Continuing
Knowledge and Information Management Unclassified MDA Knowledge Online O&M Support MD30	C/CPAF	PHACIL:VA	11.246	6.617	Oct 2010	6.893		-		6.893	Continuing	Continuing	Continuing
Knowledge and Information Management Know Mgt Advisory and Assistance Services MD30	C/FFP	TBD :TBD	1.145	1.068	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Knowledge and Information Management Standard Procurement System Support MD30	MIPR	SPS JPMO:VA	0.395	0.347	Oct 2010	0.424		-		0.424	Continuing	Continuing	Continuing
Knowledge and Information Management PRIDE Application Support MD30	C/CPAF	CIMS/CAMBER:AL	0.942	0.995	Oct 2010	1.128		-		1.128	Continuing	Continuing	Continuing
Knowledge and Information Management Classified MDA Knowledge Online O&M Support MD30	C/CPAF	Northrop Grumman:Various MDA Locations	1.844	1.110	Oct 2010	1.968		-		1.968	Continuing	Continuing	Continuing
Knowledge and Information Management Visual	SS/CPFF	CSC:Various MDA Locations	-	4.240	Jul 2011	-		-		-	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

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Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			Target Value of Contract	
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost		
Information Production Center MD30														
Knowledge and Information Management Knowledge and Information Management Software Licenses MD30	C/CPAF	Northrop Grumman:Various MDA Locations	3.566	1.780	Oct 2010	1.920		-		1.920	Continuing	Continuing	Continuing	
Knowledge and Information Management IT General Services Licenses and Maintenance (moved to General IT Service in FY 2012) MD30	C/FP	Various:Various	-	12.826		-		-		-	Continuing	Continuing	Continuing	
Knowledge and Information Management MDA CIO Knowledge and Information Management Civilian Pay MD30	Allot	MDA Civilian Pay:Various MDA Locations	-	-		1.100		-		1.100	Continuing	Continuing	Continuing	
Knowledge and Information Management Decision Support System MD30	C/CPAF	IBM:Huntsville	6.309	-		-		-		-	Continuing	Continuing	Continuing	
IT Sustainment Engineering Implementation/Architectural Engineering Support MD30	C/CPAF	Northrop Grumman:Various MDA Locations	2.358	2.741	Oct 2010	2.178		-		2.178	Continuing	Continuing	Continuing	
IT Sustainment Engineering IT Recapitalization/Consumables MD30	C/CPAF	Northrop Grumman:Various MDA Locations	0.583	6.280	Oct 2010	3.736		-		3.736	Continuing	Continuing	Continuing	
IT Sustainment Engineering Contract Deliverables/OMB, OSD, DoD Compliance Monitoring Reporting MD30	Allot	Various:Various	2.274	1.648	Oct 2010	3.637		-		3.637	Continuing	Continuing	Continuing	
IT Sustainment Engineering IT Sustainment Engineering Advisory and Assistance Services MD30	C/FFP	TBD:TBD	1.073	1.378	Oct 2010	0.249		-		0.249	Continuing	Continuing	Continuing	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

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Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
IT Sustainment Engineering MDA CIO IT Sustainment Engineering Civilian Pay MD30	Allot	MDA Civilian Pay:Various MDA Locations	-	-		2.018		-		2.018	Continuing	Continuing	Continuing	
Subtotal			99.741	111.829		116.508		-		116.508				

Remarks
The overall increase from FY 2011 to FY 2012 reflects the funding this Project requires to operate and maintain the MDA IT infrastructure to meet the demands of the Agency, to ensure it operates in a secure environment, and to ensure technology enhancements promote the maximum efficiency of operations.

Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-	0.000	0.000	0.000	

Management Services (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-	0.000	0.000	0.000	

			Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total		Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			99.741	111.829		116.508		-		116.508				

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2010	1	2010	4	2010
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2011 1st qtr	1	2011	1	2011
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2011	2	2011	4	2011
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2012	1	2012	4	2012
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2013	1	2013	4	2013
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2014	1	2014	4	2014
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2015	1	2015	4	2015
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY2016	1	2016	4	2016
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2010	1	2010	4	2010
1st Qtr Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2011	1	2011	1	2011
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2011	2	2011	4	2011
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2012	1	2012	4	2012
	1	2013	4	2013

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Events	Start		End	
	Quarter	Year	Quarter	Year
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2013				
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2014	1	2014	4	2014
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2015	1	2015	4	2015
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2016	1	2016	4	2016
Monitor Networks for User Compliance with Department of Defense Policies	1	2011	4	2015
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2010	1	2010	4	2010
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2011 1st qtr	1	2011	1	2011
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2011	2	2011	4	2011
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2011 2nd quarter	2	2011	4	2011
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2012	1	2012	4	2012
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2013	1	2013	4	2013
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2014	1	2014	4	2014
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2015	1	2015	4	2015
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2016	1	2016	4	2016

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Events	Start		End	
	Quarter	Year	Quarter	Year
Test and Implement Software Application Upgrades for General Information Technology Services	1	2011	4	2015
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2010	1	2010	4	2010
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2011 1st Qtr	1	2011	1	2011
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2011	2	2011	4	2011
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2012	1	2012	4	2012
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2013	1	2013	4	2013
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2014	1	2014	4	2014
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2015	1	2015	4	2015
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2016	1	2016	4	2016
Provide Planning, Budgeting, and Management Oversight of Information Technology 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 - FY 2010	1	2010	4	2010
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2011 1st Qtr	1	2011	1	2011
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2011	2	2011	4	2011

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Events	Start		End	
	Quarter	Year	Quarter	Year
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2012	1	2012	4	2012
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2013	1	2013	4	2013
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2014	1	2014	4	2014
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2015	1	2015	4	2015
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2016	1	2016	4	2016
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2010	1	2010	4	2010
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2011 1st Qtr	1	2011	1	2011
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2011	2	2011	4	2011
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2012	1	2012	4	2012
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2013	1	2013	4	2013
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2014	1	2014	4	2014
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2015	1	2015	4	2015
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2016	1	2016	4	2016
	1	2010	4	2010

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Events	Start		End	
	Quarter	Year	Quarter	Year
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2010				
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2011 1st Qtr	1	2011	1	2011
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2011	2	2011	4	2011
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2012	1	2012	4	2012
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2013	1	2013	4	2013
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2014	1	2014	4	2014
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2015	1	2015	4	2015
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2016	1	2016	4	2016
Provide Engineering Services for All Unified Communications Services	1	2011	4	2015
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2010	1	2010	4	2010
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2011 1st qtr	1	2011	1	2011
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2011	2	2011	4	2011
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2012	1	2012	4	2012
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2013	1	2013	4	2013

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
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Events	Start		End	
	Quarter	Year	Quarter	Year
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2014	1	2014	4	2014
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2015	1	2015	4	2015
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2016	1	2016	4	2016
Manage Software Assessment Programs and Conduct Reviews for DoD Compliance	1	2011	4	2015
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2010	1	2010	4	2010
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2011 1st Qtr	1	2011	1	2011
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2011	2	2011	4	2011
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2012	1	2012	4	2012
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2013	1	2013	4	2013
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2014	1	2014	4	2014
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2015	1	2015	4	2015
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2016	1	2016	4	2016
Manage MDA Web-Based Training Programs for Information Assurance, Business Applications, Security, and Ethics	1	2011	4	2015
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2010	1	2010	4	2010

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

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Events	Start		End	
	Quarter	Year	Quarter	Year
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2011 1st Qtr	1	2011	1	2011
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2011	2	2011	4	2011
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2012	1	2012	4	2012
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2013	1	2013	4	2013
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2014	1	2014	4	2014
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2015	1	2015	4	2015
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2016	1	2016	4	2016
Sustain Recurring Operations and Maintenance of Graphics and Video Production Capabilities for Knowledge and Information Management	1	2011	4	2015
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2010	1	2010	4	2010
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2011 1st Qtr	1	2011	1	2011
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2011	2	2011	4	2011
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2012	1	2012	4	2012
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2013	1	2013	4	2013
	1	2014	4	2014

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Events	Start		End	
	Quarter	Year	Quarter	Year
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2014				
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2015	1	2015	4	2015
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2016	1	2016	4	2016
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2010	1	2010	4	2010
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2011 1st Qtr	1	2011	1	2011
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2011	2	2011	4	2011
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2012	1	2012	4	2012
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2013	1	2013	4	2013
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2014	1	2014	4	2014
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2015	1	2015	4	2015
	1	2016	4	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Events	Start		End	
	Quarter	Year	Quarter	Year
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2016				
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2010	1	2010	4	2010
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2011 1st Qtr	1	2011	1	2011
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2011	2	2011	4	2011
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2012	1	2012	4	2012
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2013	1	2013	4	2013
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2014	1	2014	4	2014
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2015	1	2015	4	2015
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2016	1	2016	4	2016
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2010	1	2010	4	2010
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2011 1st Qtr	1	2011	1	2011
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2011	2	2011	4	2011
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2012	1	2012	4	2012

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

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Events	Start		End	
	Quarter	Year	Quarter	Year
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2013	1	2013	4	2013
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2014	1	2014	4	2014
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2015	1	2015	4	2015
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2016	1	2016	4	2016
Maintain Information Assurance Certification Packages for Test, Administration, and Business Information Technology Systems	1	2011	4	2015
Complete Annual Information Assurance User Training for MDA Workforce - FY 2010	1	2010	4	2010
Complete Annual Information Assurance User Training for MDA Workforce - FY 2011 1st Qtr	1	2011	1	2011
Complete Annual Information Assurance User Training for MDA Workforce - FY 2011	2	2011	4	2011
Complete Annual Information Assurance User Training for MDA Workforce - FY 2012	1	2012	4	2012
Complete Annual Information Assurance User Training for MDA Workforce - FY 2013	1	2013	4	2013
Complete Annual Information Assurance User Training for MDA Workforce - FY 2014	1	2014	4	2014
Complete Annual Information Assurance User Training for MDA Workforce - FY 2015	1	2015	4	2015
Complete Annual Information Assurance User Training for MDA Workforce - FY 2016	1	2016	4	2016
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2010	1	2010	4	2010
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2011 1st Qtr	1	2011	1	2011
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2011	2	2011	4	2011
	1	2012	4	2012

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Events	Start		End	
	Quarter	Year	Quarter	Year
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2012				
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2013	1	2013	4	2013
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2014	1	2014	4	2014
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2015	1	2015	4	2015
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2016	1	2016	4	2016
Manage the Information Assurance Workforce Improvement Program to Certify Chief Information Officer Information Assurance Professionals	1	2011	4	2015
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2010	1	2010	4	2010
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2011 1st Qtr	1	2011	1	2011
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2011	2	2011	4	2011
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2012	1	2012	4	2012
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2013	1	2013	4	2013
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2014	1	2014	4	2014
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2015	1	2015	4	2015
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2016	1	2016	4	2016
Architect and Develop Plans to Repair General Information Technology Service and Business Systems	1	2011	4	2015
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2010	1	2010	4	2010
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2011 1st Qtr	1	2011	1	2011
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2011	2	2011	4	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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>

Events	Start		End	
	Quarter	Year	Quarter	Year
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2012	1	2012	4	2012
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2013	1	2013	4	2013
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2014	1	2014	4	2014
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2015	1	2015	4	2015
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2016	1	2016	4	2016
Plan, Engineer, and Implement Sustainment Projects for General Information Technology Services and Business Systems	1	2011	4	2015
Revise and Test Contingency Plans for Information Technology Systems - FY 2010	1	2010	4	2010
Revise and Test Contingency Plans for Information Technology Systems - FY 2011 1st Qtr	1	2011	1	2011
Revise and Test Contingency Plans for Information Technology Systems - FY 2011	2	2011	4	2011
Revise and Test Contingency Plans for Information Technology Systems - FY 2012	1	2012	4	2012
Revise and Test Contingency Plans for Information Technology Systems - FY 2013	1	2013	4	2013
Revise and Test Contingency Plans for Information Technology Systems - FY 2014	1	2014	4	2014
Revise and Test Contingency Plans for Information Technology Systems - FY 2015	1	2015	4	2015
Revise and Test Contingency Plans for Information Technology Systems - FY 2016	1	2016	4	2016
Procure, Receive, Inventory and Manage Information Technology Consumables and Equipment	1	2011	4	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX31: <i>Modeling & Simulation</i>	47.478	-	-	-	-	-	-	-	-	0.000	47.478
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project YX31 transferred to Project MD31 in FY 2011.

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

	FY 2010	FY 2011	FY 2012
Title: See MD31 for FY 2010 Accomplishments	47.478	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	47.478	-	-

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

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD31: <i>Modeling & Simulation</i>	-	64.623	56.617	-	56.617	59.393	57.473	62.187	63.775	Continuing	Continuing
Quantity of RDT&E Articles	0	5	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the M&S content previously accomplished in Project YX31 for FY 2010 is now captured in Project MD31. From FY 2011 to FY 2012, the MD31 M&S Project shows an increase. This is not due to a new development effort, rather, because funding for the M&S HWIL Framework, Simulations, Models; M&S Digital Framework, Simulations, Models; and the M&S VV&A and Test Operations was realigned from the BMD Aegis PE (0603892C) Budget Project MD09.

A. Mission Description and Budget Item Justification

The mission of MDA's Modeling & Simulation (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. Testing the BMDS to empirically determine its performance capabilities and limitations is very challenging and cost prohibitive; therefore, we focus on conducting tests to collect Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs) so we can Validate, Verify and Accredit (VV&A) models to determine ultimate BMDS performance and support COCOM Commander's planning. CECs are test points identified to efficiently capture data to resolve known modeling and simulation uncertainties that limit performance prediction accuracy. EMEs are test point identified to efficiently collect data that is not modeled or modeled at high fidelity. EMEs are also test points beyond CEC collections required to achieve high modeling confidence for integrated capabilities over all engagement conditions. 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 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 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 (NATO) territories, and enhance United States homeland defense. It will be complementary of and interoperable with those missile defense capabilities being developed by NATO, and be applicable in other theaters around the world, in addition to being 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, SM-3 Block IIB, and sensors such as the forward-based Army-Navy/Transportable Radar Surveillance System (AN/TPY-2). Subsequent phases will be implemented based upon technical maturity, appropriate testing, and threat-driven requirements.

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 Agency (OTA) with an evaluation capability for individual components and systems-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 frameworks, BMDS Element models, threat assessments and phenomenology and lethality modeling, as well as communications and environmental modeling. The success of the missile defense program is enabled by quality

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	MD31: <i>Modeling & Simulation</i>

M&S products and capabilities that prove with certainty that the BMDS technologies work. 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]), OTAs, Director of Operational Test & Evaluation, and Allies. Targeted M&S activities support all aspects of BMDS development including BMDS design, Element modifications, flight test missions, ground tests, wargames, exercises, Performance Assessments (PAs), and Technical Assessments (TAs). Models and simulations are tailored to the specific need of a component in its current stage of development, ranging from low-to-medium fidelity analyses supporting concept definitions studies, to high-fidelity models used to support engineering development.

To execute the M&S mission requires reliance on and operation of two simulation frameworks which, when combined to meet specific M&S use case and user requirements with the appropriate fidelity, form a single Objective Simulation Architecture (OSF) version to enable BMDS performance in a simulated environment.

CECs are the test conditions that provide the greatest insight into the BMDS models' predictive capability, when compared to test results. EMEs are those ground or flight testing executed under operationally realistic conditions to collect data on those performance measures that can't be simulated such as data on survivability, reliability, performance in extreme natural environments, and supportability, needed for the Operational Test Agency Critical Operational Issues. The BMDS M&S uses the completed CECs and EMEs data to reconstruct flight tests to perform M&S validation. These M&S Digital and HWIL tools are accredited for each application and for specific CEC and EME objectives. The tools undergo a rigorous Verification & Validation (V&V) process which includes reviewing coding and specifications, and comparing analyses against actual flight test results (anchoring). Verification & Validation planning support is required to develop the comprehensive Verification & Validation plan, test objectives development analysis execution planning, analysis for V&V reports and program office M&S certification.

The BMDS M&S System is evolving into a fully integrated End-to-End HWIL/Digital system that provides a common source for truth and event control with an Initial Operational Capability. The final integrated system will merge the Single Stimulation Framework (SSF) and Digital Simulation Architecture (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. MDA will use the end-to-end M&S System to conduct BMDS ground tests, PAs, TAs, component training, Wargames, flight tests, threat analysis, international events, and COCOM exercises.

The Digital and HWIL End-to-End simulation of the BMDS requires an Integrated Verification & Validation Plan and Report (at both element and system level), and a system level Accreditation Plan and Report.

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 also examines the construct of the flight test to ensure the required data and data management plan will support System Post Flight Reconstruction (SPFR) and System Post-Ground Test Reconstruction (SPGR) 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. The results of this testing increase confidence in the

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	MD31: <i>Modeling & Simulation</i>

models and simulations by anchoring the M&S output to the real world event with emphasis on the CECs and EMEs. SPFR is used for validation (anchoring) of models and simulations. SPGR will use a HWIL and/or digital M&S environment for validation (anchoring) of Ground Test models and simulations.

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 Single Stimulation Framework (SSF) and Digital Simulation Architecture (DSA), as stand-alone frameworks and as a combined OSF with appropriate element and component models, enhance 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 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 technologies to hedge against future missile threats. Throughout the budget justification material, interdependencies are highlighted 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 OTAs, Elements, COCOMs, Army, Air Force, and numerous MDA organizations.

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 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 Director of Operational Test and Evaluation (DOT&E) BMDS Assessment Report to include:

- Executing BMDS scenarios that flight testing 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 SPFRs 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 and 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 IMTP. Element systems, subsystems, and components are tested early in development and are necessary prior to conducting BMD System-level testing. M&S level testing is funded as part of a developmental program and

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funds participation in the consolidated MDA-wide System Test Program. Resources for the planning, design, execution and management of M&S in BMDS testing are provided for all flight, integrated ground, and distributed ground tests and post-test analysis and reconstruction accordance with the BMDS Test Policy, as 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 derived from the Adversary Capability Document (ACD) and Adversary Data Packages (ADP) and drives BMDS ground tests, flight tests, digital simulations, and pre-mission analysis initiatives. The Threat Modeling Center (TMC) uses derivative ADP-based threat specifications to develop various missile models which are used to produce threat trajectory products in support of MDA events. The Threat Modeling Center model development requires frequent and multiple iterations with derivative ADP specification developers for various reasons, such as refining specifications, deriving next-order calculations, and engineering additional specifications. After missile models are developed, the model is flown using Threat Modeling Center trajectory generation tools to ensure output trajectories match the derivative ADP reference trajectories. All Threat Modeling Center models receive rigorous quality control reviews in addition to Verification & Validation reviews. After the Threat Modeling Center model is completed, the ADP is updated to include any additional threat specifications or changes. MDA M&S also supports European and Russian cooperative activities, North Korean and Iranian pre- and post-flight launch analysis, and the enhanced Israeli Interceptor program, and provides analytical support to the Agency and other government efforts in response to real world events.

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

	FY 2010	FY 2011	FY 2012
<p>Title: M&S Capability Development</p> <p style="text-align: right;">Articles:</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for these FY 2010 accomplishments are reported in prior year budget project YX31 (\$19.231).</p> <ul style="list-style-type: none"> -Executed the M&S Requirements Engineering process -Enforced cohesive M&S Systems Engineering processes across the enterprise -Enforced M&S standards to ensure M&S effectiveness and efficiency -Lead Systems Engineering Architecture Working Group Meetings on M&S Use Case Stakeholder Requirements -Developed & maintained Mission Space Description -Provided Event-specific analyses and briefings on appropriate Event milestones to affect planning, engineering and acquisition decisions -Began a collaborative effort to define and document the BMDS-level conceptual model -Assisted in publishing the Integrated Master Test Plan -Hosted a EUCOM Communications Architecture In-Process Review -Published M&S Communications Top Level Requirements document 	<p>-</p> <p>0</p>	<p>8.947</p> <p>0</p>	<p>7.690</p> <p>0</p>

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
<p>-Published Performance Assessment Capability Planning Specification Published Ground Test Capability Planning Specification -Published Exercise/Training Capability Planning Specification -Published Performance Assessment System Performance Specification for CD04 and beyond -Published charters for the System Engineering and Architecture Working Group and Integrated Architecture Working Group -Coordinated and processed requests to export M&S software to eight nations or international organizations -Supported Technical Interchange Meeting, provided draft language for a new PA, drafted a Project Phase Plan, and worked the execution of communications linkage to the UK under the Bilateral Activities via Secure Interactive Link BASIL PA -Developed the Acquisition Strategy, Business Case Analysis & Request for Procurement for the Objective Simulation Framework solicitation. The Objective Simulation Framework will unify the Digital & HWIL software frameworks, allowing seamless end-to-end representation of the BMDS in support of testing, training, exercises and development -Supported various Failure Review Boards to include FTG-06 -Supported the system engineering capability trades for the Phased Adaptive Approach Phase I</p> <p><i>FY 2011 Plans:</i></p> <p>-Verify and adjudicate stakeholder Modeling and Simulation need statements, capability statements, and capability packages for Epoch testing and assessment in PAs, Ground Test Campaigns, and Assured Response and Terminal Fury exercises -Provide updates and expand the over 170 model capability descriptions in the Missile Defense Agency's M&S catalog -Execute traceability between the Modeling and Simulation requirements database and Modeling and Simulation product development -Develop and publish M&S Capability Planning Specification (CPS) for element integration, concept analysis, and wargames use cases -Develop and publish a M&S System Requirements Document (SRD) describing the functional requirements for the capabilities described in the CPS documents -Develop and publish a M&S System Performance Specification (SPS) describing the performance/sufficiency requirements based on the information in the SRD and CPS -Support the update and publishing of the IMTP -Support requests to export M&S software to nations or international organizations -Support Technical Interchange Meetings and the BASIL Project Arrangement with the UK -Support the system engineering capability trades for the Phased Adaptive Approach Phase II and Capability Delivery 06</p> <p>FY 2011 Accomplishments</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 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 Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p>-Updated and published CPS for PA, Ground Test, and exercise/training use cases</p> <p>FY 2012 Plans:</p> <p>-Develop and publish the Modeling and Simulations CPS, SPS, and System Interface Control Documents (ICD) for the Digital Simulation Architecture (DSA) Framework build 4.0; Phenomenology, Lethality, Environments, Threat, and Communications; and SSF build 2.0</p> <p>-Verify and adjudicate stakeholder Modeling and Simulation need statements, capability statements, and capability packages for Epoch testing and assessment in PAs, Ground Test Campaigns, and Assured Response, and Terminal Fury exercises</p> <p>-Provide updates and expand the over 170 model capability descriptions in the Missile Defense Agency's Modeling and Simulation catalog</p> <p>-Execute traceability between the Modeling and Simulation requirements database and Modeling and Simulation product development</p> <p>-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 PAs, and Missile Defense Agency element integration</p> <p>-Develop and publish CPS for element integration, concept analysis, and wargames use cases</p> <p>-Update and publish CPS for PA, Ground Test, and exercise/training use cases</p> <p>-Develop and publish SRD describing the functional requirements for the capabilities described in the CPS documents</p> <p>-Develop and publish M&S SPS describing the performance/sufficiency requirements based on the information in the SRD and Capability Planning Specifications</p> <p>-Support the update and publishing of the IMTP</p> <p>-Support requests to export M&S software to nations or international organizations</p> <p>-Support Technical Interchange Meetings and the BASIL Project Arrangement with the UK</p> <p>-Support the system engineering capability trades for the Phased Adaptive Approach Phase II and Capability Delivery 06</p>				
<p>Title: M&S Digital Framework, Simulation, Models</p> <p align="right">Articles:</p>		-	36.470	14.360
<p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for these FY 2010 accomplishments are reported in prior year budget project YX31 (\$7.740).</p> <p>-Developed and delivered major releases of M&S digital products:</p>		0	5	0

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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 Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
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<p>-Digital Simulation Architecture framework for use in Technical Assessment 2010</p> <p>-Missile Defense Space warning Tool (models validated space-borne assets of BMDs) for use in TA10 and Warfighter Exercises</p> <p>-BMD International Simulation for use in International virtual BMD demonstrations, BMD education, and Warfighter wargames</p> <p>-Integrated, tested, functionally qualified, and delivered BMDs constructive Performance Assessment Simulation to support full-envelope BMDs performance assessment</p> <p>-Delivered Special Kinetic Impact Debris Distribution (KIDD) Release for DSA-P 2.1</p> <p>-Released Parametric Endo/Exoatmospheric Lethality Simulation (PEELS) Target Models to Support FTT-12 and FTT-13 Analyses</p> <p>-Provided Post-Engagement Ground Effect Model (PEGEM) 6.2 to Turkey</p> <p>-Continued Product Line development, sustainment, maintenance and product support for Threat Modeling Simulation System (TMSS) and Trajectory Generator External (TGx)</p> <p>-Planned, produced and delivered integrated threat products for: Ground Tests, Technical Assessments, Assured Response, Terminal Fury, Global Thunder, Air and Missile Defense Exercise, Ulchi Freedom Guardian 10, Distributed Multi-Echelon Education and Training System, Post Flight Reconstruction Data and Fast Eagle</p> <p>-Continued software operations/maintenance of the EADSIM code base for use in Warfighter Exercises</p> <p>-Provided software support for Patriot System Effectiveness Model (PSEM) for use in Technical Assessment 2010</p> <p>-Provided digital framework/modeling support to C2BMC software Spiral Testing for MDA's release of C2BMC v6.4</p> <p>-Procured and delivered 10 additional Performance Assessment Simulation ensemble for increased scenarios throughput ability supporting BMDs Performance Assessment, models anchoring, and validation</p> <p>-Planned, produced, and delivered ITPs for the execution of Ground Tests, Technical Assessments, Assured Response, Terminal Fury, and Global Thunder Air and Missile Defense Exercises, Distributed Multi-Echelon Training System (DMETS), and MDA Engineering Studies</p> <p><i>FY 2011 Plans:</i> A portion of this program content is reported under project MD07 (\$12.305) and MD09 (\$4.365).</p> <p>-Develop and deliver major releases of M&S digital products:</p> <p>-DSA framework for use in TAs</p> <p>-Missile Defense Space warning Tool (MDST) for use in TAs and Warfighter exercises</p> <p>-Continue software operations/maintenance of the Extended Air Defense Simulation (EADSIM) code base for use in Warfighter exercises</p> <p>-Provide software support for Patriot System Effectiveness Model (PSEM) for use in TAs</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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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
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<p>-Provide transitional DSA framework/modeling support to C2BMC software Spiral Testing for MDA's release of C2BMC v8.x development</p> <p>-Procure, install and maintain PA Simulation ensemble for Element M&S development laboratory use in the Digital M&S Integration Center (DMIC) in Huntsville, AL</p> <p>FY 2012 Plans:</p> <p>-Develop and delivered major releases of M&S digital products:</p> <p>-DSA framework for use in PAs as part of the Capability Delivery-04 (CD04) Operational Test, real-time venues including Warfighter exercises, Warfighter Training, C2BMC software Spiral Testing for MDA's release of C2BMC v8.x development, and Ground Test campaign</p> <p>-Missile Defense Space warning Tool (models validated space-borne assets of the BMDS) for use in PAs and Warfighter exercises</p> <p>-BMD International Simulation for use in International virtual BMD demonstrations, BMD education, and Warfighter wargames</p> <p>-Integrate, test, functionally qualify, and deliver end-to-end BMDS simulations supporting various uses:</p> <p>-PA Simulation (utilizing Digital Simulation Architecture, Missile Defense Space Tool, and Element-provided high-resolution models) to support full-envelope BMDS PAs</p> <p>-Real-time Digital Simulation (utilizing DSA, MDST, and Element-provided medium-resolution models) to support Warfighter exercises, Warfighter Training, Element spiral development, and Ground Test campaign</p> <p>-Operate and maintain software of the EADSIM code base for use in Warfighter exercises</p> <p>-Provide software support for Patriot System Effectiveness Model (PSEM) for use in PAs</p> <p>-Control and maintain PA Simulation ensembles for Element M&S development laboratory use in the DMIC in Huntsville, AL</p>			
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Title: M&S HWIL Framework, Simulations, Models	-	-	9.520
Articles:	0	0	0

Description: See Description Below

FY 2010 Accomplishments:
Funding for these FY2010 accomplishments are reported in prior budget year project YX31 (\$16.624).

-Planned, developed, integrated and deployed a common BMDS HWIL stimulation framework, the SSF and the MDSE--with the Elements for ground tests, exercises and demonstrations

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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 Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
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-Developed, delivered, and supported improved Plume/Hard body codes and target models and Optical Signatures In-Line Generator (OPTISIG) test procedures, and continued to define the fuel debris model interface to Fast Line-of-Site Imagery for Target and Exhaust - Plume Signatures (FLITES)

-Supported SPAWAR-Pacific, TCES participation in Ground Tests

-Derived and supported implementation and verification of the BMDS System Performance Government IV&V to include the current versions of the core phenomenology and lethality models and verification benchmarking on Optical Scene Code (OSC) and OPTISIG

-Conducted V&V of the BMDS HWIL Single Stimulation Framework for BMDS ground tests, exercises and demonstrations

-Implemented enhancements to the SSF required for integration and test of Element Benchmarks (EBMs) (including formal qualification testing) for ground test campaigns to include identification of interdependencies

-Implemented the SSF interface with two AN/TPY-2 radars and integrated into BMDS Ground Test

-Integrated an SSF interface with the Ground-Based Midcourse Defense and BMDS Sensors fielded assets

-Developed, deployed and integrated SSF for Ground-Based Midcourse Defense and BMDS Sensors stand-alone training

-Worked initial integration of the BMDS SSF with the ARROW HWIL facility in Israel

-Evolved and enhanced the SSF to provide increased Warfighter support, specifically training and exercises

-Integrated the SSF with additional Allied/Coalition elements to expand distributed ground test and exercise venues

-Provided System Engineering support to upgrade the BMDS stimulation framework to SSF

-Completed initial integration of the BMDS stimulation framework with the additional sensors

-Provided common threat representations and scenarios to meet specific event and customer requirements for the BMDS HWIL framework

FY 2011 Plans:

The program content in this project is reported under project MD09 (\$69.937).

FY 2012 Plans:

A portion of the FY 2012 program content is reported under project MD09 in PB12.

-Develop and integrate the HWIL SSF at COCOM, training, and exercise Host Nation locations

-Integrate the BMDS HWIL SSF with the ARROW HWIL facility

-Continue integration of the SSF with additional Allied/Coalition elements

-Complete Cobra Dane closure interface development

-Begin integration of SSF with UEWR Clear AFS

-Provide for SSF sustainment, maintenance and product support

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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 Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
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<ul style="list-style-type: none"> -Deploy and integrate BDMS HWIL SSF to support Ground Base Mid-Course and BMDS Sensors directorates stand-alone training and the Distributed Multi-Echelon Training System (DMETS) capability -Begin deployment and integration of BMDS HWIL SSF Objective Hardware for MDA Elements and a Releasable configuration for Allied and Coalition partners -Begin installation of BMDS HWIL SSF software capability and necessary hardware/ maintenance to support a 2nd parallel test string (Ground Test assets only) -Demonstrate initial Open Architecture redesign capabilities -Deploy and install SSF node in fielded AN/TPY-02 shelter <p>, Combatant Command Exercise (Global Lightning 13) 3Q2013</p>			
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<p>Title: M&S VV&A and Test Operations</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for these FY 2010 accomplishments are reported in prior year budget project YX31 (\$3.883).</p> <ul style="list-style-type: none"> -Provided integrated Verification, Validation, & Assessment (VV&A) of MDA M&S at the system level for specific events, to include Technical Assessment, Performance Assessment, Ground Tests that support BMDS fielding decisions, and tier one COCOM exercises -Developed integrated VV&A event Plans and Reports for each event -Worked closely with Elements, Test Community, System Engineering, and OTAs to ensure M&S for events met intended uses and objectives, and had proper VV&A documentation and evidence, to include benchmarking/anchoring pedigree -Conducted system-level V&V to include threat trajectory and signature V&V throughout the system; end-to-end environmental implementation was consistent and correct; communications and architecture behaved properly; and interoperability was adequately addressed -Developed and implemented M&S standards consistent with industry best practices -Activated and operated a problem reporting system to capture M&S anomalies; incorporated into requirements process for M&S improvements -Led BMDS VV&A working group to improve VV&A operations and ultimately improve BMDS performance -Developed and implemented metrics on system-level M&S to increase efficiencies and effectiveness 	Articles:	-	-	15.002
		0	0	0

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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 Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
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<p>-Ensured that individual BMDS elements and components were responsible for the proper VV&A of their own models</p> <p>FY 2011 Plans: The program content in this project is reported under project MD09 (\$38.119).</p> <p>FY 2012 Plans:</p> <ul style="list-style-type: none"> -Provide integrated VV&A of MDA M&S at the system level for specific events, to include TAs, PA, Ground Tests that support BMDS fielding decisions, and tier one COCOM exercises -Develop integrated VV&A event Plans and Reports for Focused Ground Tests, Integrated Ground Tests, PAs, and Assured Response exercise -Work closely with Elements, Test Community, System Engineering, and OTAs to ensure M&S for each event meet intended uses and objectives, and have proper VV&A documentation and evidence, to include benchmarking/anchoring pedigree -Conduct system-level V&V of threat trajectory and signature; ensure end-to-end environmental implementation is consistent and correct communications and architecture behave properly and interoperability is adequately addressed -Develop and implement M&S standards consistent with industry best practices -Develop, implement and configure control of web-based problem reporting system to capture M&S anomalies and incorporate corrections into requirements process in order to guarantee and measure M&S improvement -Lead BMDS VV&A working group to improve VV&A operations and ultimately improve BMDS performance -Develop and implement metrics for system-level M&S to increase efficiencies and effectiveness -Develop model and simulation target requirements to support CECs and EMEs test conditions 			
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Title: M&S Phenomenology, Lethality, Environment, Threat, Communications	-	19.206	10.045
Articles:	0	0	0

Description: See Description Below

FY 2010 Accomplishments:
The Phenomenology, Lethality, Environment, Threat, Communications (PLET-C) effort began in FY 2011.

FY 2011 Plans:

- Provide M&S tools and technical support, and modify code for model, threat, and scenario development
- Provide Optical Scene Code (OSC) and the plume modeling tools to include major software fixes to support ADP development
- Provide existing legacy validation for OSC and the plume modeling tools
- Develop and integrate MDA Threat Systems Engineer specified capabilities-based and intelligence-credible threat models into M&S threat tools, TMSS, and TGx

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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 Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Plan and produce threat trajectory products using M&S threat tool, Threat Modeling Simulation System (TMSS), for Integrated Threat Products (ITPs) -Plan, integrate, produce, and deliver ITPs (threat trajectories and signatures) for the execution of Ground Tests and Performance/TAs -Plan, integrate, produce, and deliver ITPs for the execution of wargames, exercises, Distributed Multi-Echelon Training System (DMETS), and MDA engineering studies -Integrate, produce, and deliver ITPs for Flight Tests <i>FY 2012 Plans:</i> -Plan and produce threat trajectory products using M&S threat tool, TMSS, for ITPs -Plan, integrate, produce, and deliver ITPs (threat trajectories and signatures) for the execution of Ground Tests and Performance/TAs -Plan, integrate, produce, and deliver ITPs for the execution of wargames, exercises, Distributed Multi-Echelon Training System (DMETS), and MDA engineering studies -Integrate, produce, and deliver ITPs for Flight Tests -Complete integration of Environment modeling capabilities to provide common and consistent environmental data to digital system-level M&S events -Complete integration of remaining PLET-C functions (e.g., phenomenology, lethality, and threat) to provide common and consistent data to digital system-level M&S events -Complete Systems Engineering efforts to support integration of all PLET-C functions into HWIL frameworks -Begin integration efforts to provide PLET-C functionality to HWIL networks -Develop model and simulation target requirements to support CECs and EMEs test conditions			
Accomplishments/Planned Programs Subtotals	-	64.623	56.617

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	690.054	436.482	290.452		290.452	318.745	309.894	340.969	320.638	Continuing	Continuing
	1,022.019	1,346.181	1,161.001		1,161.001	1,040.949	925.943	856.839	875.969	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 MD31: <i>Modeling & Simulation</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>			222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	544.352	454.859			222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
• 0603891C: <i>SPECIAL PROGRAMS - MDA</i>	253.157	270.189	296.554		296.554	377.845	416.052	430.969	452.448	Continuing	Continuing
• 0603892C: <i>BMD AEGIS</i>	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603893C: <i>SPACE TRACKING & SURVEILLANCE SYSTEM</i>	148.506	112.678	96.353		96.353	53.577	47.592	32.289	34.308	Continuing	Continuing
• 0603895C: <i>BMD SYSTEM SPACE PROGRAM</i>	11.913	10.942	7.951		7.951	6.781	6.465	6.496	6.915	Continuing	Continuing
• 0603896C: <i>BMD C2BMC</i>	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603898C: <i>BMD JOINT WARFIGHTER SUPPORT</i>	58.105	68.726	41.225		41.225	58.089	55.961	56.479	60.684	Continuing	Continuing
• 0603902C: <i>STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)</i>	0.000	0.000	123.456		123.456	433.106	384.647	401.141	394.803	Continuing	Continuing
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing
• 0603911C: <i>BMD EUROPEAN CAPABILITY</i>	47.342	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	47.342
• 0603913C: <i>ISRAELI COOPERATIVE</i>	195.652	121.735	106.100		106.100	99.873	95.819	96.840	103.977	Continuing	Continuing
• 0901598C: <i>Management Headquarters-MDA</i>	62.294	29.754	28.908		28.908	29.112	27.728	27.827	29.949	Continuing	Continuing

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)

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APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	MD31: <i>Modeling & Simulation</i>

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. In addition, in FY 2012 the Objective Simulation Framework (OSF) contract will be awarded. This full-and-open competition will unify M&S framework development efforts to allow seamless end-to-end representation of the BMDS, across HWIL and Digital domains, to support all Use Cases at substantial savings to the Agency.

E. Performance Metrics

N/A

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Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
M&S Capability Development M&S Integrated Master Plan MD31	C/FFP	ManTech:CO	-	2.155	Nov 2010	1.945	Nov 2011	-		1.945	Continuing	Continuing	Continuing
M&S Capability Development M&S Configuration & Risk Management MD31	C/FFP	ManTech:CO	2.120	2.160	Nov 2010	1.951	Nov 2011	-		1.951	Continuing	Continuing	Continuing
M&S Capability Development M&S Product Capability Documents MD31	C/FFP	Boeing:AL	7.008	4.632	Nov 2010	3.794	Nov 2011	-		3.794	Continuing	Continuing	Continuing
M&S Digital Framework, Simulation, Models Integrated M&S Capability for Performance Assessment MD31	C/CPAF	Northrop Grumman:CO	15.297	17.770	Nov 2010	10.429	Nov 2011	-		10.429	Continuing	Continuing	Continuing
M&S Digital Framework, Simulation, Models Integrated M&S Capability for International Programs MD31	C/CPAF	Northrop Grumman:CO	15.298	18.700	Nov 2010	3.931	Dec 2011	-		3.931	Continuing	Continuing	Continuing
M&S HWIL Framework, Simulations, Models Single Stimulation Framework & Objective Simulation Framework Product Development & Deployment MD31	C/CPAF	Boeing:AL	44.981	-		9.520	Nov 2011	-		9.520	Continuing	Continuing	Continuing
M&S Phenomenology, Lethality, Environment, Threat, Communications Trajectory Generator eXternal MD31	C/CPAF	Northrop Grumman:CO	1.200	3.519	Nov 2010	2.601	Nov 2011	-		2.601	Continuing	Continuing	Continuing
M&S Phenomenology, Lethality, Environment, Threat, Communications Communication Network Model Development MD31	C/CPAF	Northrop Grumman:CO	-	2.149	Nov 2010	0.300	Nov 2011	-		0.300	Continuing	Continuing	Continuing
	C/CPAF	Northrop Grumman:CO	-	2.955	Nov 2010	0.475	Nov 2011	-		0.475	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
M&S Phenomenology, Lethality, Environment, Threat, Communications PLET-C Integration, Assembly, Test & Checkout MD31													
M&S Phenomenology, Lethality, Environment, Threat, Communications Threat Modeling Simulation System MD31	C/CPAF	Northrop Grumman:CO	6.220	4.054	Nov 2010	2.627	Nov 2011	-		2.627	Continuing	Continuing	Continuing
M&S Phenomenology, Lethality, Environment, Threat, Communications Lethality/Phenomenology Modeling MD31	MIPR	AMRDEC:AL	11.360	6.529	Dec 2010	4.042	Dec 2011	-		4.042	Continuing	Continuing	Continuing
Subtotal			103.484	64.623		41.615		-		41.615			

Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
M&S VV&A and Test Operations Performance Assessment VV&A MD31	C/CPAF	Northrop Grumman:CO	3.395	-		8.195	Dec 2011	-		8.195	Continuing	Continuing	Continuing
M&S VV&A and Test Operations Ground Test VV&A MD31	C/CPAF	Northrop Grumman:CO	1.221	-		3.200	Dec 2011	-		3.200	Continuing	Continuing	Continuing

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 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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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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

Events	Start		End	
	Quarter	Year	Quarter	Year
Assured Response (AR-04D) 2Q2011	2	2011	2	2011
Assured Response (AR-04E) 3Q2013	3	2013	3	2013
Assured Response (AR-04X) 1Q2011	1	2011	1	2011
Assured Response (AR-06A) 2Q2015	2	2015	2	2015
Combatant Command Exercise (Global Lightning 11) 3Q2011	3	2011	3	2011
Combatant Command Exercise (Global Lightning 12) 3Q2012	3	2012	3	2012
Combatant Command Exercise (Global Lightning 13) 3Q2013	3	2013	3	2013
Combatant Command Exercise (Global Lightning 14) 3Q2014	3	2014	3	2014
Combatant Command Exercise (Global Lightning 15) 3Q2015	3	2015	3	2015
Combatant Command Exercise (Global Thunder 11) 1Q2011	1	2011	1	2011
Combatant Command Exercise (Global Thunder 12) 1Q2012	1	2012	1	2012
Combatant Command Exercise (Global Thunder 13) 2Q2013	2	2013	2	2013
Combatant Command Exercise (Global Thunder 14) 2Q2014	2	2014	2	2014
Combatant Command Exercise (Global Thunder 15) 2Q2015	2	2015	2	2015
Combatant Command Exercise (Terminal Fury 11) 3Q2011	3	2011	3	2011
Combatant Command Exercise (Terminal Fury 12) 3Q2012	3	2012	3	2012
Combatant Command Exercise (Terminal Fury 13) 3Q2013	3	2013	3	2013
Combatant Command Exercise (Terminal Fury 14) 3Q2014	3	2014	3	2014
Combatant Command Exercise (Terminal Fury 15) 3Q2015	3	2015	3	2015
Combatant Command Exercise (Vigilant Shield 11) 1Q2011	1	2011	1	2011
Combatant Command Exercise (Vigilant Shield 12) 1Q2012	1	2012	1	2012
Combatant Command Exercise (Vigilant Shield 13) 1Q2013	1	2013	1	2013

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Events	Start		End	
	Quarter	Year	Quarter	Year
Combatant Command Exercise (Vigilant Shield 14) 1Q2014	1	2014	1	2014
Combatant Command Exercise (Vigilant Shield 15) 1Q2015	1	2015	1	2015
Combatant Command Wargame Nimble Titan-12 (NT12) 3Q2012	3	2012	3	2012
Combatant Command Wargame Nimble Titan-14 (NT14) 3Q2014	3	2014	3	2014
Congressional Wargame 2Q2011	2	2011	2	2011
Congressional Wargame 2Q2012	2	2012	2	2012
Congressional Wargame 2Q2013	2	2013	2	2013
Congressional Wargame 2Q2014	2	2014	2	2014
Congressional Wargame 2Q2015	2	2015	2	2015
Digital Simulation Architecture (DSA) 1.1.3 2Q2010	2	2010	2	2010
Digital Simulation Architecture (DSA) 2.1 3Q2010	3	2010	3	2010
Digital Simulation Architecture (DSA) Performance 1.2 3Q2010	3	2010	3	2010
Digital Simulation Architecture (DSA) Performance v1.5 3Q2011	3	2011	3	2011
Digital Simulation Architecture (DSA) Performance v2.0 1Q2013	1	2013	1	2013
Digital Simulation Architecture (DSA) v2.1.1 1Q2011	1	2011	1	2011
Digital Simulation Architecture (DSA) v3.1 3Q2011	3	2011	3	2011
Digital Simulation Architecture (DSA) v3.2 1Q2012	1	2012	1	2012
Digital Simulation Architecture (DSA) v4.0 3Q2013	3	2013	3	2013
Ground Test, Distributed 04 (GTD-04) Developmental Test 4Q2013	4	2013	4	2013
Ground Test, Distributed 04 (GTD-04) Global Defense Exercise (GDEx) 1Q2014	1	2014	1	2014
Ground Test, Distributed 04 (GTD-04) Operational Test 4Q2013	4	2013	4	2013
Ground Test, Distributed 04 (GTD-04) Warfighter Trial Period 1Q2014	1	2014	1	2014
Ground Test, Distributed 04 (GTD-04b) 2Q2011	2	2011	2	2011
Ground Test, Distributed 04 (GTD-04d) (Part 1) 4Q2011	4	2011	4	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Events	Start		End	
	Quarter	Year	Quarter	Year
Ground Test, Distributed 04 (GTD-04d) (Part 2) 1Q2012	1	2012	1	2012
Ground Test, Distributed 04e (GTD-04e) Verification, Validation and Accreditation 2Q2013	2	2013	2	2013
Ground Test, Distributed 06 (GTD-06) Developmental Test 3Q2015	3	2015	3	2015
Ground Test, Distributed 06 (GTD-06) Operational Test 3Q2015	3	2015	3	2015
Ground Test, Distributed 06 (GTD-06) Verification, Validation and Accreditation 1Q2015	1	2015	1	2015
Ground Test, Focus, 04a (GTX-04a) 1Q2010-2Q2010	1	2010	1	2010
Ground Test, Focused 04e (GTX-04e) 1Q2012	1	2012	1	2012
Ground Test, Focused 04e (GTX-04e) System Post-Ground Test Reconstruction 3Q2012	3	2012	3	2012
Ground Test, Focused 06a (GTX-06a) 4Q2013	4	2013	4	2013
Ground Test, Focused 06b (GTX-06b) 2Q2014	2	2014	2	2014
Ground Test, Focused 06b (GTX-06b) System Post-Ground Test Reconstruction 2Q2014	2	2014	2	2014
Ground Test, Focused 07a (GTX-07a) 2Q2016	2	2016	2	2016
Ground Test, Focused 07b (GTX-07b) 3Q2016	3	2016	3	2016
Ground Test, Focused 07b (GTX-07b) System Post-Ground Test Reconstruction 4Q2016	4	2016	4	2016
Ground Test, Integrated 04 (GTI-04) (ISR) 1Q2012	1	2012	1	2012
Ground Test, Integrated 04 (GTI-04) Operational Test 4Q2013	4	2013	4	2013
Ground Test, Integrated 04b (GTI-04b) 4Q2010	4	2010	4	2010
Ground Test, Integrated 04d (GTI-04d) 3Q2011	3	2011	3	2011
Ground Test, Integrated 04e (GTI-04e) Developmental Test 3Q2013	3	2013	3	2013
Ground Test, Integrated 04e (GTI-04e) Verification, Validation and Accreditation 1Q2013	1	2013	1	2013
	2	2013	2	2013

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Events	Start		End	
	Quarter	Year	Quarter	Year
Ground Test, Integrated 04e (GTI-04e) Verification, Validation and Accreditation, System Post-Ground Test Reconstruction 2Q2013				
Ground Test, Integrated 06 (GTI-06) Developmental Test 3Q2015	3	2015	3	2015
Ground Test, Integrated 06 (GTI-06) Operational Test 3Q2015	3	2015	3	2015
Ground Test, Integrated 06 (GTI-06) Verification, Validation and Accreditation 3Q2014	3	2014	3	2014
Ground Test, Integrated 06 (GTI-06) Verification, Validation and Accreditation, System Post-Ground Test Reconstruction 1Q2015	1	2015	1	2015
International Simulation 2Q2010	2	2010	2	2010
International Simulation v10.0 2Q2014	2	2014	2	2014
International Simulation v11.0 2Q2015	2	2015	2	2015
International Simulation v7.0 2Q2011	2	2011	2	2011
International Simulation v8.0 2Q2012	2	2012	2	2012
International Simulation v9.0 2Q2013	2	2013	2	2013
Missile Defense Space Warning Tool 2Q2010	2	2010	2	2010
Multi-National Missile Defense Conference Wargame 4Q2011	4	2011	4	2011
Multi-National Missile Defense Conference Wargame 4Q2012	4	2012	4	2012
Multi-National Missile Defense Conference Wargame 4Q2013	4	2013	4	2013
Multi-National Missile Defense Conference Wargame 4Q2014	4	2014	4	2014
Multi-National Missile Defense Conference Wargame 4Q2015	4	2015	4	2015
National Missile Defense Conference Wargame 2Q2011	2	2011	2	2011
National Missile Defense Conference Wargame 2Q2012	2	2012	2	2012
National Missile Defense Conference Wargame 2Q2013	2	2013	2	2013
National Missile Defense Conference Wargame 2Q2014	2	2014	2	2014
National Missile Defense Conference Wargame 2Q2015	2	2015	2	2015
Objective Simulation Framework (OSF) Contract Award 3Q2011	3	2011	4	2011

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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Events	Start		End	
	Quarter	Year	Quarter	Year
Objective Simulation Framework (OSF) v0.0 2Q2012	2	2012	2	2012
Objective Simulation Framework (OSF) v1.0 1Q2013	1	2013	1	2013
Objective Simulation Framework (OSF) v2.0 4Q2013	4	2013	4	2013
Objective Simulation Framework (OSF) v3.0 4Q2014	4	2014	4	2014
Objective Simulation Framework (OSF) v4.0 4Q2015	4	2015	4	2015
Performance Assessment (PA04) 4Q2013	4	2013	4	2013
Performance Assessment (PA06) 4Q2015	4	2015	4	2015
Performance Assessment (PA15 - Epoch 2) 4Q2015	4	2015	4	2015
Single Simulation Framework (SSF 1.1.1) 3Q2010	3	2010	3	2010
Single Stimulation Framework (SSF 1.0) 2Q2010	2	2010	2	2010
Single Stimulation Framework (SSF 1.1.2) 2Q2011	2	2011	2	2011
Single Stimulation Framework (SSF 1.1.3) 3Q2011	3	2011	3	2011
Single Stimulation Framework (SSF 1.1.5) 1Q2013	1	2013	1	2013
Single Stimulation Framework (SSF) v1.1.5 (2nd HWIL string) 1Q2013	1	2013	1	2013
Single Stimulation Framework (SSF) v1.1.5 1Q2013	1	2013	1	2013
TSS v.0 1Q2011	1	2011	1	2011
TSS v1.0 4Q2011	4	2011	4	2011
TSS v2.0 4Q2013	4	2013	4	2013
Technical Assessment (TA04) 4Q2011	4	2011	4	2011
Technical Assessment (TA04) Risk Reduction Test 4Q2010	4	2010	4	2010
Technical Assessment (TA07) 4Q2016	4	2016	4	2016
Technical Assessment (TA10) 4Q2010	4	2010	4	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX32: <i>Quality, Safety, and Mission Assurance</i>	29.184	-	-	-	-	-	-	-	-	0.000	29.184
Quantity of RDT&E Articles	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 FY 2011-FY 2015 are now captured in Project MD32.

A. Mission Description and Budget Item Justification

Project YX32 has been transferred to Project MD32.

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

	FY 2010	FY 2011	FY 2012
Title: Quality, Safety & Mission Assurance	29.184	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	29.184	-	-

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

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD32: <i>Quality, Safety, and Mission Assurance</i>	-	32.881	33.045	-	33.045	30.725	28.548	28.091	30.078	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Provides Mission Assurance Representatives (MARs) for the MDA Director at government and contractor facilities. MARs are Government Mission Assurance and Quality experts who provide oversight of production work to the contractor's executive management in support of the program elements, and their respective program offices. Mission Assurance Audits are conducted which focus on processes and procedures. Audits are performed for contractual requirements, internal requirements, and industry best corrective action assessments. These audits are one of MDA's most effective methods of enabling change among the MDA contractors and suppliers. QS provides Subject Matter Experts who 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 Ballistic Missile Defense System (BMDS). QS develops overarching quality guidance such as the MDA Assurance Provisions (MAP) for MDA. Vehicle pedigree documentation is reviewed to ensure all integration and testing rework and repair is performed within approved processes.

Quality - Provides on-site Quality Assurance coverage on all flight tests to ensure mission success and that all processes and procedures are adhered to and no short cuts or deviations occur. Provide quality Subject Matter Experts who attend all technical reviews (i.e. Design, Test and Mission Readiness Reviews) to ensure quality practices and procedures are implemented across BMDS. Ensures integrity and standards are maintained on all system parts and processes throughout manufacturing and implementation. Provide quality for on-site formal recording and resolution of non-conformances and anomalies during test per MDA/BMDS requirements. Initiate and lead on-site Joint Government and Industry Team field support and expertise to assist when critical sole source suppliers are failing. Team conducts initiatives to revamp sole source suppliers by assisting them to get healthy and perform at world class levels. Provide on-site Quality Assurance coverage on all ground tests to ensure mission success and that all processes and procedures are adhered to and no short cuts or deviations occur.

Safety - Responsible for system safety of the Ballistic Missile Defense System and for the Safety and Occupational Health of personnel located in the National Capital Region (NCR); Huntsville, Alabama; Fort Greely, Alaska; and Vandenberg Air Force Base (VAFB), California. Also responsible for ensuring the overall safety of the civilian, contractor and military workforce. QS provides on-site support 24 hours a day, 7 days a week, 365 days a year to ensure operational safety of systems. QS verifies that all systems are functioning and tracking against actual verified targets and that all associated processes and procedures are strictly followed.

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

	FY 2010	FY 2011	FY 2012
Title: Quality, Safety & Mission Assurance	-	32.881	33.045
Articles:	0	0	0
Description: See Description Below			

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 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>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011
<p><i>FY 2010 Accomplishments:</i> Funding for FY 2010 accomplishments are reported in prior year budget Project YX32 (\$29,184).</p> <ul style="list-style-type: none"> -Maintained on-site quality, and mission assurance oversight at 21 critical suppliers and Government facilities -Led a series of production readiness assessments at key contractor sites, identifying substantial technical and quality process risks; also performed assessments in preparation for the Terminal High Altitude Area Defense program production decision -Continued success incorporating quality, safety and mission assurance requirements in major contracts; all new contracts awarded in 2010 contained these provisions -Originated and published BMDS Systems Safety Program Plan as means of documenting safety requirements for Build D of the BMDS -Provided quality assessments, configuration certification and non-conformance reporting for all flight and ground test operations; over several hundred BMDS Test Incident Reports identified and tracked to closure -Provided technical support for all major Failure investigations -Maintained 24 hours a day, 7 days a week, 365 days a year Ballistic Missile Defense System safety monitoring for all operations, including test and maintenance activities -Continued to infuse best industry practices into program supply chain with over 30 Lessons Learned and 13 MDA advisories (tin whiskers, counterfeit parts, manufacturing issues, moisture sensitive componets, part failures and reliability concerns) -Facilitated 52 Distributor and Supplier assessments for counterfeit part avoidance and conducted 4 Prime Contractor facility assessments for counterfeit risk reduction -Performed 13 pedigree reviews, 7 interceptor and target system component qualification assessments, 3 safety audits, 9 design reviews, and quality inspection support at select facilities <p><i>FY 2011 Plans:</i> Quality</p> <ul style="list-style-type: none"> -Continue to provide non-advocate independent quality oversight/support to Agency via key engineering and configuration management forums -Perform configuration management verification and reconciliation for all major flight and ground test assets -Ensure strict process control over integration delivery and conduct of all major flight and ground tests -Identify and resolve system and/or assembly incompatibilities, non-conformances, inadequate requirement definition, insufficient requirement traceability, process adherences, and design, manufacturing, test, and quality practices <p>Safety</p>			

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011
<p>-Maintain on-site safety oversight at key suppliers and Government facilities</p> <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</p> <p>-Conduct system analysis/assessments such as reliability prediction analysis, failure modes and effects criticality analysis, safety hazards analysis</p> <p>-Perform hazard risk assessments and manage the BMDS safety hazard tracking system</p> <p>-Provide technical leadership and support for Program insensitive munitions and hazard classification activities</p> <p>Mission Assurance</p> <p>-Perform non-conformance reporting, tracking, and migration for all major flight and ground tests</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>-Conduct mission assurance audits, and safety audits as necessary at mission critical supplier sites</p> <p>BMDS Safety Officers (BSOs)</p> <p>-Perform 24 hours a day, 7 days a week, 365 days a year safety monitoring of operational and test systems to ensure safe transition between test and operations</p> <p>-Perform monitoring and tracking of non-conformance behavior of the operational system. Coordinates with Warfighter and Quality, Safety, and Mission Assurance on proper root cause and resolution of all anomalies.</p> <p>MDA Parts and Materials Program</p> <p>-Continue to enforce Program compliance to the Missile Defense Agency Part, Material and Processes Assurance Provisions (PMAP)</p> <p>-Continue to provide a Parts and Material knowledge center to address Program and Supplier part and material issues arising from development or fielded systems</p> <p>-Update the Agency's preferred parts and materials list database to facilitate new system design and to identify part obsolescence issues</p> <p>Acquisition Support</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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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 MD32: <i>Quality, Safety, and Mission Assurance</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
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-Ensure all new acquisitions are in compliance with the MDA Assurance Provisions (MAP), the MDA Parts, Materials and Processes Assurance Provisions and all applicable DFAR, FAR, and clauses regarding quality, safety and mission assurance

-Update the Missile Defense Agency Assurance Provisions (MAP) document to incorporate design, test, manufacturing, quality, safety, and mission assurance lessons learned to further improve acquisition requirements

-Improve MDA`s acquisition strategy through participation in the definition and determination of all Award Fee Boards

Technical Assistance to MDA Elements

-Perform independent/non-advocate reviews, such as design certification, pedigree, failure, preliminary design, critical design and technical interchange reviews to ensure compliance with industry best practices

-Provide mission assurance support to major failure review boards to ensure comprehensive mitigation strategies for operational assets are employed

-Continue providing Ground-Based Midcourse Defense (GMD) with Navy quality expertise for Sea-Based X-Band radar (SBX) operations. This includes a Mission Assurance Representative (MAR) on board the SBX vessel at all time

-Verify robust Program controls are in place for general housekeeping and quality assurance practices including, but not limited to, foreign object debris, electrostatic discharge and contamination control.

Intra-Agency & Industry Activities

-Perform major stakeholder quality initiatives to improve quality of products, improve onsite processes, and internal requirements at critical sole source suppliers

-Participate in the Defense Standardization Board to ensure that MDA has an equal voice in the specification and standard requirements used across the DoD

-Initiate & Lead quality, safety and mission assurance forums to obtain lessons learned and understand/promote new requirements or methods

Safety and Occupational Health

-Ensure compliance with DoD Safety and Occupational Health regulations and requirements

-Perform all required Occupational Safety and Health Inspections of MDA facilities including those in the National Capital Region, Huntsville, AI, Colorado and Vandenberg Air Force Base

FY 2010	FY 2011	FY 2012

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 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>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011
<p>-Maintain MDA's Safety and Quality concerns Hotline allowing anonymous reporting of any incident effecting the health and safety of MDA employees</p> <p>FY 2012 Plans: Quality</p> <p>-Continue to provide non-advocate independent quality oversight/support to Agency key engineering and configuration management forums</p> <p>-Continue to perform configuration management verification and reconciliation for all major flight and ground test assets</p> <p>-Continue process control over integration delivery and conduct of all major flight and ground tests</p> <p>Safety</p> <p>-Continue to maintain on-site safety oversight at key suppliers and Government facilities</p> <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</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</p> <p>Mission Assurance</p> <p>-Continue to perform non-conformance reporting, tracking, and migration for all major flight and ground tests</p> <p>-Continue to 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>-Continue conducting full scale Mission Assurance audits (approx 40 people for 2 weeks) and safety audits as necessary at our 23 key mission critical supplier sites</p> <p>BMDS Safety Officers (BSOs)</p> <p>-Continue performing 24 hours a day, 7 days a week, 365 days a year safety monitoring of operational and test systems to ensure safe transition between test and operations</p> <p>-Continue monitoring and tracking of non-conformance behavior of the operational system. Coordinates with Warfighter and Quality, Safety, and Mission Assurance on proper root cause and resolution of all anomalies</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 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>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011
<p>MDA Parts and Materials Program</p> <ul style="list-style-type: none"> -Continue to enforce Program compliance to the Missile Defense Agency Part, Material and Processes Assurance Provisions (PMAP) -Continue to provide a Part and Material knowledge center to address Program and Supplier part and material issues arising from development or fielded systems -Continue updating the Agency's preferred parts and materials list database to facilitate new system design and to identify part obsolescence issues <p>Acquisition Support</p> <ul style="list-style-type: none"> -Ensure all new acquisitions are in compliance with the MDA Assurance Provisions (MAP), the MDA Parts, Materials and Processes Assurance Provisions and all applicable DFAR, FAR, and clauses regarding quality, safety and mission assurance -Continue updating the Missile Defense Agency Assurance Provisions (MAP) document to incorporate design, test, manufacturing, quality, safety, and mission assurance lessons learned to further improve acquisition requirements -Continue to improve MDA's acquisition strategy through participation in the definition and determination of all award fees <p>Technical Assistance to MDA Elements</p> <ul style="list-style-type: none"> -Continue performing independent/non-advocate reviews, such as design certification, pedigree, failure, preliminary design, critical design and technical interchange reviews to ensure compliance with industry best practices -Continue providing mission assurance support to major failure review boards to ensure comprehensive mitigation strategies for operational assets are employed -Continue providing Ground-Based Midcourse Defense (GMD) with Navy quality expertise for Sea-Based X-Band radar (SBX) operations. This includes a Mission Assurance Representative (MAR) on board the SBX vessel at all times. <p>Intra-Agency & Industry Activities</p> <ul style="list-style-type: none"> -Continue performing major stakeholder quality initiatives to improve quality of products, improve onsite processes, and internal requirements at critical sole source suppliers -Participate in the Defense Standardization Board to ensure that MDA has an equal voice in the specification and standard requirements used across the DoD 			

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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 Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
<p>-Continue to Initiate & Lead quality, safety and mission assurance forums to obtain lessons learned and understand/promote new requirements or methods</p> <p>Safety and Occupational Health</p> <p>-Continue ensuring compliance with DoD Safety and Occupational Health regulations and requirements</p> <p>-Perform all required Occupational Safety and Health Inspections of MDA facilities including those in the National Capital Region, Huntsville, AL, Colorado and Vandenberg Air Force Base</p> <p>-Maintain MDA's Safety and Quality concerns Hotline allowing anonymous reporting of any incident effecting the health and safety of MDA employees</p> <p>Defense Efficiency - Contractor Staff Support and Civilian Staffing Reduction. As part of the Department of Defense reform agenda, reduces funds below the aggregate level reported in FY2010 controls that augment staff functions and eliminates civilian full-time equivalent positions to maintain, with limited exceptions, civilian staffing at the FY2010 level. (Total combined Reduction: \$1.460M)</p>			
Accomplishments/Planned Programs Subtotals	-	32.881	33.045

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

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: <i>Ballistic Missile Defense Technology</i>	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	690.054	436.482	290.452		290.452	318.745	309.894	340.969	320.638	Continuing	Continuing
• 0603882C: <i>Ballistic Missile Defense Mid-Course Segment</i>	1,022.019	1,346.181	1,161.001		1,161.001	1,040.949	925.943	856.839	875.969	Continuing	Continuing
• 0603883C: <i>Ballistic Missile Defense Boost Defense Segment</i>	172.419	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	172.419
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603892C: <i>BMD AEGIS</i>	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603896C: <i>BMD C2BMC</i>	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603902C: <i>STANDARD</i>	0.000	0.000	123.456		123.456	433.106	384.647	401.141	394.803	Continuing	Continuing
<i>MISSILE-3 BLOCK IIB (SM-3 IIB)</i>											
• 0603904C: <i>MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)</i>	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing
• 0603913C: <i>ISRAELI COOPERATIVE</i>	195.652	121.735	106.100		106.100	99.873	95.819	96.840	103.977	Continuing	Continuing

D. Acquisition Strategy

The execution of an effective Quality, Safety and Mission Assurance program is carried out in collaboration with subject matter expertise found in the Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), Contract Support Services (CSS), Advisory and Assistance Services (A&AS), and Industry.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Quality, Safety & Mission Assurance Agency Safety & Occupational Health MD32	MIPR	MDA QS:AL, CO, AK, DC	0.879	-	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance BMDS Safety (Safety Hazard Analysis & Tracking) MD32	MIPR	MDA QS:AL, AK, DC	2.824	-	Oct 2010	0.100	Oct 2011	-		0.100	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance MDIOC QSMA MD32	C/IDIQ	APT, INC.:AL	1.922	0.948	Oct 2010	0.968	Oct 2011	-		0.968	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance BMDS Mission Assurance Agency Ops (Supplier Mission Assur/Tech Experts) MD32	C/IDIQ	APT, INC.:AL	3.088	5.321	Oct 2010	5.478	Oct 2011	-		5.478	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance BMDS Quality support, requirements, MAP, Metrics MD32	C/IDIQ	AI SOLUTIONS, INC.:AL; FL; MD	0.820	2.184	Oct 2010	2.319	Oct 2011	-		2.319	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance Supplier Quality Support - MDA Assurance Reqs (MARS) MD32	MIPR	MDA QS:CO,CA,MD,UT,FL,MO,AK,AL,NJ,AZ,HI,MA,AR	4.824	-	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance Agency Parts and Materials Program MD32	MIPR	MDA QS; Crane:AL, IN	1.773	1.367	Oct 2010	1.370	Oct 2011	-		1.370	Continuing	Continuing	Continuing
	MIPR	MDA QS; Corona:AL, CA	3.321	3.175	Oct 2010	0.858	Oct 2011	-		0.858	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 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)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Quality, Safety & Mission Assurance Audits & Quality On-Site Support MD32													
Quality, Safety & Mission Assurance Mission Assurance Tech Experts MD32	MIPR	MDA QS; Aerospace:AL, CA	3.496	1.899	Oct 2010	2.609	Oct 2011	-		2.609	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance BMDS Safety (Safety Hazard Analy/ Tracking) MD32	C/IDIQ	APT, INC.:AL	-	1.716	Oct 2010	1.731	Oct 2011	-		1.731	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance Mission Assurance Tech Experts MD32	C/IDIQ	APT, INC.:AL	-	1.818	Oct 2010	1.459	Oct 2011	-		1.459	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance HQ & Core Management MD32	C/CPFF	SRS:AL	-	1.924	Oct 2010	0.138	Oct 2011	-		0.138	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance HQ & Core Management - 201012174425917 MD32	MIPR	MDA QS:AL	-	0.225	Oct 2010	0.230	Oct 2011	-		0.230	Continuing	Continuing	Continuing
Subtotal			22.947	20.577		17.260		-		17.260			

Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

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>				ZX40: <i>Program-Wide Support</i>				
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: <i>Program-Wide Support</i>	13.456	-	-	-	-	-	-	-	-	0.000	13.456
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project ZX40 has been transferred project MD40.

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

	FY 2010	FY 2011	FY 2012
<p>Title: Civilian Salaries and Support</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: NA</p>	13.456 0	-	-
Articles:			
Accomplishments/Planned Programs Subtotals	13.456	-	-

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

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

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>				MD40: <i>Program-Wide Support</i>			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: <i>Program-Wide Support</i>	-	16.916	14.638	-	14.638	13.872	14.096	14.401	14.772	Continuing	Continuing
Quantity of RDT&E Articles	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 (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts. In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE's budget amount.

Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 (\$13,569).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
<p>Title: Civilian Salaries and Support</p> <p style="text-align: right;">Articles:</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 (\$13,569).</p> <p>FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification</p> <p>FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification</p>	<p>-</p> <p>0</p>	<p>16.916</p> <p>0</p>	<p>14.638</p> <p>0</p>
Accomplishments/Planned Programs Subtotals	-	16.916	14.638

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

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>	MD40: <i>Program-Wide Support</i>

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

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA