**BALLISTIC MISSILE DEFENSE SYSTEM (BMDS)**
**ACCOUNTABILITY REPORT (BAR) for 2010 (U)**

(U) In accordance with the Fiscal Year (FY) 2002-2008 National Defense Authorization Acts, the Missile Defense Agency (MDA) presents the BMDS Accountability Report (BAR) for 2010 to Congress to enhance the transparency, accountability, and oversight of the BMDS program.

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# Missile Defense Agency (U)

## Ballistic Missile Defense System (BMDS) Accountability Report (BAR) For 2010 (U)

## June 2010 (U)

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## 1.0 Introduction (U)

(U) In its annual BMDS Accountability Report (BAR), the Missile Defense Agency (MDA) presents baseline parameters used to guide and track development of ballistic missile defense capabilities. The Agency also explains any variances from established schedule, technical, and resource baselines.

(U) In February 2010, MDA announced establishment of an Acquisition Oversight Process that leverages the BMDS baselines to better translate capability needs and technology opportunities into stable, affordable, and well-managed BMDS acquisitions. Through this process, the Agency began reviews of its ongoing technology and product development programs to (1) place programs in the correct development phase with established baselines; and (2) identify program plans for demonstrating readiness to proceed to the next acquisition phase. This report presents the baselines approved through such reviews. Any variances from these baselines will be identified in future BARs.

## 2.0 Background (U)

(U) According to MDA's charter,[1] the Director of MDA shall:

- (U) Maintain a single development program for all work needed to design, develop, and test an integrated BMDS;
- (U) Develop for fielding a useful military capability to detect, track, intercept, and defeat ballistic missiles;
- (U) Plan and execute an evolutionary, capability-based acquisition approach by applying incremental and spiral development consistent with the BMDS Life Cycle Management Process;[2] and
- (U) Serve as the BMDS Acquisition Executive for the BMDS and elements funded by MDA and exercise all BMDS-related source-selection and milestone decision authorities up to, but not including, production decisions.

(U) Furthermore, the Missile Defense Executive Board (MDEB) will review and make appropriate recommendations to the Under Secretary of Defense for Acquisition, Technology and Logistics and MDA's Director regarding the implementation of strategic policies and plans, program priorities, and investment options.[3]

(U) The Warfighter Involvement Process (WIP), MDA's Baseline Phase Reviews and Baseline Configuration Management provide critical inputs to MDA's Director and the MDEB in carrying out their responsibilities. The WIP and the use of baselines to manage BMDS programs directly support the Life Cycle Management Process (see Figure 1).

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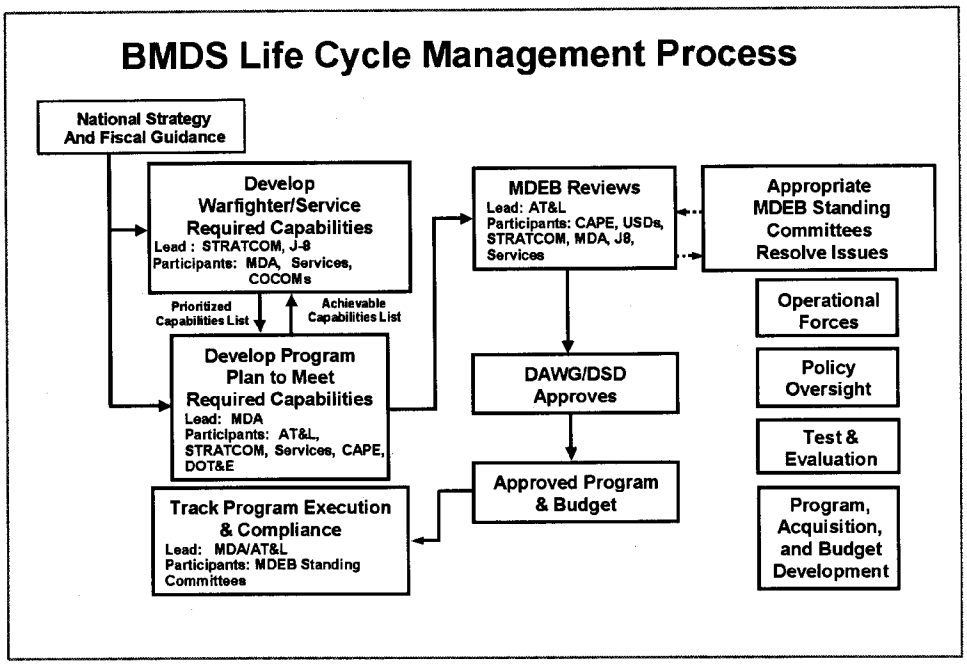
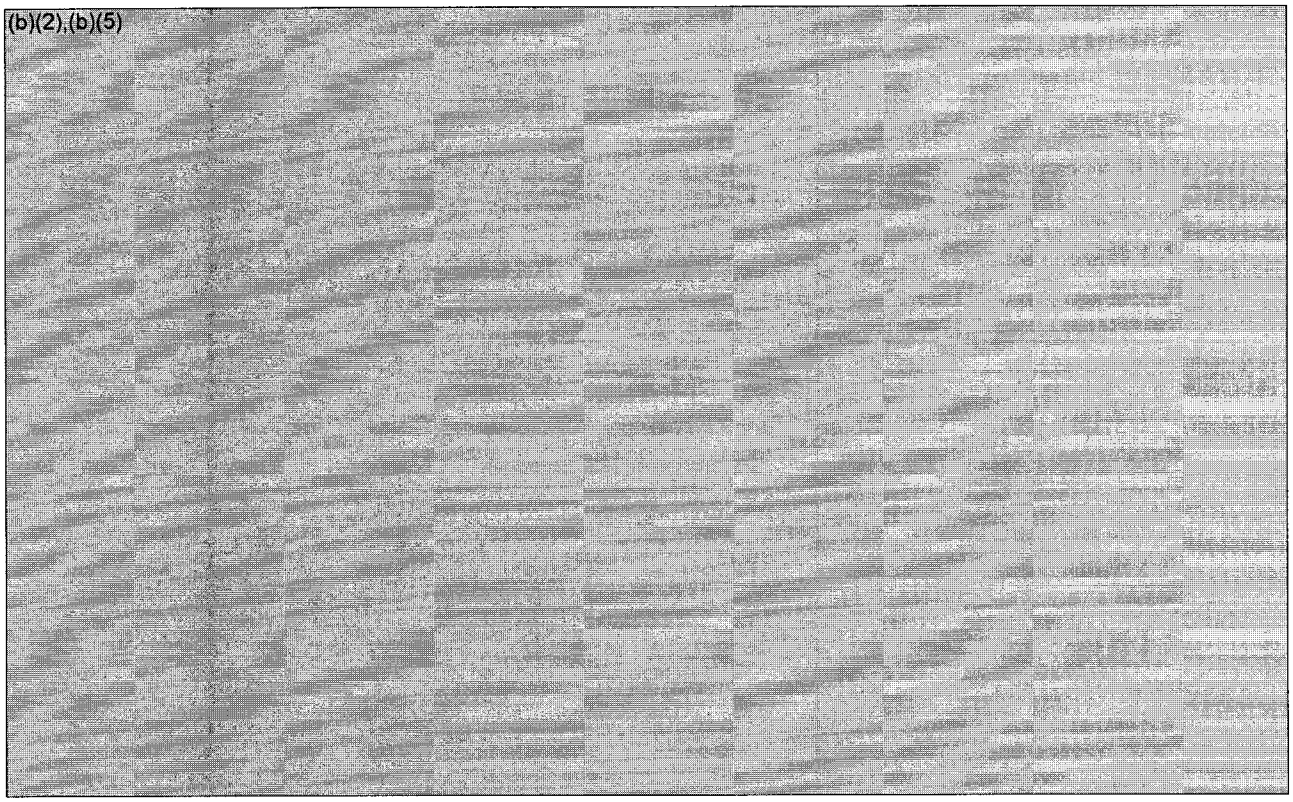
[1] (U) DoD Directive 5134.09, 17 September 2009.
[2] (U) As defined in Deputy Secretary of Defense memorandum, dated 25 September 2008.
[3] (U) As defined in Deputy Secretary of Defense memorandum, dated 15 March 2007.

**Figure 1: BMDS Life Cycle Management Process ~~(FOUO)~~**




(b)(2),(b)(5)



[4] (U) P.L. 111-23, signed into law May 22, 2009.

## 2.2 Baseline Phase Reviews (U)

(U) MDA's Acquisition Oversight Process was established to add additional rigor and discipline into the Agency's acquisitions to provide better control of BMDS cost, schedule, and technical performance. Key principles of the process are:

- (U) Evolutionary delivery of incremental capability to the Warfighter;
- (U) Distinct and disciplined phases for Materiel Solution Analysis (concept exploration), Technology Development (concept development), Product Development (design and demonstration), Initial Production, and Production ;
- (U) Balancing capability needs and available resources (mature technologies and adequate schedule and funding) at the start of product development; and
- (U) Use of Baseline Phase Reviews to
  - validate BMDS components' contributions to the six BMDS baselines--schedule, technical, test, operational capacity, resource and contract;
  - approve readiness to transition to the next acquisition phase; and
  - review programs with significant deviations from established baselines.

(U) These principles are consistent with Federal statutes and the tenets of the Defense Acquisition System (Department of Defense (DoD) Instruction 5000.02) and acquisition best practices recommended by the U.S. Government Accountability Office (GAO).

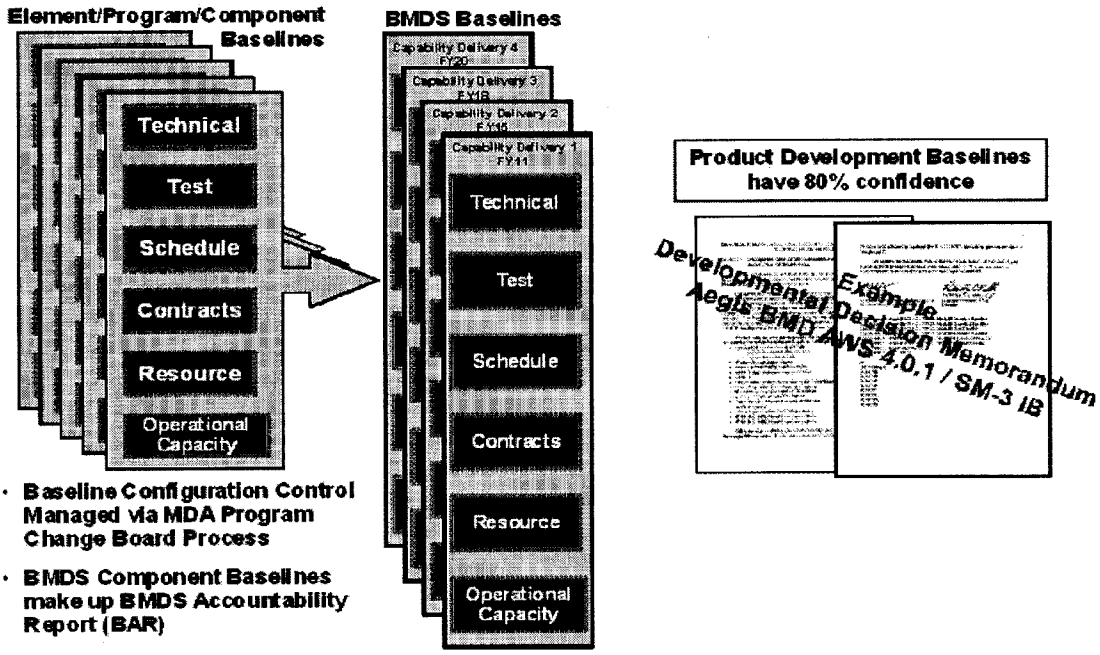
(U) The Agency recognizes three key analysis and development phases: Materiel Solutions Analysis, Technology Development, and Product Development. Because acquisition activity or technology programs prior to the Product Development Phase have greater uncertainties in terms of capability needs and available resources, these activities or programs are not yet components of nor aligned with the BMDS baselines and are generally not included in the BAR. Programs in the Product Development and later phases, however, are more mature. Their six baselines (schedule, technical, test, operational capacity, resource and contract) are included in the BAR. Precision tracking from space (known as Precision Tracking Space System (PTSS)) and enhancements to the SM-3 missile (known as SM-3 IIB) have been included as examples of acquisition activity in the Materiel Solution Analysis Phase. These analysis activities are critical to the BMDS and are developing potential technological solutions to capability shortfalls faced by the future BMDS (e.g., BMDS Phased Adaptive Approach (PAA)). In the future, these activities may provide technological solutions to capability shortfalls and may progress into the Technology Development Phase.

## 2.3 Baseline Configuration Management (U)

(U) Implementation of Baseline Configuration Management involves multiple steps (see Figure 2).

- (U) Baseline Owners[5] establish the required content for each baseline. The required content defines the critical milestones and acquisition activity necessary to complete the current acquisition phase. Baseline content must support the overall BMDS baselines.
- (U) Program Elements provide program-specific information to satisfy the defined baseline content and coordinate with the Baseline Owners to ensure the baselines are reasonable and in harmony with overall BMDS baselines. The proposed baselines must also be coordinated, as appropriate, with the Lead Military Service staff.
- (U) Programs entering or already in the Product Development (or later) phase have a Development Decision Memorandum (DDM) signed by MDA's Director and the affected Service Acquisition Executives. The DDMs set forth schedule, technical, test, operational capacity, resource, and contract baselines, as well as program plans for activities needed to demonstrate readiness to proceed to the next acquisition phase.
- (U) Once baselines are established, MDA's Director will review the status of Program Elements' execution to the baselines every quarter.
- (U) Programs experiencing significant deviations from their established baselines may need to reestablish the baselines or review the program's viability to continue.

**Figure 2: Managing the BMDS by Baselines (U)**




[5] (U) MDA's Baseline Owners (and their baselines) are: Program Executive for Programs and Integration (schedule); Director for Operations (resource); Director for Engineering (technical and operational capacity); Director for Test (test); and Director for Acquisition (contract).

## 2.4 Definitions of Baselines (U)

(U) MDA's baselines are expected outcomes that serve as parameters to guide development of ballistic missile defense capabilities. Their implementation enhances the Agency's transparency, accountability, and oversight.

- (U) The *schedule baseline* is a timeline for key product development milestones and tasks, such as key decision points and product deliveries.
- (U) The *technical baseline* is a detailed technical description of the capability being developed and planned improvements over time. The description reflects system requirements and describes how particular capabilities satisfy the Combatant Commanders' Prioritized Capabilities and the key Knowledge Points that must be achieved for continued program development.
- (U) The *test baseline* is a schedule of major flight and ground tests and key modeling and simulation events and the primary goals associated with those tests and events.
- (U) The *operational capacity baseline* is a detailed timeline and set of steps required to certify that BMDS capabilities are ready for operational use, including steps needed for obtaining compliance with information assurance requirements, documenting capabilities and limitations, and completing Warfighter training requirements.
- (U) The *resource baseline* is the expected investment in the delivery of a BMDS product. Resource baselines are represented as Program Acquisition Unit Cost (PAUC), Average Procurement Unit Cost (APUC), and/or Program Acquisition Cost (PAC). (A detailed discussion of the resource baseline methodology is presented in Appendix A.) PAUC and APUC are reported by MDA Program Elements that produce countable weapons, sensors, launch systems, or fire control systems. PAC is reported for programs without definable quantities, such as software development programs. Derived from time-phased cost estimates in then-year dollars, resource baselines are expressed in base year dollars indexed to the year the baseline is presented to the MDA Director for final approval. PAUC is the ratio of development, production and deployment, and military construction costs to the number of operationally configured units produced for testing, qualification, and operations. APUC is the ratio of the production and deployment costs to the number of units delivered for operations. PAC is the sum of development, production and deployment, and military construction costs.
- (U) The *contract baseline* is a timeline for a set of MDA contracts designed to deliver integrated BMDS capabilities. The timeline highlights the steps in the contracting process from Request for Proposals through Proposal Receipt, Negotiations Complete, and Contract Award.

## 2.5 Definitions of Variances (U)

(U) For the purposes of the BAR, variances are defined as significant deviations (expected or actual) from established BMDS schedule, technical, and resource baselines. Variances are tracked and reported because they reflect directly on how well the Agency is delivering BMDS capabilities to the Warfighter. A *schedule variance* is a delay of six months or more in meeting a current milestone for delivering a BMDS product or 12 months or more in

meeting the original delivery milestone. A *technical variance* is a shortfall in achieving a product's expected functionality that can significantly impact the performance of the BMDS. A *resource variance* is a cost increase of 10 percent or more when compared to the original resource baseline for a BMDS product.

## 3.0 Baselines for BMDS Products (U)

(U) This section presents approved Development Decision Memoranda, which include specific guidance and activities directed to occur during the remainder of the current acquisition phase; schedule, technical, test, operational capacity, resource and contract baselines; and exit criteria to satisfy for demonstrating readiness to transition to the next acquisition phase. It also presents the most current Earned Value Management (EVM) data for major contracts supporting BMDS product development. Monthly EVM data are used to show trends in cost and schedule performance on current work under contract.

(U) In coming months, the resolution of two factors is likely to affect the baselines presented here. The first factor is the need for DoD departments and agencies to significantly improve the efficiencies of business operations per guidance from the Secretary of Defense. Analyses are ongoing to identify these efficiencies during development of the President's Budget for FY 2012 (PB 12). The second factor is the opportunity to increase Aegis BMD's raid size capacity.[6] In its PB 12 submission, MDA proposes investments in developing capabilities to achieve this goal and will work with the Navy on any proposed impacts.

(U) Section 3.0 is organized by Program Element as follows: C2BMC, THAAD and its associated radar, AN/TPY-2; Aegis BMD; GMD; SBX; Targets; Israeli Programs; and Materiel Solutions Analysis activities. (Acronyms are listed in Appendix B.)

[6] ~~(S)~~ Raid size capacity (RSC) is the number of warheads that the BMDS can engage for specified engagement scenarios, which vary depending on such factors as threat trajectories, launch intervals, and adversary negation of BMDS assets. The RSC limit may occur due to many factors, including when weapons inventory is exhausted and when system resources, such as communications links, are saturated.

## Appendix A: Resource Baseline Methodology (U)

(U) The *resource baseline* is the expected investment in acquiring a capability and includes all costs associated with delivery of a BMDS product. For programs containing more than one type of reportable unit, (e.g. missile, sensors, launchers, and fire control systems), common costs are allocated to the reportable units on a pro-rated basis. These are called allocated costs. Common allocated costs can include such costs as Program Management, Systems Engineering, and System Test and Evaluation.

(U) The resource baseline is represented as Program Acquisition Unit Cost (PAUC), Average Procurement Unit Cost (APUC), and/or Program Acquisition Cost (PAC). PAUC and APUC are reported by MDA Program Elements that produce countable weapons, sensors, launch systems, or fire control systems. PAC is reported by Program Elements that do not produce quantifiable units. Resource baselines are derived from time-phased cost estimates in then-year dollars jointly approved by MDA's Program Directors and the Director of Cost Estimating and Analysis.[7] The baselines are expressed in base year dollars indexed to the year resource baselines are approved.

(U) PAUC is a ratio of acquisition cost to number of units. The numerator of the ratio is the total program acquisition costs defined as the sum of the Development (Research Development, Test and Evaluation (RDT&E) Appropriation), Production and Deployment (Procurement Appropriation), and Military Construction (MILCON Appropriation) costs. The denominator of the ratio is the total number of operationally configured units produced for testing, qualification, and operations. APUC is a ratio of the procurement cost to number of units. The two business rules for reporting APUC, depending on whether RDT&E or Procurement funding is used to acquire units produced for operations, are:

- (U) If Procurement Appropriations funding is used to deliver operational units, APUC is the ratio of Procurement costs divided by the number of Procurement funded units. Test and qualification units are included only if Procurement funds are used to acquire those units. If a program has used both RDT&E and Procurement appropriations to purchase operationally configured units, only those units purchased with the Procurement Appropriation will be used to compute APUC.
- (U) For some MDA programs, MDA is authorized to deliver operational capability using only RDT&E funding. For these instances, APUC is calculated by a ratio of the RDT&E funded cost estimate for delivery of the operational units divided by the quantity of operational units.

(U) PAC is used for system components that do not produce quantifiable units. PAC is the sum of Development (RDT&E Appropriation), Production and Deployment (Procurement Appropriation), and Military Construction (MILCON Appropriation) costs.

[7] (U) Cost baselines for targets are treated differently because of uncertainty about the quantity of targets needed for testing beyond the FYDP period. As a result, "to complete" costs are not included in cost baselines for targets.

## Appendix B: Acronyms (U)

| | |
|---|---|
| **A** | |
| A3 | Arrow-3 (U) |
| AA | Aegis Ashore (U) |
| AACTV | Aegis Ashore Control Test Vehicle (U) |
| AAFTM | Aegis Ashore Flight Test Mission (U) |
| AAMDC | Army Air Missile Defense Command (U) |
| AAW | Anti-Air Warfare (U) |
| ABIR | Airborne Infra-Red (U) |
| ABP | Airborne Processor (U) |
| ABS | American Bureau of Shipping (U) |
| ACL | Achievable Capabilities List (U) |
| ACS | Attitude Control System (U) |
| ACWP | Actual Cost of Work Performed (U) |
| ADSI | Air Defense System Integrator (U) |
| ALO | Aegis Light Off (U) |
| ATRC | Aegis Training and Readiness Center (U) |
| AUR | All Up Round (U) |
| AWS | AEGIS Weapon System (U) |
| AFB | Air Force Base (U) |
| AMD | Air & Missile Defense (U) |
| AN/TPY-2 | Army Navy/Transportable Radar Surveillance – Model 2 (U) |
| AOR | Area of Responsibility (U) |
| APUC | Average Procurement Unit Cost (U) |
| ARAV | Aegis Readiness Assessment Vehicle (U) |
| ASB | Acquisition Strategy Board (U) |
| AST | Arrow System Test (U) |
| ATEC | Army Test and Evaluation Command (U) |
| AUR | All Up Round (U) |
| AWS | Aegis Weapon System (U) |
| **B** | |
| BLD | Build (U) |
| BSP | BMD Signal Processor (U) |
| BAR | BMDS Accountability Report (U) |
| BCWP | Budgeted Cost of Work Performed (U) |
| BCWS | Budgeted Cost of Work Scheduled (U) |
| BETD | Best Estimate Test Date (U) |
| BLOS | Beyond Line of Sight (U) |
| BMC | Battle Management Center (U) |
| BMD | Ballistic Missile Defense (U) |
| BMDS | Ballistic Missile Defense System (U) |
| BOA | BMDS Overhead Persistent Infrared Architecture (U) |
| BOD | Board of Directors (U) |
| BSC | Battery Support Center (U) |
| BSFO | Blue Sparrow Fly-Out (U) |
| BSP | BMD Signal Processor (U) |
| BVT | Booster Vehicle Test (U) |
| BY | Base Year (U) |

**C**

| | |
|---|---|
| C2BMC | Command and Control, Battle Management and Communications (U) |
| C4 | Command, Control, Communications, and Computers (U) |
| CAAT | Contingency Analysis and Activation Team (U) |
| CAPE | Cost Assessment and Program Evaluation (U) |
| CAR | Capability Assessment Report (U) |
| CARD | Cost Analysis Requirements Description (U) |
| CCC | Core Completion Contract (U) |
| CCLS | Consolidated Contractor Logistics Support (U) |
| CD | Capability Delivery (U) |
| CDR | Critical Design Review (U) |
| CDS | Common Display System (U) |
| CDU | Cobra Dane Upgrade (U) |
| CEC | Critical Engagement Conditions (U) |
| CEI | Capability Enhanced I (U) |
| CEII | Capability Enhanced II (U) |
| CERT | Certification (U) |
| CFE | Contractor Furnished Equipment (U) |
| CG | Guided Missile Cruiser (U.S. Navy) (U) |
| CLS | Contractor Logistics Support (U) |
| CM | Countermeasure (U) |
| CMAV | Continuous Maintenance Availability (U) |
| CNIP | C2BMC Network Interface Processor (U) |
| CNT | Control Navigation Test (U) |
| COCOM | Combatant Commander (U) |
| CONOPS | Concept of Operations (U) |
| COPS | Constellation Operations (U) |
| CP | Computer Program (U) |
| CPAF | Cost Plus Award Fee (U) |
| CPAP | Construction Plans and Profiles (U) |
| CPD | Capability Production Document (U) |
| CPIF | Cost Plus Incentive Fee (U) |
| CPR | Cost Performance Report (U) |
| CPS | Capability Planning Specification (U) |
| CR | Capability Release (U) |
| CS | Combat System (U) |
| CSEDS | Combat System Engineering Development Site (U) |
| CSSQT | Combat System Ships Qualification Trials (U) |
| CTL | Critical Task List (U) |
| CTTO | Concurrent Test, Training, and Operations (U) |
| CTV | Control Test Vehicle (U) |
| CV | Cost Variance (U) |
| CX | Common X-band radar software (U) |
| CY | Calendar Year (U) |

**D**

| | |
|---|---|
| DA | Defended Area (U) |
| DACS | Divert and Attitude Control System (U) |
| DBR | Developmental Baseline Review (U) |
| DCMA | Defense Contract Management Agency (U) |

| | |
|---|---|
| DDG | Guided Missile Destroyer (U.S. Navy) (U) |
| DDM | Development Decision Memorandum (U) |
| DDR | Designated Defended Region (U) |
| DoD | Department of Defense (U) |
| DOT&E | Director, Operational Test and Evaluation (U) |
| DRS | DRS Technologies (U) |
| CNT | Control Navigation Test (U) |
| DSWS | David's Sling Weapon System (U) |
| DT | Developmental Test (U) |
| DTC | Development Test Command (U) |
| DTDP | Developmental Test Design Plan (U) |
| DVT | Design Verification Test (U) |
| **E** | |
| EAC | Estimate at Completion (U) |
| ECD | Early Capability Delivery (U) |
| ECP | Engineering Change Proposal (U) |
| EDM | Engineering Design Module (U) |
| EKP | EC2BMC Knowledge Point (U) |
| ECL | Equipment Component List (U) |
| EICO | Element Integration & Check Out (U) |
| EKV | Exoatmospheric Kill Vehicle (U) |
| E-LRALT | Extended Long Range Air Launch Target |
| EMD | Engineering Manufacturing Development (U) |
| EME | Empirical Measurement Events (U) |
| eMRBM | Extended Medium Range Ballistic Missile (U) |
| EMRL | Engineering Manufacturing Readiness Levels (U) |
| ER4 | Engineering Release – 4 (U) |
| ES | En Shemer (U) |
| ESL | External Sensors Laboratory (U) |
| ET | Embedded Test (U) |
| ETEDDS | End-to-End Distributed Development System (U) |
| ET&E | Engineering Test & Evaluation (U) |
| ETEDDS | End-to-end Distributed Development System (U) |
| EUCM | U.S. European Command (U) |
| EVM | Earned Value Management (U) |
| **F** | |
| FAU/OP | Fleet Avionics Upgrade/Obsolescence Program (U) |
| FBM | Forward-Based Mode (U) |
| FBX-T | Forward-Based X-Band (Radar) Transportable (U) |
| FCE | Fast CAAT East (U) |
| FDE | Force Developmental Experimentation (U) |
| FFP | Firm Fixed Price (U) |
| FGA | Fort Greely, Alaska (U) |
| FMA | Foreign Military Acquisition (U) |
| FMC | Full Mission Capable (U) |
| FOC | Full Operational Capability (U) |
| FOUO | For Official Use Only (U) |
| FPA | Focal Plane Array (U) |
| FPI | Fixed Price Incentives (U) |
| FQT | Functional / Formal Qualification Test (U) |
| FS | Fixed Site (U) |

| | |
|---|---|
| FTF | Flexible Target Family (U) |
| FTG | Flight Test Ground Based Interceptor (U) |
| FTM | Flight Test Standard Missile (U) |
| FTR | Flight Test Round (U) |
| FTT | Flight Test THAAD Interceptor (U) |
| FTX | Flight Test Other (U) |
| FY | Fiscal Year (U) |
| FYDP | Future Years Defense Program (U) |
| **G** | |
| GAO | Government Accountability Office (U) |
| GBI | Ground-Based Interceptor (U) |
| GCCS | Global Command and Control System (U) |
| GCN | GMD Communications Network (U) |
| GCS | Ground Control Station (U) |
| GEP | Ground Entry Point (U) |
| GEM | Global Engagement Manager (U) |
| GFC | GMD Fire Control (U) |
| GFE | Government Furnished Equipment (U) |
| GGT | Government Ground Test (Environment) (U) |
| GMD | Ground-based Midcourse Defense (U) |
| GOT | Guidance Object Track (U) |
| GROW | Generic Rest of World (U) |
| GS | Ground Systems (U) |
| GSE | Ground Support Equipment (U) |
| GT | Ground Test U) |
| GTD | Ground Test Distributed (U) |
| GTI | Ground Test Integrated (U) |
| GTX | Ground Test Other (U) |
| **H** | |
| H&T | Humidity & Temperature (U) |
| HC | Hazard Classification (U) |
| HN | Host Nation (U) |
| HPLUS | High Performance Liquid Upper Stage (U) |
| HTK | Hit to Kill (U) |
| HTV | Hypersonic Technology Vehicle (U) |
| HWIL | Hardware-In-The-Loop (U) |
| **I** | |
| IAMD | Integrated Air and Missile Defense (U) |
| IAW | In Accordance With (U) |
| IBMP | Integrated Ballistic Missile Picture (U) |
| IBR | Integrated Baseline Review (U) |
| IDT | In-Flight Interceptor Communication System Data Terminal (U) |
| IMDO | Israel Missile Defense Organization (U) |
| IMTP | Integrated Master Test Plan (U) |
| INCO | Installation & Checkout (U) |
| IPD | Initial Production Decision (U) |
| IPR | In-Progress Review (U) |
| ICA | Industrial Capabilities Assessment (U) |
| ICBM | Intercontinental Ballistic Missile (U) |
| ICE | Independent Cost Estimate (U) |
| IDIQ | Indefinite Delivery Indefinite Quantity (U) |

| | |
|---|---|
| IFICS | In-flight Interceptor Communications System (U) |
| ILS | Integrated Logistics Support (U) |
| IM | Insensitive Munitions (U) |
| IMS | Integrated Master Schedule (U) |
| IOC | Initial Operational Capability (U) |
| INSURV | Board of Inspection and Survey (U) |
| IPR | In-Progress Review (U) |
| IRBM | Intermediate-Range Ballistic Missile (U) |
| IRPT | Independent Readiness Review Team (U) |
| ISG | Integration and Synchronization Group (U) |
| ISTC | Integrated System Test Capability (U) |
| ISTS | Integrated Simulation Tactical Software (U) |
| I&T | Integration & Test (U) / Installation & Test (U) |
| **J** | |
| JC | Juniper Cobra (U) |
| JFTM | Joint Flight Test Standard Missile (U) |
| JRE | Joint Range Extension (U) |
| JROC | Joint Requirements Oversight Council (U) |
| **K** | |
| KP | Knowledge Point (U) |
| KTR | Contractor (U) |
| KW | Kinetic Warhead (U) |
| **L** | |
| LAD | Launch Area Denied (U) |
| LCCE | Life Cycle Cost Estimate (U) |
| LDACS | Lightweight DACS (U) |
| LKE | USS LAKE ERIE (U) |
| LOE | Level of Effort (U) |
| LoR | Launch on Remote (U) |
| LRALT | Long Range Air Launch Target |
| LRBM | Long-Range Ballistic Missile (U) |
| LRS&T | Long-Range Surveillance and Track (U) |
| LUT | Limited User Test (U) |
| LV-2 | Launch Vehicle -2 (U) |
| **M** | |
| MBRV | Modified Ballistic Missile Re-Entry Vehicle (U) |
| MDA | Missile Defense Agency (U) |
| MDEB | Missile Defense Executive Board (U) |
| MEIT | Multi-Element Integration Testing (U) |
| MDR | Mission Design Review (U) |
| MDA | Missile Defense Agency (U) |
| MILCON | Military Construction (U) |
| MMR | Multi-Mission Radar (U) |
| MMSP | Multi-Mission Signal Processor (U) |
| MRBM | Medium-Range Ballistic Missile (U) |
| MRL | Manufacturing Readiness Level (U) |
| MRT | Medium Range Target (U) |
| MSA | Materiel Solutions Analysis (U) |
| MSC | Military Sealift Command (U) |
| **N** | |
| N/A | Not Applicable (U) |

| | |
|---|---|
| NET | New Equipment Training (U) |
| NJ | New Jersey (U) |
| NORTHCOM | U.S. Northern Command (U) |
| NMP | Navy Manning Plan (U) |
| NSCC | Naval Systems Computer Center (U) |
| **O** | |
| O&M | Operations and Maintenance (U) |
| O&S | Operations and Support (U) / Operations and Sustainment (U) |
| OAR | Operational Assessment Report (U) |
| OPIR | Overhead Persistent Infra-Red (U) |
| OSM | Objective Sensor Model (U) |
| OSM-S | Operational Sensor Model – SBX (U) |
| OT | Operational Test (U) |
| OTA | Operational Test Agency (U) |
| OTA | Other Transaction Authority (U) |
| OTRR | Operational Test Readiness Review (U) |
| **P** | |
| PA | Performance Assessment / Project Agreement (U) |
| PAA | Phased Adaptive Approach (U) |
| PAC | Program Acquisition Cost (U) |
| PACOM | U.S. Pacific Command (U) |
| PAUC | Program Acquisition Unit Cost (U) |
| PB | President's Budget (U) |
| PCB | Program Change Board (U) |
| PCIL | Peripheral Component Interface Laboratory (U) |
| PCL | Prioritized Capabilities List (U) |
| PCNT | Propulsion Control Navigation Test (U) |
| PDR | Preliminary Design Review (U) |
| PDRR | Preliminary Design Readiness Review (U) |
| PER | Program Execution Review (U) |
| $P_{ES}$ | Probability of Engagement Success (U) |
| PM | Program Manager (U) |
| PMB | Performance Management Baseline (U) |
| PMC | Partial Mission Capability (U) |
| PMRF | Pacific Missile Range Facility (U) |
| PoP | Period of Performance (U) |
| PPU | Prime Power Unit (U) |
| PRR | Program Requirements Review (U) |
| PRRA | Production Readiness Risk Assessment (U) |
| $P_K$ | Probability of Kill (U) |
| $P_{SSK}$ | Probability of Single Shot Kill (U) |
| PSSR | Pre-Ship Readiness Review (U) |
| PTS | Permit to Ship (U) |
| PTSS | Precision Tracking Space System (U) |
| **Q** | |
| Q | Quarter (U) |
| QA | Quality Assurance (U) |
| QTY | Quantity (U) |
| **R** | |
| RDT&E | Research, Development, Test and Evaluation (U) |
| Refurb | Refurbishment (U) |

| | |
|---|---|
| RFI | Request for Information (U) |
| RFP | Request for Proposals (U) |
| RR | Readiness Review (U) |
| RSC | Raid Size Capacity (U) |
| RT | Real Time (U) |
| RV | Reentry Vehicle (U) |
| RVS | Raytheon Vision System (U) |
| S | |
| SA | Situational Awareness (U) |
| SAMP | Single Acquisition Management Plan (U) |
| SATCOM | Satellite Communications (U) |
| SBIRS | Space-Based Infra-Red System (U) |
| SBX | Sea Based X-Band (Radar) (U) |
| SCG | Security Classification Guide (U) |
| SCR | System Concept Review (U) |
| SDR | System Design Review (U) |
| SHF | Super High Frequency (U) |
| SIPRNet | Secure Internet Protocol Router Network (U) |
| SIL | System Integration Laboratory (U) |
| SIT | System Integration Test (U) |
| SM-3 | Standard Missile-3 (U) |
| SRA | Selected Restricted Availability (Ship Availability) (U) |
| SRALT | Short Range Air Launch Target (U) |
| SRBM | Short-Range Ballistic Missile (U) |
| SRR | System Requirements Review / Ship Readiness Review (U) |
| SS | Summary Screen (U) |
| SSSTRP | Software System Safety Technical Review Panel (U) |
| STRATCOM | U.S. Strategic Command (U) |
| SV | Schedule Variance (U) |
| SW | Software (U) |
| SY | Shipyard (U) |
| SYS | System (U) |
| T | |
| T2 | Transition and Transfer (U) |
| T&E | Test and Evaluation (U) |
| TA | Technical Assessment (U) |
| TB | Test Bed(s) (U) |
| TBD | To Be Determined (U) |
| TCD | Technology Capability Declaration (U) |
| TDACS | Throttleable DACS (U) |
| TDP | Technical Data Package (U) |
| TDU | TDACS Demonstration Unit (U) |
| TEWA | Threat Evaluation and Weapons Assignment (U) |
| TFCC | THAAD Fire Control and Communications (U) |
| THAAD | Terminal High Altitude Area Defense (U) |
| TM | Terminal Mode (U) / Technical Manual (U) |
| TM | Technical Manual (U) |
| TOG | Technical Objectives and Goals (U) |
| TOM | Target Object Map (U) |
| TOO | Target of Opportunity (U) |
| TPR | Technical Product Review (U) |

| | |
|---|---|
| TS | Tal Shahar (U) |
| TSRM | Third Stage Rocket Motor (U) |
| TY | Then Year (U) |
| **U** | |
| UEWR | Upgraded Early Warning Radar (U) |
| UHF/EHF | Ultra High Frequency/Extremely High Frequency (U) |
| uRVA | Unshrouded Re-entry Vehicle Adapter (U) |
| USCG | U.S. Coast Guard (U) |
| USD AT&L | Under Secretary of Defense for Acquisition, Technology and Logistics (U) |
| USEUCOM | U.S. European Command (U) |
| USFT | United States Flight Test, Reference U.S.-Israeli Caravan Tests (U) |
| USNORTHCOM | U.S. Northern Command (U) |
| USPACOM | U.S. Pacific Command (U) |
| USSTRATCOM | U.S. Strategic Command (U) |
| **V** | |
| VA | Virginia (U) |
| VAC | Variance at Completion (U) |
| VAFB | Vandenberg Air Force Base (U) |
| VLS | Vertical Launching System (U) |
| V&V | Verification and Validation (U) |
| VV&A | Verification, Validation, and Accreditation (U) |
| **W** | |
| WF | Warfighter (U) |
| WIP | Warfighter Involvement Process (U) |
| WSESRB | Weapon System Explosive Safety Review Board (U) |
| WSMR | White Sands Missile Range (U) |
| **X** | |
| XBR | X-Band Radar (U) |

## Appendix C: Multiple Sources for Security Classification (U)

- (U) Aegis Security Classification Guide (SCG) Change 1 with Administrative Change
- (U) Arrow Deployability Program
- (U) Arrow System Improvement Program to Include Change 1
- (U) BMD Target Systems with Change 1
- (U) BMDS AN/TPY-2 Radar Forward Based Mode (FBM) SCG
- (U) BMDS SCG MDA
- (U) Ground Based Midcourse Defense (GMD) SCG to Include Change 1
- (U) Terminal High Altitude Area Defense (THAAD) SCG

# 3.1 C2BMC Spiral 6.4 (U)

~~SECRET~~

**DEPARTMENT OF DEFENSE**
**MISSILE DEFENSE AGENCY**
**7100 DEFENSE PENTAGON**
**WASHINGTON, DC 20301-7100**

JUN 29 2010

DA

MEMORANDUM FOR PROGRAM DIRECTOR, C2BMC

SUBJECT: Development Decision Memorandum for Command and Control, Battle Management and Communication (C2BMC) Spiral 6.4 Baseline (U)

(U) The attached resource, schedule, technical, test, contract and operational baselines and activities are approved for the continued development of the C2BMC Spiral 6.4 Program.

(U) Changes to the BMDS baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. Any PCB-approved changes that impact the C2BMC Spiral 6.4 acquisition will be implemented by the C2BMC Program Office and documented in its Single Acquisition Master Plan (SAMP). Baseline variances will be reported to the Director, MDA and in the annual BMDS Accountability Report (BAR).

(U) The following activities are directed to occur during the remainder of the development phase:

- Tri-Node (NORTHCOM, PACOM, STRATCOM) Spiral 6.4 (ready for technical capability declaration) — 2Q FY2011
- EUCOM Spiral 6.4 (ready for technical capability declaration) — 1Q FY2012

(U) I approve the exit criteria listed in Attachment 8, and I direct you to continue the development of the C2BMC beyond Spiral 6.4 to deliver new capabilities to the Warfighter and to the Ballistic Missile Defense System (BMDS). These exit criteria must be met before Spiral 6.4 can be declared operational.

Patrick J. O'Reilly

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

Attachments:
1. C2BMC Spiral 6.4 Schedule Baseline (U). This document is "~~FOUO~~."
2. C2BMC Spiral 6.4 Technical Baseline (U). This document is "~~SECRET~~."
3. C2BMC Spiral 6.4 Test Baseline (U). This document is "~~FOUO~~."
4. C2BMC Spiral 6.4 Operational Baseline (U). This document is "~~FOUO~~."
5. C2BMC Spiral 6.4 Resource Baseline (U). This document is "~~FOUO~~."
6. C2BMC Spiral 6.4 Earned Value Management Chart (U). This document is "~~FOUO~~."
7. C2BMC Spiral 6.4 Contract Baseline (U). This document is "~~FOUO~~."
8. C2BMC Spiral 6.4 Exit Criteria (U). This document is "~~FOUO~~."

cc:
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS

Schedule Baseline

# C2BMC Spiral 6.4 Development Program Schedule Baseline (U)

~~FOUO~~

Status: 15 JUN 2010

| | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 |
| Program Phase | | | | | | | | | | | | | | | | | | |
| Design Reviews | | | | | | | | | | | | | | | | | | |
| Decision Points | | | | | | | | | | | | | | | | | | |
| MDA Capability Del. | | | | | | | | | | | | | | | | | | |
| BMDS Knowledge Points (Element KPs) | | | | | | | | | | | | | | | | | | |
| Software Build Capabilities | | | | | | | | | | | | | | | | | | |
| Model & Simulations | | | | | | | | | | | | | | | | | | |
| Test & Evaluation BMDS | | | | | | | | | | | | | | | | | | |
| Ground Test | | | | | | | | | | | | | | | | | | |
| Flight Test | | | | | | | | | | | | | | | | | | |
| Fielding & Field Support | | | | | | | | | | | | | | | | | | |
| Training* | | | | | | | | | | | | | | | | | | |

(b)(2),(b)(5)

~~FOUO~~

(b)(6)

* Training for Warfighter and support commands is performed to suite operator schedules and done to accommodate real world exercises and test activities.
Critical Milestones highlighted in Yellow

Attachment 1

~~SECRET~~

Technical Baseline

# C2BMC S6.4 Program BMDS Accountability Report Technical Baseline (U)

~~SECRET~~

## C2BMC related PCL items that have improvements with CD-04

| Combatant Command Capability Needs | Enduring Capabilities |
|---|---|
| G. (b)(1), (b)(2), (b)(5) | • (b)(1), (b)(2), (b)(5) |
| I. (b)(1), (b)(2), (b)(5) | • (b)(1), (b)(2), (b)(5) |
| J. (b)(1), (b)(2), (b)(5) | • (b)(1), (b)(2), (b)(5) |
| L. (b)(1), (b)(2), (b)(5) | • (b)(1), (b)(2), (b)(5) |
| M. (b)(1), (b)(2), (b)(5) | • (b)(1), (b)(2), (b)(5) |
| | • (b)(1), (b)(2), (b)(5) |
| | • (b)(1), (b)(2), (b)(5) |
| | • (b)(1), (b)(2), (b)(5) |
| | • (b)(1), (b)(2), (b)(5) |
| | • (b)(1), (b)(2), (b)(5) |
| | • (b)(1), (b)(2), (b)(5) |

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Gray box indicates no association (U)

## Current and Future Capabilities

| CD-04 | Future CD |
|---|---|
| Spiral 6.4 | Spiral 8.2 |
| (b)(1), (b)(2), (b)(5) | (b)(1), (b)(2), (b)(5) |
| (b)(1), (b)(2), (b)(5) | (b)(1), (b)(2), (b)(5) |

## Knowledge Points

| C2BMC KP # | Description | Demonstrated by | Complete |
|---|---|---|---|
| 1 | (b)(1), (b)(2), (b)(5) | • GT-04<br>• FTM-15 | |
| 2 | (b)(1), (b)(2), (b)(5) | • Warfighter Planner Exercises | |

Approved: (b)(6)

Attachment 2

~~SECRET~~

Test Baseline

# C2BMC S6.4 BMDS Accountability Report
## Test Baseline (CD-04) (U)

~~FOUO~~

Time Now

| Program Plan | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| **TEST EVENTS** | | | | | | | | | | | | | | | | |
| System/Element Flight Tests | | | | | | | | | | | | | | | | |
| System Level GT<br>GTX-Focused<br>GTI= HWIL<br>GTD= Distributed<br>TA/PA = Digital Assessments<br>WG & Exercises | | | | | | | | | | | | | | | | |
| Chamber/Lab | | | | | | | | | | | | | | | | |

(b)(2),(b)(5)

(b)(2),(b)(5)

**Summary Information**

**Primary CEC/EME Phase Test Data Collects**

(b)(2),(b)(5)

**Additional Test Data Collection Opportunities**

| | |
|---|---|
| FTG-06 | FTO-01 |
| FTT-14 | FTG-08 |
| BVT-01 | FTM-19 |
| USFT-4 | FTT-10b |
| FTM-16 E1, E2 | FTM-23 |
| FTM-15 | FTM-22 E2 |
| FTT-12 | FTX-10 |
| FTG-06a | AST-15 |
| AST-14 | FTT-16 |
| FTT-15 | FTX-12 |
| FTM-20 E1, E2 | FTG-13 |
| FTM-19 E1, E2 | FTM-21 E1, E2, E3 |

**Acquisition Phase Test Configuration**
S6.4C

~~FOUO~~

*Element Flight Test Pending
CECs: Critical Engagement Conditions
EMEs: Empirical Measurement Events
KP: Knowledge Point

△ PAA phase 1 Flight Test
△ Near-Term Flight Test
○ Mid-Term Flight Test
◇ Far-Term Flight Test

▭ PAA Phase 1 Ground Test
▭ Near-Term Ground Test
▭ Mid-Term Ground Test
▭ Far-Term Ground Test

△○◇ Operational Flight Test

Approved: (b)(6)

# C2BMC S6.4 Program BMDS Accountability Report
# Operational Capacity Baseline (U)

**Operational Capacity Baseline**

~~SECRET~~

| C2BMC Configuration | CD-04 |
|---|---|
| [redacted] (b)(1),(b)(2),(b)(5) | [redacted] (b)(1),(b)(2),(b)(5) |

| MDA Operational Capability Delivery | DATE |
|---|---|
| Doctrine [redacted] (b)(1), (b)(2), (b)(5) | Coord. Draft – ECD: TBD<br>ECD: [redacted] (b)(1), (b) |
| Organization/Personnel [redacted] (b)(1), (b)(2), (b)(5) | In Place<br>In Place |
| Training [redacted] (b)(1), (b)(2), (b)(5) | ECD: [redacted] (b)(1), (b)(2), (b)<br>ECD: |
| Leadership and Education [redacted] (b), (1), (b), (2), (b), (5) | ECD: [redacted] (b)(1), (b)(2), (b)(5) |
| Security/Interoperability [redacted] (b)(1), (b)(2), (b)(5) | Approved<br>ECD: [redacted] (b)(1), (b) |
| [redacted] (b)(1),(b)(2),(b)(5) | 4QFY10<br>2QFY11<br>TBD<br>3QFY11<br>4QFY11<br>3QFY13<br>4QFY13 |
| [redacted] (b)(1), (b)(2), (b)(5) | ECD: [redacted] (b), (1), (b) |
| [redacted] (b)(1), (b)(2), (b)(5) | ECD: [redacted] (b)(1), (b)(2), (b)(5) |

## CD-O4 CAPABILITIES & LIMITATIONS

**Plan**
1. [redacted] (b)(1), (b)(2), (b)(5)
2.
3.

**Situational Awareness**
4. [redacted] (b)(1), (b)(2), (b)(5)
5.

**Tracking**
6. [redacted] (b)(1), (b)(2), (b)(5)

**Battle Management (sensor tasking, track forwarding)**
7. [redacted] (b)(1), (b)(2), (b)(5)
8.
9.
10.

**Information Assurance**
11. [redacted] (b)(1), (b)(2), (b)(5)

~~SECRET~~

Approved [redacted] (b)(6)



~~SECRET~~

~~FOR OFFICIAL USE ONLY~~

# C2BMC Spiral 6.4 Program BMDS Accountability Report

Resource Baseline

## Resource Baseline Summary (U)

~~FOUO~~

| C2BMC Spiral 6.4 Program Cost Baseline | | |
|---|---|---|
| Program Acquisition Costs (BY10$M) | | |
| Component | Current Est | Baseline |
| C2BMC Spiral 6.4 | 859 | 859 |

MDA Time Phased Estimate (as of 06-16-2010)

| Costs TY $M | Sunk | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP Total | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Software Development | 299 | 189 | 71 | 27 | 10 | 4 | 1 | 302 | - | 601 |
| Testing | - | 38 | 36 | 37 | 37 | 38 | 39 | 225 | - | 225 |
| Site Activation & Fielding | 20 | 12 | 10 | 5 | - | - | - | 27 | - | 47 |
| Development Total | 318 | 238 | 116 | 69 | 48 | 43 | 40 | 554 | - | 872 |
| C2BMC Sustainment | - | - | 86 | 80 | 80 | 81 | 83 | 410 | - | 410 |
| **RDT&E Cost Estimate** | **318** | **238** | **203** | **149** | **127** | **124** | **123** | **964** | **-** | **1,282** |

C2BMC S6.4 Cost Estimate Description Documentation

Joint Cost Analysis Requirements Description

CARD approval date: 01/05/2010

Updated Annually

MDA Life Cycle Cost Estimate

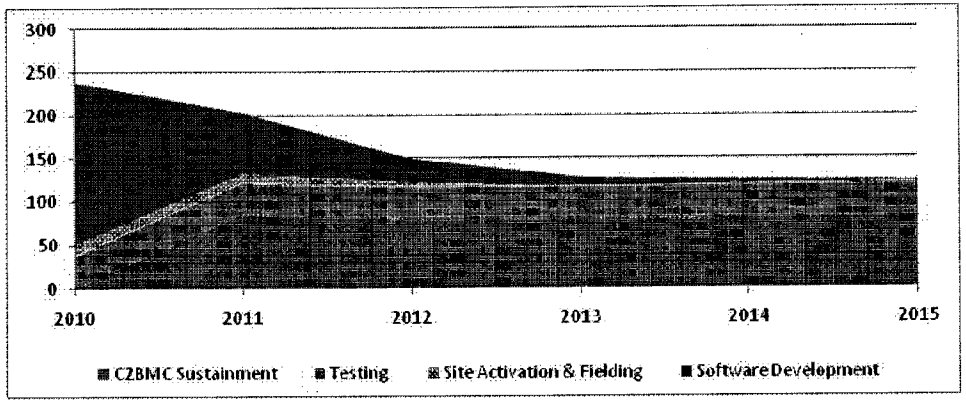
Date Approved: 01/06/2010

Life Cycle Cost Estimate (BY10$M)

| | Current Estimate | | | Baseline | Variance |
|---|---|---|---|---|---|
| | Sunk | To Go | Total | | |
| Development | 322 | 537 | 859 | 859 | - |
| *Software Development* | *302* | *297* | *599* | *599* | - |
| *Testing* | - | *214* | *214* | *214* | - |
| *Site Activation & Fielding* | *20* | *26* | *46* | *46* | - |
| Operations and Support | | 387 | 387 | | |
| **Total Life Cycle** | **322** | **924** | **1,246** | | |

Explanation of Variance

Time Phased Estimate Chart




~~FOUO~~

Approved: (b)(6)

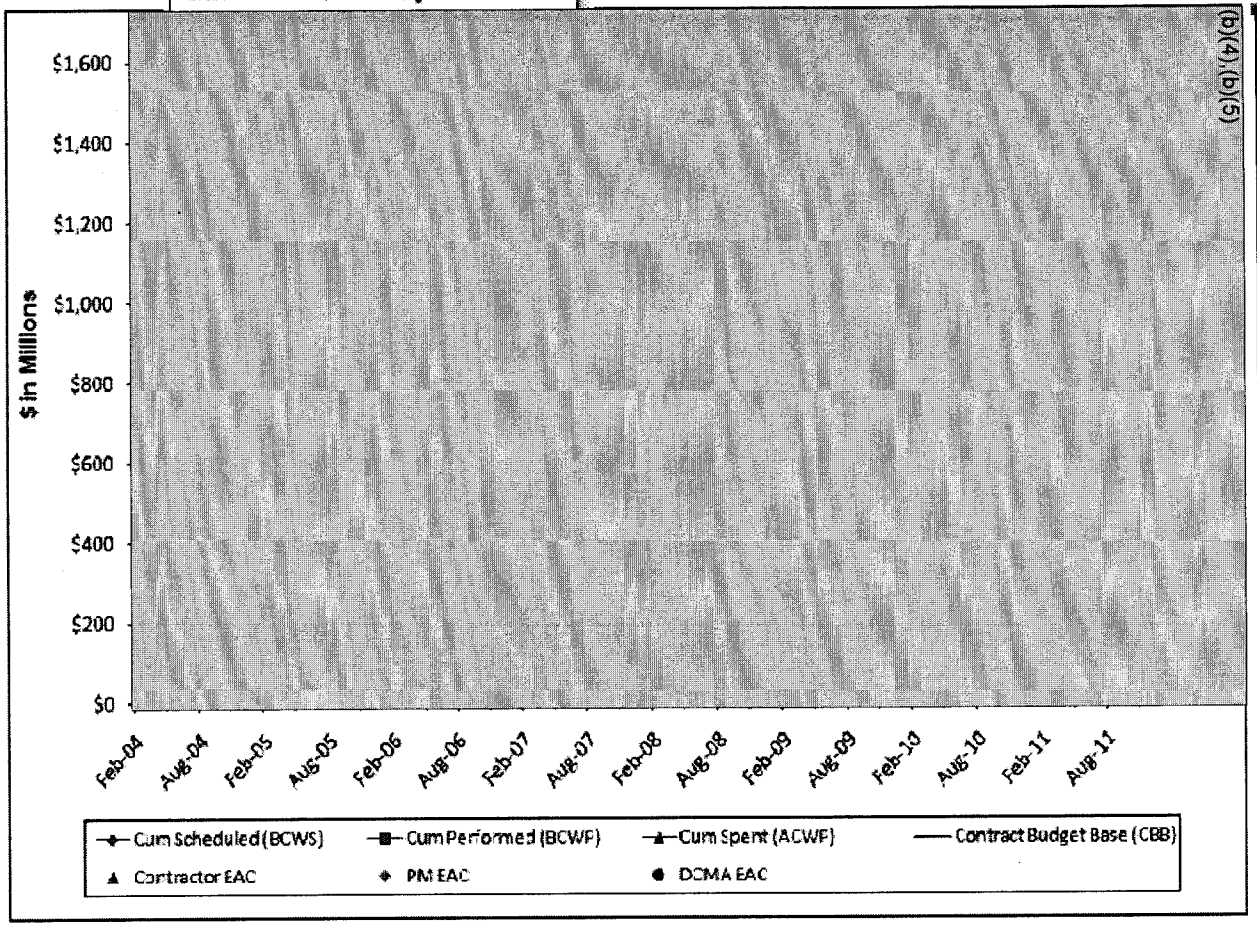
~~FOR OFFICIAL USE ONLY~~

# C2BMC Total Contract (U)

## *Earned Value Management Data*

~~FOUO~~

**MDA EVM Data – May10 CPR Data**




**Key Cost/Schedule Variance (CV/SV) Drivers**

***Cost:*** Cum CV: (b)(4),(b)(5)

***Schedule:*** Cum SV: (b)(4),(b)(5)

**Impacts (cost, schedule, technical, funding)**

(b)(4),(b)(5)

Current Funding Impact: (b)(4),(b)(5)

**Path Forward**

(b)(4),(b)(5)

| Prime Contractor | Contract Type | CBB | Variances | Cumulative | Current Month | | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Lockheed Martin | CPAF | (b)(4),(b)(5) | SV | (b)(4),(b)(5) | | PM | | (b)(4),(b)(5) |
| Period of Performance | Last IBR Date | % Complete | CV | | | KTR | | |
| Feb 2002 - Dec 2011 | 04-May-10 | (b)(4),(b)(5) | Level of Effort (LOE) Percentage | (b)(4),(b)(5) | | DCMA | None | None |

~~FOUO~~

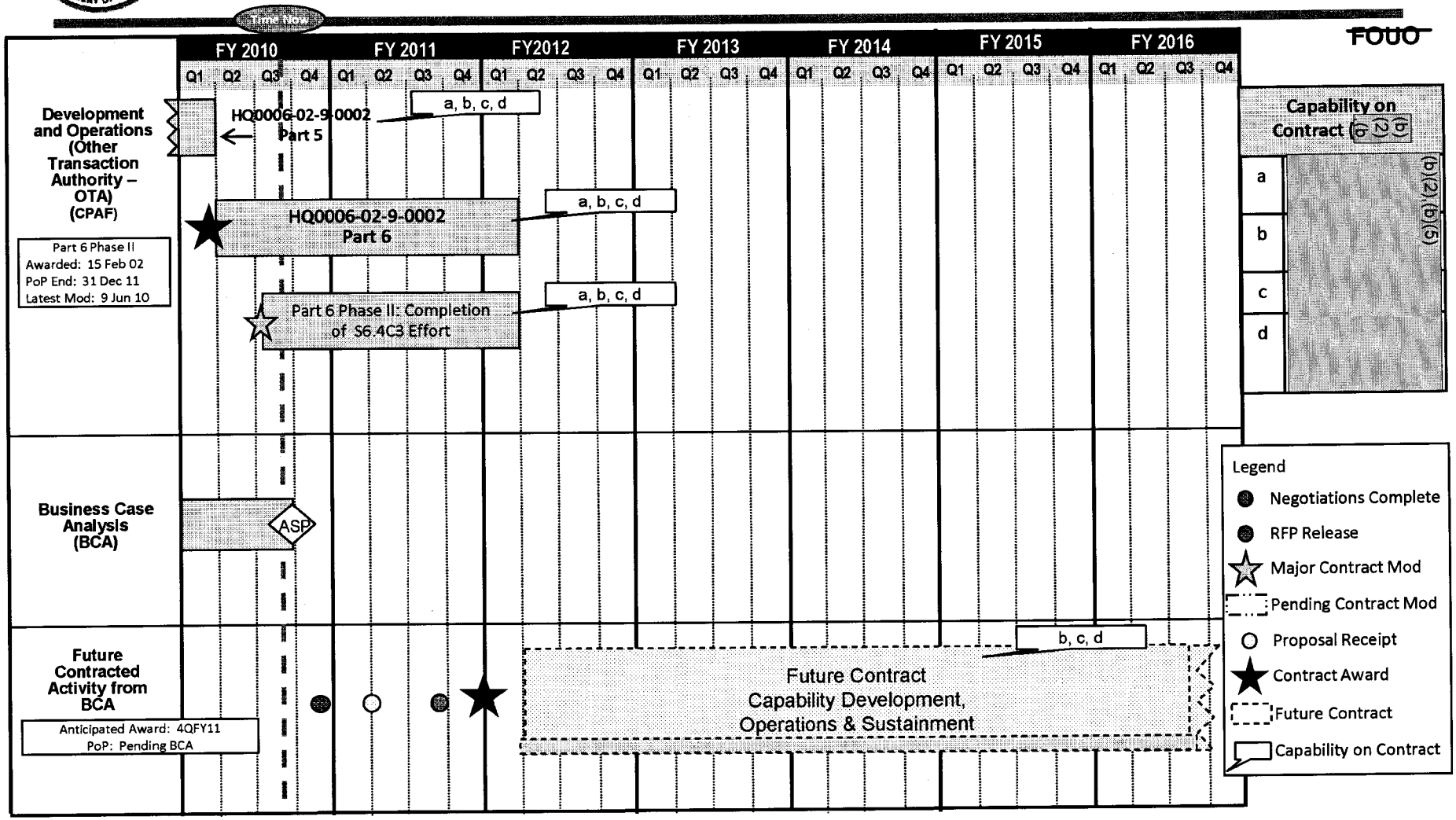
(b)(6)

~~FOR OFFICIAL USE ONLY~~

Contract Baseline

# C2BMC S6.4 BMDS Accountability Report
# Contract Baseline (U)

~~FOUO~~




~~FOUO~~

(b)(2),(b)(5)

(b)(2),(b)(5)

Approved: (b)(6)

Attachment 7

~~FOR OFFICIAL USE ONLY~~

# S6.4 Product Development Phase Exit Criteria (U)

~~FOUO~~

| # | Exit Criteria | Baseline | Req'd For S6.4 Technical Capability Declaration |
|---|---|---|---|
| **1** | **Verified Requirements** | | |
| 1a | S6.4 requirements verified through development testing and waivers (if any) approved by DE | Technical | |
| 1b | Combined DT/OT analysis substantiates capabilities/limitations – at PCB | Technical/ Schedule | Y |
| 1c | Validated C2BMC S6.4 model to support Performance Assessment | Technical | |
| **2** | **Affordable (FYDP and Beyond)** | | |
| 2a | CARD updated to include current IMTP and O&S requirements (up to transition to S8.2) | Resource | |
| 2b | Cost estimate developed that reflects the CARD; estimate approved | Resource | |
| 2c | Adequate budget available | Resource | |
| **3** | **Achievable Design** | | |
| 3a | Verified through Cycle 2 Testing | Technical | |
| **4** | **Achievable Design and Test Schedule** | | |
| 4a | Operator soak and capability demonstrations supported | Technical | |
| 4b | Results of IMTP tests have been assessed for operational effectiveness, suitability, and military utility of C2BMC S6.4 – Dependent on GT-04 series activity | Test | |
| **5** | **Sustainability Plans** | | |
| 5a | Individual site support plans approved by BC and validated by DW | Operational | |
| 5b | Contractor Logistics Support (CLS) program in place. | Operational | |

(b)(2),(b)(5)

Risk to Execution
Low
Medium Y
High

~~FOUO~~

## 3.2.1 THAAD 1.0 (U)

JUN 22 2010

MEMORANDUM FOR PROGRAM MANAGER, TERMINAL HIGH ALTITUDE AREA DEFENSE, MISSILE DEFENSE AGENCY

SUBJECT: Development Decision Memorandum for Terminal High Altitude Area Defense Baseline 1.0 Review (U)

(U) The attached schedule, technical, test, operational, resource, and contracts baselines and activities are approved for Terminal High Altitude Area Defense (THAAD) 1.0.

(U) Changes to the BMDS baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. The Army staff is invited to participate in the Integration and Synchronization Group (ISG) and PCB meetings that impact THAAD baselines, and all updates will be included as an agenda topic in the Army Board of Directors meetings. PCB-approved changes that affect the THAAD acquisition will be implemented by the THAAD Program Office and documented in the Single Acquisition Management Plan. Baseline variations will be reported to the MDA Director, the Assistant Secretary of the Army for Acquisition, Logistics and Technology, or other Army staff as identified by the Under Secretary of the Army, and in the annual BMDS Accountability Report.

(U) The following activities are directed to occur during the remainder of the THAAD 1.0 Product Development Phase:

| | |
|---|---|
| • Production Decision for Batteries 3&4 | 4QFY10 |
| • Materiel Release to the Army | 2QFY11 |
| • Production Decision for Battery 5 | 3QFY11 |
| • Flight Test Operational 1 | 4QFY12 |
| • Production Decision for Batteries 6 & Beyond | 1QFY13 |

(U) The criteria to exit the Product Development Phase (Attachment 9) are also approved. A baseline review is expected in 4QFY12 prior to a USD (AT&L) decision to enter the Production Phase.

JOSEPH W. WESTPHAL
Under Secretary of the Army

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

Attachments:

1. THAAD Schedule Baseline (U). This document is "~~FOUO.~~"
2. THAAD Technical Baseline (U). This document is "~~SECRET.~~"
3. THAAD Test Baseline (U). This document is "~~FOUO~~."
4. THAAD Operational Baseline (U). This document is "~~SECRET.~~"
5. THAAD Resource Baseline (U). This document is "~~FOUO.~~"
6. THAAD Development Program Earned Value Management Chart (U). This document is "~~FOUO.~~"
7. THAAD Production Program Earned Value Management Chart (U). This document is "~~FOUO.~~"
8. THAAD Contract Baseline (U). This document is "~~FOUO.~~"
9. THAAD Exit Criteria from Product Development (U). This document is "~~FOUO.~~"

cc:
MDA/DX
MDA/DE
MDA/DO
MDA/DA
MDA/DP
MDA/DT
MDA/DS

**Schedule Baseline**

# THAAD 1.0 Program Schedule Baseline (U)

10T-1004.04

~~FOUO~~ Status: 15Jun2010

| | FY09 | | | | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | | FY15 | | | | FY16 | | | | FY17 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Program Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Decision Points | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Design Reviews | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MDA Capability Del | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MDA/Army BoD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| JROC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMDS Knowledge Points | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Element KPs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Software Build | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capability Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Model & Simulatio | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test & Evaluation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IMTP 10.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ground Te | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flight Te | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fielding & Field Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Battery Deliveries/ Training | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

(b)(2),(b)(5)

~~FOUO~~

Blue = KP#2 and Events

Critical Milestones highlighted in Yellow

(b)(6)

Attachment 1

~~SECRET~~

# THAAD 1.0 Program Technical Baseline (U)

**Technical Baseline**

10T-1004.05

~~FOUO~~

## Prioritized Capabilities List (PCL) 2009

| Combatant Command Capability Needs | Enduring Capabilities |
|---|---|
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |

~~FOUO~~

## Current and Future Capabilities (U)

~~FOUO~~

| THAAD 1.0 Capability | THAAD Future Capability |
|---|---|
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |

~~FOUO~~

## Knowledge Points (U)

~~FOUO~~

| KP # | Title | Demonstrated By | Completed |
|---|---|---|---|
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | | ✓ |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | FTT-06 | ✓ |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | HWIL | ✓ |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | | |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | FTT-06, FTT-07, FTT-08, FTT-09, and FTT-10a, LUT | ✓ |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | FTT-14 3QFY10 | |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | FTT-13 3QFY12 | |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | Modified FTT-12 4QFY11 | |

~~FOUO~~

Approved: (b)(6)

Attachment 2

~~SECRET~~

# THAAD 1.0 Program Test Baseline (U)

## – IAW IMTP 10.2 –

Test Baseline

10T-1004.06

~~FOUO~~

| TH Program Plan | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| **Test Events** | | | | | | | | | | | | | | | | |
| System/Element Flight Tests | | | | | | | | | | | | | | | | |
| System Level GT<br>GTX: Focused<br>GTI: HWIL<br>GTD: Distributed<br>TA / PA = Digital Perf. Assessments | | | | | | | | | | | | | | | | |
| Chamber / Lab / Simulation | | | | | | | | | | | | | | | | |

(b)(2),(b)(5)

**Summary Information**

(b)(2),(b)(5)

**Additional Test Data Collection Opportunities**

Caravan II

**Current Test Configuration**

TFCC – 5.2

Launcher – 4.2

*Radar – 4.2.4*

~~FOUO~~

△ Near-Term PAA Ph1 Flight Test
⬭ Mid-Term PAA Ph2 Flight Test
◇ Far-Term PAA Ph3 Flight Test

Near-Term PAA Ph1 Ground Test
Mid-Term PAA Ph2 Ground Test
Far-Term PAA Ph3 Ground Test

△ ⬭ ◇ Operational Flight Test
Operational Ground Test

Approved: (b)(6)

~~SECRET~~

# THAAD 1.0 Program
# Operational Capacity Baseline (U)

**Operational Capacity Baseline**

10T-1004.07

FOUO

| THAAD 1.0 Configuration | Date |
|---|---|
| (b)(1),(b)(2),(b)(5) | (b)(1),(b) |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b) |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b) |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b) |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |

~~FOUO~~

Secret

## THAAD 1.0 CAPABILITIES & LIMITATIONS

(b)(1),(b)(2),(b)(5)

~~SECRET~~

| MDA Operational Capability Delivery | DATE |
|---|---|
| Doctrine<br>(b)(1),(b)(2),(b)(5) | 24 Mar 10, ECD: (b)(1)(b)<br>6 Mar 10, ECD (b)(1)(b) |
| Organization/Personnel<br>(b)(1),(b)(2),(b)(5) | May 08<br>ECD (b)(1)(b) |
| Training<br>(b)(1),(b)(2),(b)(5) | Jun 09<br>ECD 4QFY10<br>Nov 08 |
| Leadership and Education<br>(b)(1),(b)(2),(b)(5) | Mar 10<br>Feb 08 |
| Security/Interoperability<br>(b)(1),(b)(2),(b)(5) | Mar 10<br>ECD: Sep 10<br>ECD: Sep 10<br>ECD: Jul 10 |
| BMD System Level Testing/Performance<br>(b)(1),(b)(2),(b)(5) | 2QFY08/3QFY08/2QFY09<br>2QFY10/4QFY10<br>4QFY09<br>1QFY10 |
| (b)(1),(b)(2),(b)(5) | ECD: (b)(1)(b) |
| (b)(1),(b)(2),(b)(5) | ECD: Nov 10 |
| (b)(1),(b)(2),(b)(5) | ECD: (b)(1)(b) |

FOUO

Approved: (b)(6)

Attachment 4

~~SECRET~~

# THAAD 1.0 BMDS Accountability Report
# Resource Baseline Summary (U)

**Resource Baseline**

~~FOUO~~

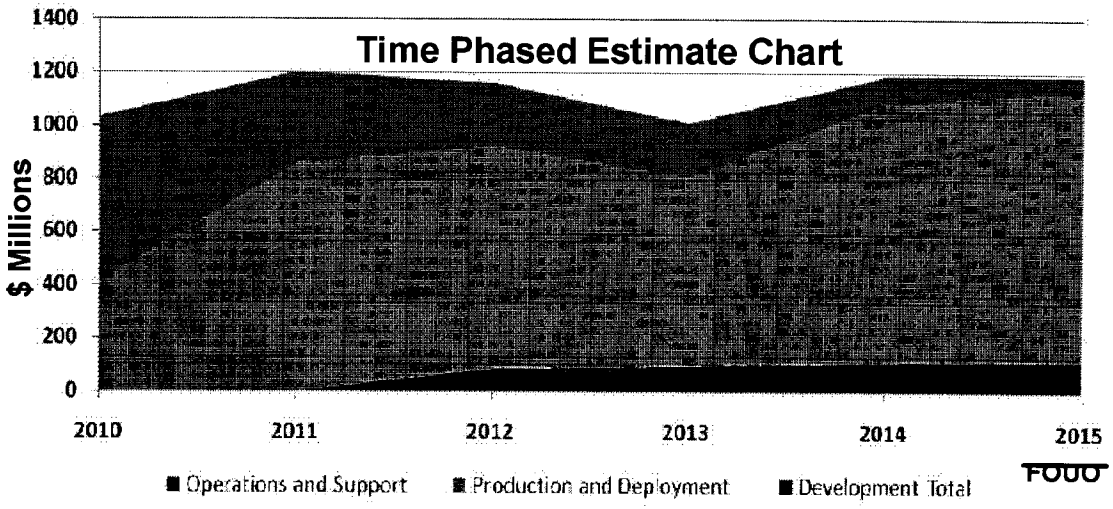
| Program Acquisition Unit Costs (BY10$M) | | | |
|---|---|---|---|
| Component | Qty | Current Est | Baseline |
| Interceptor | 483 | $ 22 | $ 22 |
| TFCC | 26 | $ 65 | $ 65 |
| Launcher | 72 | $ 11 | $ 11 |
| | | | |
| **Average Procurement Unit Costs (BY10$M)** | | | |
| Component | Qty | Current Est | Baseline |
| Interceptor | 381 | $ 11 | $ 11 |
| TFCC | 14 | $ 16 | $ 16 |
| Launcher | 54 | $ 10 | $ 10 |

| Costs TY $M | Sunk | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP Total | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Hardware Development | $ 2,964 | $ 311 | $ 169 | $ 107 | $ 108 | $ 68 | $ 51 | $ 814 | $ - | $ 3,777 |
| Hardware Procurement | $ 474 | $ 150 | $ 24 | $ 12 | $ 11 | $ 13 | $ 9 | $ 219 | $ - | $ 692 |
| Software Development | $ 451 | $ - | $ 34 | $ - | $ - | $ - | $ - | $ 34 | $ - | $ 485 |
| Testing | $ 2,654 | $ 155 | $ 118 | $ 121 | $ 85 | $ 23 | $ - | $ 500 | $ - | $ 3,155 |
| Development Total | $ 6,543 | $ 615 | $ 345 | $ 240 | $ 204 | $ 103 | $ 59 | $ 1,566 | $ - | $ 8,109 |
| Production and Deployment | $ 105 | $ 419 | $ 859 | $ 835 | $ 710 | $ 974 | $ 1,007 | $ 4,804 | $ - | $ 4,908 |
| Military Construction | $ 26 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ 26 |
| Operations and Support* | $ - | $ - | $ - | $ 88 | $ 99 | $ 113 | $ 122 | $ 422 | $ 3,768 | $ 4,191 |
| **Total Cost Estimate** | **$ 6,674** | **$ 1,034** | **$ 1,204** | **$ 1,163** | **$ 1,013** | **$ 1,190** | **$ 1,189** | **$ 6,792** | **$ 3,768** | **$ 17,235** |

*Note: Estimate includes $10M per year for 2 AN/TPY-2 deployed OCONUS in support of PAA

| Joint Cost Analysis Requirements Description |
|---|
| CARD approval date: Approved by MDA/D on 23 Oct 2009<br>Updated Annually |
| **Joint Life Cycle Cost Estimate** |
| Program Office Esitmate Approved 10 March 2010<br>Life Cycle Cost Estimate - BY10$M |

| | Current Estimate | | | Baseline | Variance |
|---|---|---|---|---|---|
| | Sunk | To Go | Total | | |
| Development | $ 7,111 | $ 1,514 | $ 8,625 | $ 8,625 | - |
| *Hardware Development* | *$ 3,230* | *$ 784* | *$ 4,014* | *$ 4,014* | - |
| *Hardware Procurement* | *$ 480* | *$ 213* | *$ 693* | *$ 693* | |
| *Software Development* | *$ 496* | *$ 33* | *$ 529* | *$ 529* | - |
| *Testing* | *$ 2,906* | *$ 483* | *$ 3,389* | *$ 3,389* | - |
| Production and Deployment | $ 105 | $ 4,484 | $ 4,589 | $ 4,589 | - |
| Military Construction | $ 29 | $ - | $ 29 | $ 29 | - |
| Operations and Support | $ - | $ 4,162 | $ 4,162 | $ 4,162 | - |
| **Total Life Cycle** | **$ 7,245** | **$ 10,160** | **$ 17,405** | **$ 17,405** | - |




~~FOUO~~

Approved: (b)(6)

Attachment 5

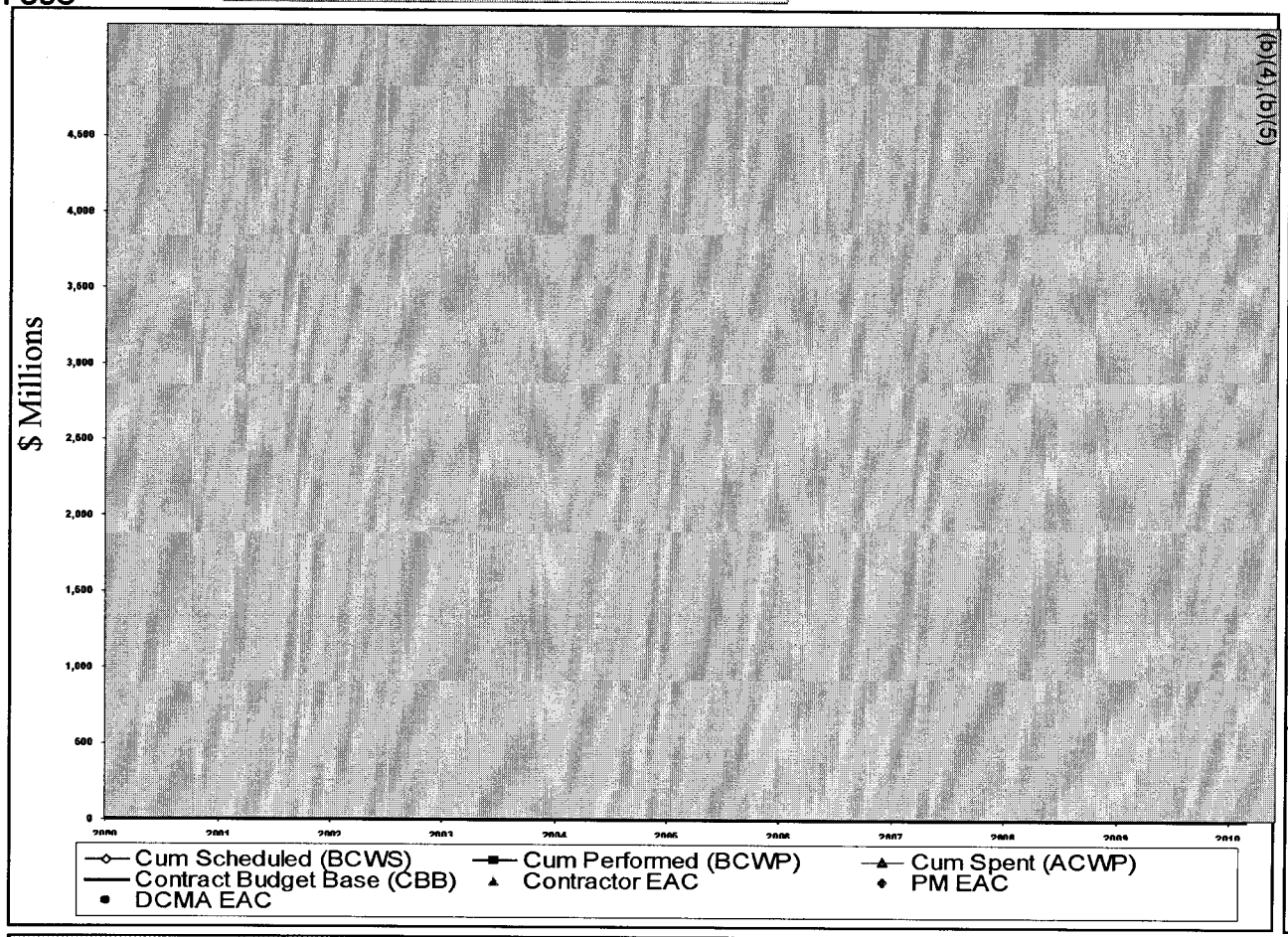
# TH Development Program

## Schedule, Performance & Actuals - 0072 Development Contract

## Earned Value Management Data (U)

MDA EVM Data – Apr 10 Data

~~FOUO~~




### Key Cost/Schedule Variance (CV/SV) Drivers

**Cost:** The cum CV is (b)(4),(b)(5)

Missile (b)(4),(b)(5)

Launcher

Radar (b)(4),(b)(5)

Program

Management

**Schedule:** (b)(4),(b)(5)

Missile (b)(4),(b)(5)

Radar

**Projected Variance At Complete (VAC)**

LM VAC is (b)(4)

**Impacts (Cost, Schedule, Technical, Funding):**

(b)(4),(b)(5)

| Prime Contractor | Contract Type | CBB | Variances | Cumulative | Current Month | | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Lockheed Martin | CPAF | (b)(4) | SV | (b)(4),(b)(5) | (b)(4),(b)(5) | PM | (b)(4),(b)(5) | |
| Period of Performance | Last IBR Date* | % Complete | CV | | | KTR | | |
| Jun 00 – Jan 11 | Jul 05 – Jun 06 | (b)(4) | Level of Effort (LOE) Percentage | (b) | | DCMA | | |

~~FOUO~~

(b)(6)

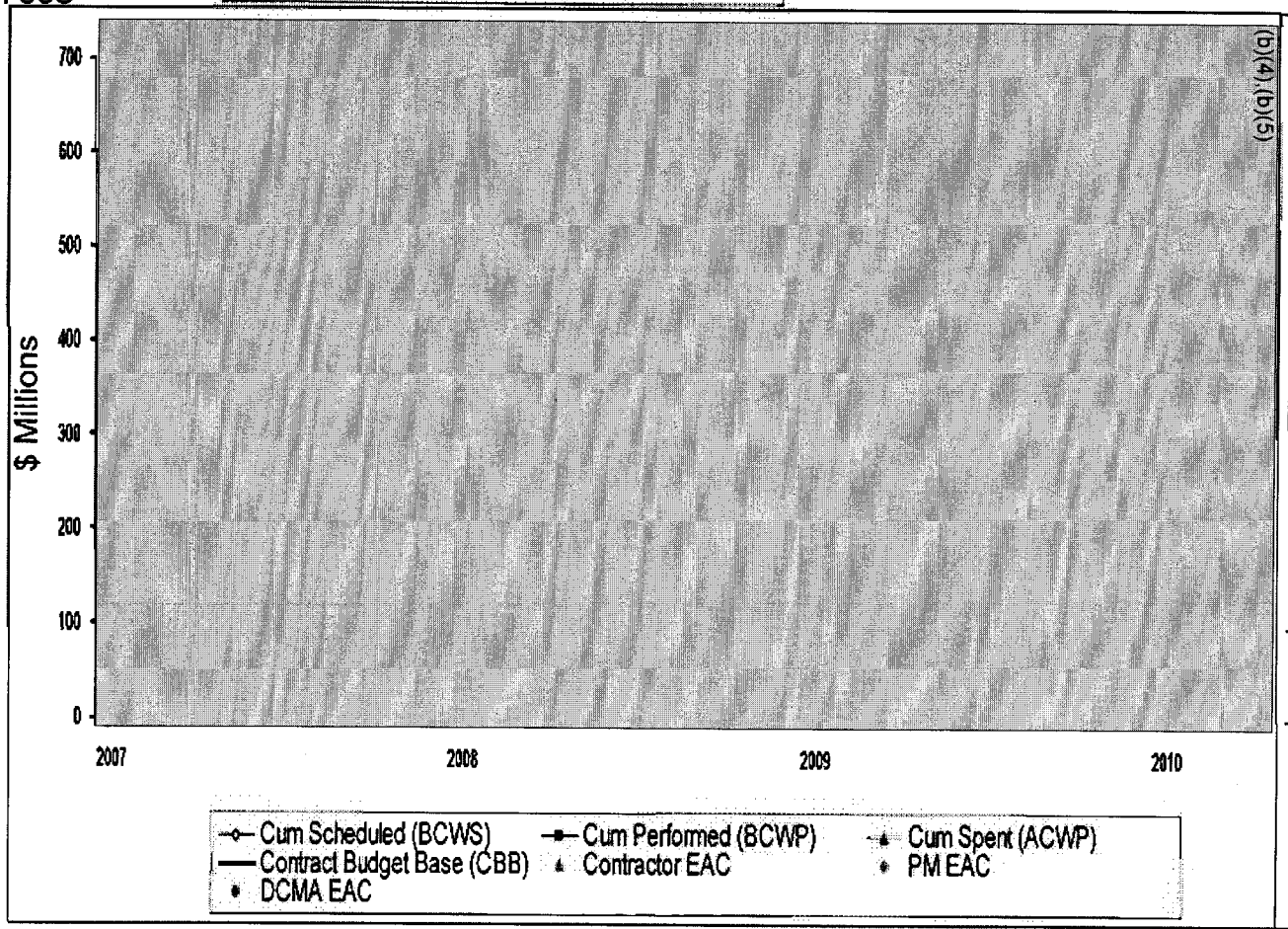
Attachment 6

# TH Production Program Schedule, Performance & Actuals (U)

## 0196 Fire Unit Fielding Contract

~~FOUO~~

MDA EVM Data – Apr 10 Data




**Key Cost/Schedule Variance (CV/SV) Drivers**

Cost: The cum CV is (b)(4),(b)(5)

Schedule: The Cum SV is (b)(4),(b)(5)

**Projected Variance At Complete (VAC)**

LM VAC is (b)(4),(b)(5)

**Impacts (Cost, Schedule, Technical, Funding):**

(b)(4),(b)(5)

| Prime Contractor | Contract Type | CBB | Variances | Cumulative | Current Month | | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Lockheed Martin | CPIF/CPAF | (b)(4),(b)(5) | SV | (b)(4),(b)(5) | | PM | (b)(4),(b)(5) | 0.0 |
| Period of Performance | Last IBR Date* | % Complete | CV | | | KTR | | (b)(4),(b) |
| Dec 06 – Aug 10 | May- 07 –Mar 09 | | Level of Effort (LOE) Percentage 32% | | | DCMA | | 0.0 |

~~FOUO~~

(b)(6)

Attachment 7

~~FOR OFFICIAL USE ONLY~~

# THAAD 1.0 Program Contract Baseline (U)

**Contracts Baseline**

10T-1004.09

~~FOUO~~

2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019

FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 | FY 2018 | FY 2019

**Development (CPAF)**

Awarded: 4 Aug 00
PoP End: 31 Jan 11

THAAD Baseline Development
(Lockheed Martin, DASG60-00-C-0072)
AN/TPY-2 # 1&4

a

c

d

**Capability on Contract (CD-04)**

a
b
c
d

(b)(2),(b)(5)

**Production (CPAF/CPIF/ CPFF/FFP/FPI)**

Awarded: 22 Dec 06
PoP End: 21 Aug 11

HQ0147-07-C-0196
Battery #1&2 (CPAF/CPIF)

Lot 1&2 Obsolescence (CPFF)

Lot 1 Production (FFP/FPI)

Lot 2 Production (Option)

Lot 3 Production

Lot 4 Production

Lot 5 Production

Lot 6 Production

Lot 7 Production

**TFSC (TH Field Support Contract) (CPIF/CPFF)**

Awarded: 31 Mar 10
PoP End: 31 Mar 14

b

HQ0147-10-D-0001
Contractor Logistics Support for Fielded Units

Option#1 | Option#2 | Option#3 | Option#4 | Option#5

RFP Release
Proposal Receipt
Neg Complete
Contract Award
Option Execution
Pending Contract
Future Contract
O&M Funded
Procurement Funded
Capability on Contract

(b)(2),(b)(5)

~~FOUO~~

Approved: (b)(6)

Attachment 8

~~FOR OFFICIAL USE ONLY~~

# THAAD Exit Criteria from Product Development Phase (U)

-1QFY13-

10T-1004.15

~~FOUO~~

| | Exit Criteria | Baseline | Status | |
|---|---|---|---|---|
| 1 | **Verified Requirement** | | | |
| 1a | THAAD System Specification Rev V. traced to BMD System Specification Build C | Technical | Completed Sep 08 | C |
| 1b | Approved Capability Production Document | Technical | Dec 08 | C |
| 2 | **Design is stable** | | | |
| 2a | Weapon System Production Qualification complete for all components and subassemblies | Technical | ECD Aug 10 | Y* |
| 3 | **Test results support confidence that the user needs will be met** | | | |
| 3a | ATEC Operational Assessment Report (OAR) – Effectiveness, Suitability, and Survivability Assessment | Test | ECD Nov 10 | [redacted] |
| 4 | **Projected quantities are affordable** | | | |
| 4a | Approved MDA/CARD | Resource | ECD Jul 10 | [redacted] |
| 4b | Independent Cost Estimate, Completed by CAPE | Resource | ECD 1QFY11 | [redacted] |
| 4c | Full funding for Procurement and Operations and Sustainment | Resource | PB 11 | [redacted] |
| 4d | Training Aids , Devices, Simulators, and Simulations (TADSS) Funded | Resource | PB 11 | [redacted] |
| 5 | **Manufacturing processes are in control** | | | |
| 5a | No significant manufacturing risks | Technical | Aug 10 | Y* |
| 5b | Industrial Capabilities Assessment completed | Technical | Final ECD: May 10 | [redacted] |
| 6 | **Plans for operations are in place** | | | |
| 6a | Supportability Strategy coordinated w/ ARSTAFF, approved by PM (IAW AR 700-127) | Operational | Approved Nov 09<br>SIPT concur Feb 10 | C |
| 6b | Materiel Fielding plan coordinated with ARSTAFF (IAW AR 700-142) | Operational | Apr 10 | C |
| 6c | Approved STRAP and Training Support Plan | Operational | STRAP: Nov 08<br>TSP: Dec 09 | C |

* [redacted]

Risk to Execution: Low [redacted] Medium Y High [redacted] Complete C

~~FOUO~~

## 3.2.2 AN/TPY-2 (U)

JUN 2 2 2010

MEMORANDUM FOR PROGRAM DIRECTOR, SENSORS, MDA (U)

SUBJECT: Development Decision Memorandum (DDM) for Sensors AN/TPY-2 Program Baseline Review (U)

(U) The attached schedule, technical, test, operational capacity, resource, and contracts baselines and activities are approved for the Sensors (SN) AN/TPY-2 Program.

(U) Changes to the Ballistic Missile Defense System (BMDS) baselines are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. The Army staff is invited to participate in the Integration and Synchronization Group (ISG) and PCB meetings that impact AN/TPY-2 baselines, and all updates will be included as an agenda topic in the Army Board of Directors meetings. PCB-approved changes that affect the AN/TPY-2 Program will be implemented by the MDA/SN Program Office, documented in the Single Acquisition Management Plan (SAMP). Baseline variations will be reported to the MDA Director, the Assistant Secretary of the Army for Acquisition, Logistics and Technology, or other Army staff as identified by the Under Secretary of the Army, and in the annual BMDS Accountability Report.

(U) The following activities are directed to occur during the remainder of the AN/TPY-2 Program development:

| | |
|---|---|
| • Deliver Prime Power Units (PPUs) for THAAD Batteries 1 & 2 | 4QFY10 |
| • Completion of Capability Delivery 03 (CD-03) | 4QFY10 |
| • Production Decision for AN/TPY-2s # 8 and 9 | 4QFY10 |
| • Support THAAD Materiel Release to the Army | 2QFY11 |
| • Production Decision for AN/TPY-2s # 10 through 14 | 2QFY11 |
| • Refurbishment of AN/TPY-2 # 4 | 4QFY11 |
| • Completion of Capability Delivery 04 (CD-04) | 2QFY14 |

(U) We approve the criteria to exit product development and initial production (Attachment 0) and expect the AN/TPY-2 Program Office to deliver CD-03 and THAAD Radar 1.0 capability in 1QFY11, CD-04 in 2QFY14, and continue producing hardware through FY18.

JOSEPH W. WESTPHAL
Under Secretary of the Army

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

Attachments:

1. AN/TPY-2 Schedule Baseline (U). This document is "~~FOUO.~~"
2. AN/TPY-2 Technical Baseline (U). This document is ~~"SECRET."~~
3. AN/TPY-2 Test Baseline (U). This document is "~~FOUO.~~"
4. AN/TPY-2 Operational Capacity Baseline (U). This document is "~~SECRET.~~"
5. AN/TPY-2 Resource Baseline (U). This document is "~~FOUO.~~"
6. AN/TPY-2 #2, 3, 5 & 6 Earned Value Management Charts (U). This document is ~~"FOUO."~~
7. AN/TPY-2 #7 Earned Value Management Charts (U). This document is "~~FOUO.~~"
8. AN/TPY-2 CCLS Earned Value Management Charts (U). This document is "~~FOUO.~~"
9. AN/TPY-2 Contract Baseline (U). This document is "~~FOUO~~."
10. AN/TPY-2 Exit Criteria (U). This document is "~~FOUO.~~"

cc:
MDA/DX
MDA/DE
MDA/DA
MDA/DP
MDA/DO
MDA/DT
MDA/DS
MDA/BC
MDA/TH
MDA/SNXD

~~FOR OFFICIAL USE ONLY~~

# AN/TPY-2 Program (CD-03, CD-04) Schedule Baseline (U)

**Schedule Baseline**

Notes:
- CD-04 2QFY14
- Fwd-Based Mode (FBM) & Terminal Mode (TM) Materiel Release to be addressed at future PCB.

~~FOUO~~

Status: 15-Jun-2010
Baseline: PBR-12

FY09 | FY10 | FY11 | FY12 | FY13

Program Phase
Design Reviews
Decision Points
MDA Capability Del.
MDA / Army BoD
BMDS Knowledge Points
Element KPs
Software Build
Capability Development
Model & Simulations
Test & Evaluation IMTP 10.2 BMDS
Ground Test
THAAD Flight Test
Fielding & Field Support
Radar Deliveries / THAAD Training

(b)(2),(b)(5)

(b)(6)

~~FOUO~~

Critical Milestones highlighted in Yellow

Forward-Based Mode (FBM) Activity

Terminal Mode (TM) Activity

Attachment 1

~~FOR OFFICIAL USE ONLY~~

Technical Baseline

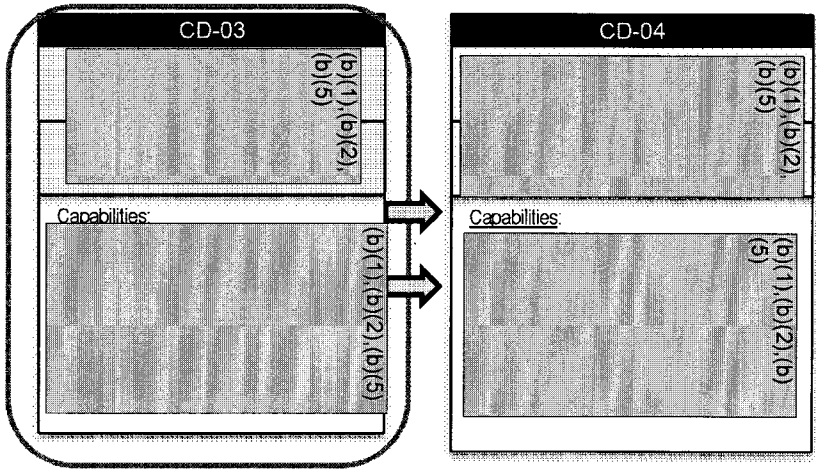
# AN/TPY-2 Program (CD-03, CD-04) Technical Baseline (U)

~~SECRET~~

## Prioritized Capabilities List (PCL) 2009

| Combatant Command Capability Needs | Enduring Capabilities |
|---|---|
| [redacted] (b)(1),(b)(2),(b)(5) | [redacted] (b)(1),(b)(2),(b)(5) |

## Current (CD-03) and Future (CD-04) Capabilities




## CD-03 and CD-04 Knowledge Points

| KP# | Description | Demonstrated by | Completed |
|---|---|---|---|
| 1 | [redacted] (b)(1),(b)(2),(b)(5) | GTD-02 Approved May 2007 | √ |
| 2 | [redacted] (b)(1),(b)(2),(b)(5) | FTX-02 (Mar-07) Approved May 2007 | √ |
| 3 | [redacted] (b)(1),(b)(2),(b)(5) | Production Readiness Risk Assessment (PRRA); est Sep-2010 | |
| 4 | [redacted] (b)(1),(b)(2),(b)(5) | FTT-12 (4QFY11) | |

Approved: [redacted] (b)(6)

# AN/TPY-2 Program (CD-03, CD-04) Test Baseline (U)

## IAW IMTP 10.2 BMDS Test Baseline

**Test Baseline**

~~FOUO~~

| AN/TPY-2 Program Plan | | FY09 | | | | FY10 | | | | FY11 | | | | FY12 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| TEST EVENTS | System/Element Flight Tests | | | | | | | | | | | | | | | | |
| | Systems Level GTX-Focused GTI-HWIL GTD-Distributed TA/PA-Dig Assessments | | | | | | | | | | | | | | | | |
| | Chamber / Lab / Simulation | | | | | | | | | | | | | | | | |

(b)(2),(b)(5)

**Summary Information**

**Primary CEC/EME Phase Test Data Collects**

(b)(2),(b)(5)

**Additional Test Data Collection Opportunities**

GT-195
GT-199
JFTM-03
ATM-48
TH Govt Ground Test (GGT)
TH Limited User Test (LUT)

(b)(2),(b)(5)

**Acquisition Phase Test Configuration**

Software versions:

(b)(2),(b)(5)

*Element Flight Test Pending
CECs: Critical Engagement Conditions
EMEs: Empirical Measurement Events
KP: Knowledge Point

△ Near Term PAA phase 1 Flight Test
○ Mid-Term Flight Test
◇ Far-Term Flight Test

Near Term PAA Phase 1 Ground Test
Mid-Term Ground Test
Far-Term Ground Test

△○◇ Operational Flight Test

~~FOUO~~

Approved: (b)(6)

Attachment 3

~~SECRET~~

# AN/TPY-2 (FBM & TM) Program Operational Capacity Baseline (U)

**Operational Capacity Baseline**

~~FOUO~~

| AN/TPY/2 Configuration | Status |
|---|---|
| [redacted] (b)(1),(b)(2),(b)(5) | [redacted] (b)(1),(b)(2),(b)(5) |

~~FOUO~~

| MDA Operational Capability Delivery | DATE |
|---|---|
| **Doctrine** [redacted] (b)(1),(b)(2),(b)(5) | **28 Feb 2010** ECD: [redacted] (b)(1),(b) ECD: [redacted] (b)(1),(b) 24 Mar 10, ECD: [redacted] (b)(1),(b) 6 Mar 10, ECD: [redacted] |
| **Organization/Personnel** [redacted] (b)(1),(b)(2),(b)(5) | **Effective: 16 Oct 2010** May 08 ECD: [redacted] (b)(1),(b) |
| **Training** [redacted] (b)(1),(b)(2),(b)(5) | **4QFY10 FY10** Jun 09 ECD: [redacted] (b)(1),(b) Nov 08 |
| **Leadership and Education** [redacted] (b)(1),(b)(2),(b)(5) | **July 2010** Mar 10 Feb 08 |
| **BMD System Level Testing/Performance (FBM & TM)** [redacted] (b)(1),(b)(2),(b)(5) | **2QFY08/3QFY08/2QFY9 2QFY10/4QFY10 4QFY09 1QFY10** |

## CURRENT CAPABILITIES & LIMITATIONS

[redacted] (b)(1),(b)(2),(b)(5)

Forward-Based Mode (FBM)

Terminal Mode (TM)

~~FOUO~~

Approved: [redacted] (b)(6)

Attachment 4

~~SECRET~~

Resource Baseline

# AN/TPY-2 CD-03 and CD-04 BMDS Accountability Report Resource Baseline Summary (U)

~~FOUO~~

| Program Acquisition Unit Costs | | | |
|---|---|---|---|
| Component | Qty | Current Est (BY$10M) | Baseline (BY$10M) |
| Radar | 14 | 218 | 218 |
| **Average Procurement Unit Costs** | | | |
| Component | Qty | Current Est (BY$10M) | Baseline (BY$10M) |
| Radars (9-14) | 6 | 177 | 177 |

| Costs TY $M | Sunk | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP Total | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Hardware Development | 82 | | 30 | 28 | 22 | | | 80 | | 162 |
| Software Development | 268 | 22 | | | | | | 22 | | 290 |
| Testing | 38 | 10 | 22 | 38 | 17 | | | 87 | | 125 |
| Integration | 19 | 2 | 2 | 2 | 2 | | | 8 | | 27 |
| Test Item Manufacturing | 1,079 | 211 | 22 | 30 | 2 | 1 | | 266 | 61 | 1,406 |
| PDSS | | 12 | 18 | 19 | 19 | 19 | 19 | 106 | 557 | 663 |
| Test Item Sustainment | 266 | 96 | 119 | 142 | 161 | 177 | 193 | 888 | 4,756 | 5,910 |
| Development Total | 1,752 | 353 | 213 | 259 | 223 | 197 | 212 | 1,457 | 5,374 | 8,583 |
| Production and Deployment | | | | 188 | 367 | 378 | 176 | 1,109 | 37 | 1,146 |
| **Total Cost Estimate** | **1,752** | **353** | **213** | **447** | **590** | **575** | **388** | **2,566** | **5,411** | **9,729** |

**AN/TPY-2 Cost Estimate Description Documentation**

**Cost Analysis Requirements Description**

CARD approval date: 19-Nov-2009

Updated Annually

**Life Cycle Cost Estimate**

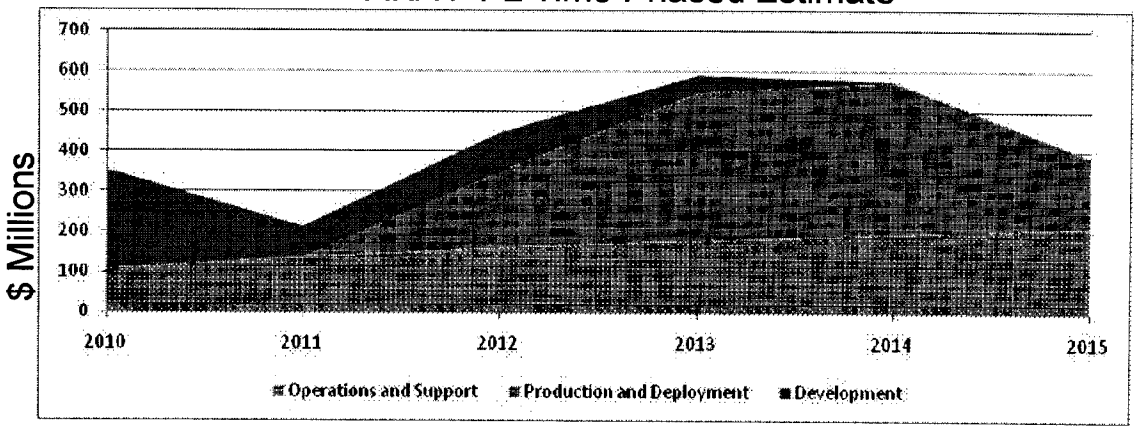
Date Approved: 28 April 2010

Life Cycle Cost Estimate (BY10$M)

| | Current Estimate | | | Baseline | Variance |
|---|---|---|---|---|---|
| | Sunk | To Go | Total | | |
| Development | 1,486 | 505 | 1,991 | 1,991 | - |
| *Hardware Development* | *82* | *77* | *159* | *159* | - |
| *Software Development* | *268* | *22* | *290* | *290* | - |
| *Testing* | *38* | *84* | *122* | *122* | - |
| *Test Item Manufacturing* | *1,079* | *314* | *1,393* | *1,393* | - |
| *Integration* | *19* | *8* | *27* | *27* | - |
| Production and Deployment | - | 1,063 | 1,063 | 1,063 | - |
| Operations and Support | 266 | 5,320 | 5,586 | | |
| **Total Life Cycle** | **1,752** | **6,888** | **8,640** | | |

**Explanation of Variance**

## AN/TPY-2 Time Phased Estimate




- Any shortfalls or excess funding will be covered by MDA/SN-wide reallocation of funds during on-going PBR12 process.

~~FOUO~~

Attachment 5



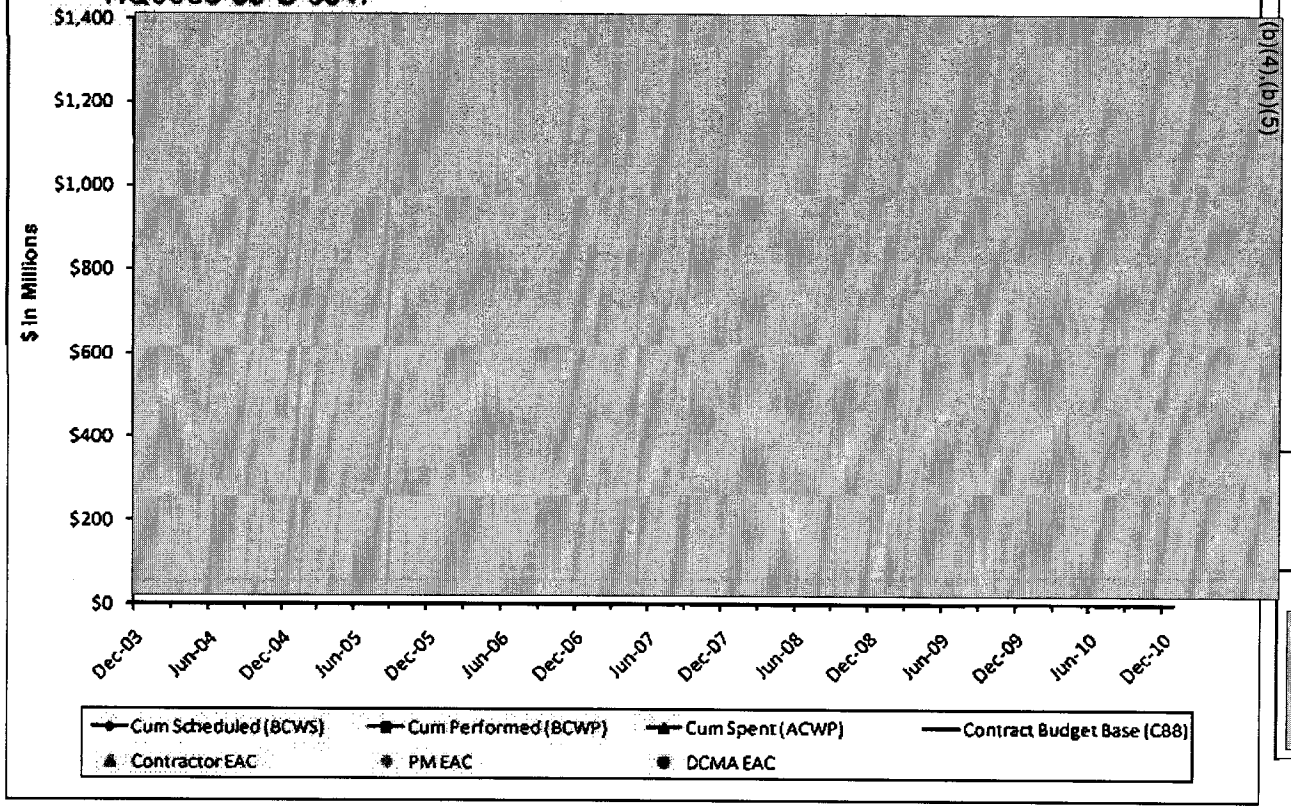
Approved (b)(6)

# AN/TPY-2 #2, 3, 5, & 6 (U)

## *Earned Value Management Data*

**MDA EVM Data – Apr 10 CPR Data**

HQ0006-03-C-0047




~~FOUO~~

**Key Cost/Schedule Variance (CV/SV) Drivers**

Cost: The Cum CV is (b)(4),(b)(5)

Schedule: The cum SV is (b)(4),(b)(5)

**Projected Variance at Completion (VAC)** (b)(4),(b)(5)

**Impacts (Cost, Schedule, Technical Funding):** (b)(4),(b)(5)

| Prime Contractor | Contract Type | CPR | Variances | Cumulative | Current Month | | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Raytheon | CPAF | (b)(4),(b)(5) | SV | (b)(4),(b)(5) | | PM | (b)(4),(b)(5) | |
| Period of Performance | Last IBR Date | % Complete | CV | | | KTR | | |
| Dec 2003 to Aug 2010 | 01-Oct-07 | (b) | Level of Effort (LOE) Percentage | | (b) | DCMA | | |

~~FOUO~~

(b)(6)

Attachment 6

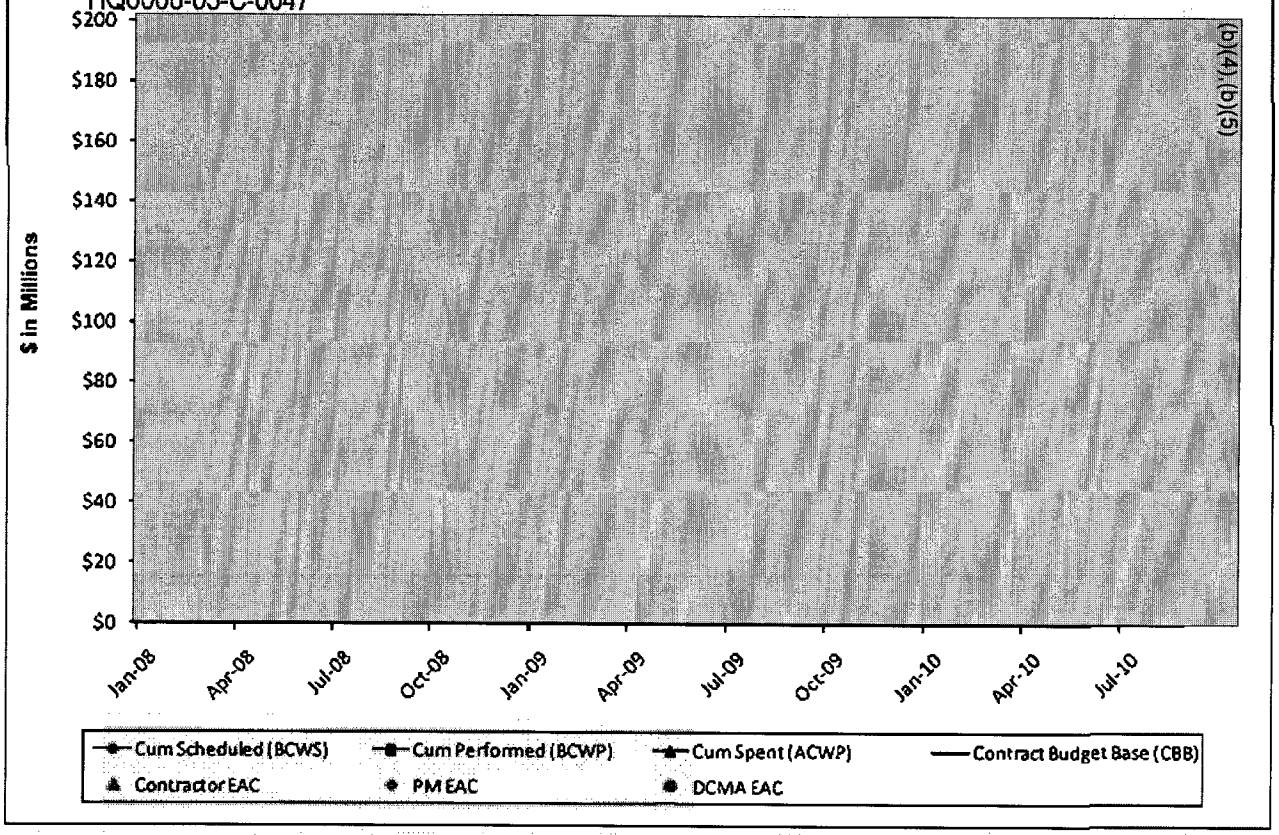
# AN/TPY-2 #7 (U)

## *Earned Value Management Data*

~~FOUO~~

MDA EVM Data – Apr 10 CPR Data

HQ0006-03-C-0047




Key Cost/Schedule Variance (CV/SV) Drivers

Cost: The Cum CV is (b)(4),(b)(5)

Schedule: The cum SV is (b)(4),(b)(5)

Projected Variance at Completion (VAC)

PM VAC is (b)(4),(b)(5)

KTR VAC is

Impacts (Cost, Schedule, Technical Funding): (b)(4),(b)(5)

| Prime Contractor | Contract Type | CBB | Variances | Cumulative | Current Month | | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Raytheon | CPAF | (b)(4) | SV | | (b)(4),(b)(5) | PM | | (b)(4),(b)(5) |
| Period of Performance | Last IBR Date | % Complete | CV | | | KTR | | |
| Feb 2007 to Aug 2010 | 01-Mar-08 | (b)(4) | Level of Effort (LOE) Percentage | | (b)(4) | DCMA | | |

~~FOUO~~

(b)(6)

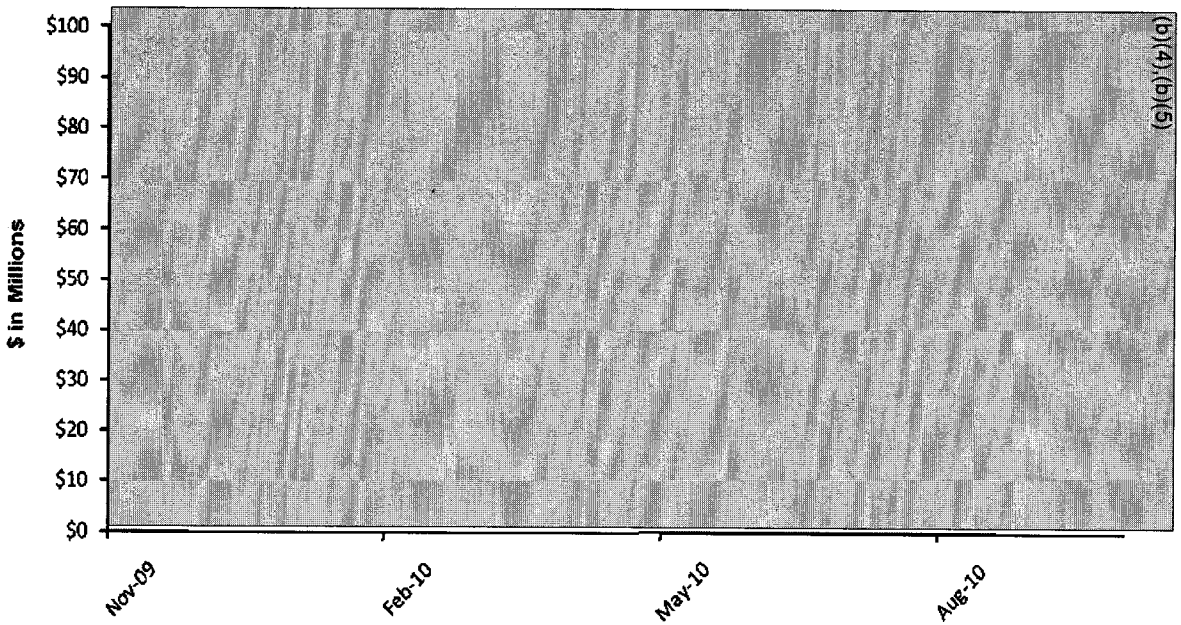
Attachment 7

# CCLS Task Order 8 AN/TPY-2 (Radars #2, 3, 5, 6, 7) (U)

## *Earned Value Management Data*

~~FOUO~~

**MDA EVM Data – May 10 CPR Data**




| Prime Contractor | Contract Type | CBB | Variances | Cumulative | Current Month | | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Raytheon | CPAF | (b) | SV | (b)(4),(b)(5) | | PM | (b)(4),(b)(5) | |
| Period of Performance | Last IBR | % Complete | CV | | | KTR | | |
| Nov 09 to Sep 10 | | (b) | Level of Effort (LOE) Perecentage | (b) | | DCMA | NA | NA |

~~FOUO~~

**Key Cost/Schedule Variance (CV/SV) Drivers**

Cost: The Cum CV is (b)(4),(b)(5)

Schedule: The cumulative schedule variance is (b)(4),(b)(5)

**Projected Variance at Completion (VAC)**

PM VAC is (b)(4),(b)(5)

KTR VAC is

**Impacts (Cost, Schedule, Technical Funding):** (b)(4),(b)(5)

(b)(6)

Attachment 8

~~FOR OFFICIAL USE ONLY~~

# AN/TPY-2 Program (CD-03, CD-04)
# DBR Contract Baseline (U)

**Contract Baseline**

~~FOUO~~

Time Now

| | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|---|---|
| | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 |
| **Prime Contract (Development & Production)**<br>**Type: CPAF**<br>Contract: x0047<br>Awarded: 01-Apr-2003<br>PoP End: 31-Aug-2010<br>Mod 139 Pending | THAAD<br>Lockheed Martin, DASG60-00-C-0072)<br>AN/TPY-2s 1&4; and TM S/W Development<br>a, b, c<br>BMDS Radar Contract<br>(Raytheon, HQ0006-03-C-0047)<br>AN/TPY-2s # 2, 3, 5, 6, 7, & 8<br>and FBM S/W Development<br>a, b, d | S/W DevExt<br>PPU Refurb and<br>AN/TPY-2 # 8 Procurement<br>Radar Development Contract (TM & FBM) | | | |
| **Prime contract (Production)**<br>Awarded: TBD<br>PoP End: TBD<br>Mod Pending: N/A | | | AN/TPY-2 Production (TM & FBM) | | |
| **Sustainment**<br>**Type: CPIF**<br>Awarded: 31-Dec-2007<br>PoP End: 31-Dec-2012<br>Mod Pending: None | Consolidated Contractor Logistics Support (C-CLS)<br>(Raytheon, HQ0006-08-D-0003)<br>Annual task orders for X-Band Radar Logistics Support<br>e | | Acquisition Strategy Review | CCLS Contract | |

**Capability on Contract** (b)(2), (b)(5)

| | |
|---|---|
| a | (b)(2) (b)(5) |
| b | |
| c | |
| d | |
| e | |

Legend
- Negotiations Complete
- Proposal Receipt
- RFP Release
- Strategy Review
- Major Contract Mod
- Contract Award
- Pending Contract Mod
- Future Contract
- Current Status
- Not Baselined; Future Program

~~FOUO~~

Approved: (b)(2), (b)(5)

~~FOR OFFICIAL USE ONLY~~

Exit Criteria

# AN/TPY-2 Program Exit Criteria
# Product Development Phase to Production Phase (U)

~~FOUO~~

| | Exit Criteria | Baseline | TM Status | TM Prod Decision | FBM Status | FBM Prod Decision |
|---|---|---|---|---|---|---|
| 1 | **Verified Requirement** | | | | | |
| 1a | AN/TPY-2 System Specification traced to BMD System Specification Build C | Technical | Completed September 2008 | C | Completed September 2008 | C |
| 1b | Approved Capability Production Document | Technical | CPD | C | CPD Update | |
| 1c | PIDS Requirements Verification | Technical | ECD Jul 10 | | ECD Jul 10 | |
| 2 | **Design is stable** | | | | | |
| 2a | Weapon System Production Qualification complete for all components and subassemblies | Technical | GGT ECD Sep 10 | | GGT ECD Sep 10 | |
| 3 | **Test results support confidence that the user needs will be met** | | | | | |
| 3a | ATEC Operational Assessment Report (OAR) – Effectiveness, Suitability, and Survivability Assessment | Test | ECD Nov 10 | | CD-03 OAR | |
| 4 | **Projected quantities are affordable** | | | | | |
| 4a | Approved MDA/CARD | Resource | November 2009 | C | November 2009 | C |
| 4b | Independent Cost Estimate, Completed by CAPE | Resource | ECD 1QFY11 | | ECD 1QFY11 | |
| 4c | Full funding for Procurement and Operations and Sustainment | Resource | PB 11 | | PB 11 | |
| 5 | **Manufacturing processes are in control** | | | | | |
| 5a | No significant manufacturing risks | Technical | PRRA-2007 Update ECD 1QFY11 | | PRRA-2007 Update ECD 1QFY11 | |
| 5b | Industrial Capabilities Assessment (ICA); update in progress | Technical | ECD 30-Oct-2011 | | ECD 30-Oct-2011 | |
| 6 | **Plans for operations are in place** | | | | | |
| 6a | Supportability Strategy approved (IAW AR 700-127) | Operational | TM-Nov 09 | C | MDA Support Strategy In Coordination | |
| 6b | Materiel Fielding plan approved by FORSCOM (IAW AR 700-142) | Operational | In Staffing | | T2 MOA in Staffing | |
| 6c | Approved STRAP and Training Support Plan | Operational | STRAP Dec 09 TSP Nov 08 | C | N/A | N/A |

Risk to Execution: Low G | Medium Y | High | Complete C

~~FOUO~~

Attachment 10

### 3.3.1 Aegis BMD 4.0.1/SM-3 Block IB (U)

JUN 30 2010

MEMORANDUM FOR PROGRAM MANAGER, AEGIS BMD 4.0.1/SM-3 BLOCK IB, MISSILE DEFENSE AGENCY

SUBJECT: Development Decision Memorandum for Aegis BMD 4.0.1/SM-3 Block IB Baseline Review (U)

(U) The attached schedule, technical, test, operational, resource, and contracts baselines and activities are approved for Aegis BMD 4.0.1/SM-3 Block IB.

(U) Changes to the BMDS baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the Aegis BMD 4.0.1/SM-3 Block IB acquisition, development and or fielding will be implemented by the Aegis BMD 4.0.1/SM-3 Block IB Program Office and documented in the Single Acquisition Management Plan. Baseline variations will be reported to the MDA Director, Assistant Secretary of the Navy (ASN (RDA)) and in the annual BMDS Accountability Report.

(U) The following activities are directed to occur during the remainder of the Aegis BMD 4.0.1/SM-3 Block IB Product Development Phase:

| | |
|---|---|
| • Independent cost estimate by D,CAPE | |
| o Before initial production decision | 3Q FY2011 |
| o Before production review | 4Q FY2012 |
| • Weapon System demonstration | 3Q FY2010 |
| • Missile manufacturing readiness review | 2Q FY2011 |
| • FTM-16 flight test round - permit to ship | 2Q FY2011 |
| • FTM-16 | 2Q FY2011 |
| • Obtain initial production decision by USD(AT&L) to acquire a total of 74 missiles (8 with FY11funds, 66 with FY12 funds) | 3Q FY2011 |
| • Navy combat system and weapon certification (auth. to operate) | 4Q FY2011 |
| • TDACS qualification for full functionality | 2Q FY2011 |
| • FTM-19E2 and FTM-20E2 (2 complex SRBMs) | 1Q FY2012 |
| • FTM-22E2 and FTM-23 (1 SRBM and 1 IRBM) | 3Q FY2012 |

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

(U) The criteria to exit the Product Development Phase (Attachment 7) are also approved. A Development Baseline Review is expected in 4QFY12 prior to an USD (AT&L) production decision to enter Production Phase.

SEAN J. STACKLEY
Assistant Secretary of the Navy
Research, Development & Acquisition

PATRICK J. O'REILLY
Lieutenant General, USA
Director

Attachments:
1. Aegis BMD 4.0.1/SM-3 Block IB Schedule Baseline. This document is "~~FOUO~~".
2. Aegis BMD 4.0.1/SM-3 Block IB Technical Baseline. This document is "~~SECRET~~".
3. Aegis BMD 4.0.1/SM-3 Block IB Test Baseline. This document is "~~FOUO~~".
4. Aegis BMD 4.0.1/SM-3 Block IB Operational Capacity Baseline. This document is "~~SECRET~~".
5. Aegis BMD 4.0.1/SM-3 Block IB Resource Baseline, This document is "~~FOUO~~".
6. Aegis BMD 4.0.1/SM-3 Block IB Contract Baseline. This document is "~~FOUO~~".
7. Aegis BMD 4.0.1/SM-3 Block IB Exit Criteria. This document is "~~FOUO~~".
8. Aegis BMD 4.0.1/SM-3 Block IB Earned Value. This document is "~~FOUO~~".

cc:
ASN RDA
MDA/DX
MDA/DE
MDA/DO
MDA/DA
MDA/DP
MDA/DT
MDA/DS
MDA/AB
IWS/1.0
OPNAV N86

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Schedule Baseline

# BMD 4.0.1/SM-3 BLOCK IB Program

## Schedule Baseline (U)

~~FOUO~~

| | FY09 | | | | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | | FY15 | | | | FY16 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| **Program Phase** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Design Reviews** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Decision Points** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **MDA Capability Del.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **MDA/USN BoD** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **MDEB** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **JROC** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **BMDS Knowledge Points** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **AWS 4.0.1** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **AWS -> SM-3 Integration** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **ETEDDS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **SM-3 BLK IB** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **T&E** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **RR/BMDS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Ground Test** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Flight Test** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Fleet and Fleet Support** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **4.0.1 Ship Installs (Start Dates)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Missile Deliveries** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Flight Test Rounds (SM-3 Blk IB)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **ILS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Production & Deployment

(b)(2)/(b)(5)

AUR - All Up Round
BSP - BMD Signal Processor
C2BMC - Command & Control, Battle Mgmt & Communications
CD - Capability Delivery
CDR - Critical Design Review
CG: Cruiser, Guided Missile
CMAV - Continuous Maintenance Availability
DDG - Destroyer, Guided Missile
DVT - Design Verification Test
ETEDDS - End-to-End Distributed Development System
ET&E - Engineering Test & Evaluation
FTR- Flight Test Round
H&T - Humidity & Temperature
IPR - In-Progress review
LKE - USS LAKE ERIE
LoR - Launch on Remote
LRS&T - Long-Range Search and Track
MEIT - Multi-Element Integration Testing
OTRR – Operational Test Readiness Review
SDR - System Design Review
SIT - System Integration Test
SRA - Selected Restricted Availability (Ship Availability)
TDACS - Throttable Divert Attitude Control System
TDP - Technical Data Package
TDU: TDACS Demonstration Unit
TM - Technical Manual

Approved: (b)(6)

~~FOUO~~

Attachment 1

~~FOR OFFICIAL USE ONLY~~

# BMD 4.0.1/SM-3 BLOCK IB Program

## Technical Baseline (U)

Technical Baseline

| Prioritized Capabilities List (PCL) 2009 | |
|---|---|
| Combatant Command Capability Needs | Enduring Capabilities |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |

~~FOUO~~

### Current and Future Capabilities (U)

**Aegis BMD 4.0.1**

Enhanced Use and Support of BMDS ESGs (SRBM, MRBM & Limited IRBM)(U)

(b)(1),(b)(2),(b)(5)

**Aegis BMD 5.0**

(b)(1),(b)(2),(b)(5)

### Knowledge Points (U)

| KP # | Description | Demonstrated by | Complete |
|---|---|---|---|
| 1 | (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |
| 2 | (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |
| 3 | (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |

Approved: (b)(6)

Attachment 2

Test Baseline

# BMD 4.0.1/SM-3 BLOCK IB Program

## Test Baseline IAW Current BMDS Baseline (IMTP 10.2) (U)

~~FOUO~~

4.0.1/IB Program Plan

FY10 Q1 Q2 Q3 Q4 | FY11 Q1 Q2 Q3 Q4 | FY12 Q1 Q2 Q3 Q4

**TEST EVENTS**

(b)(2),(b)(5)

**Summary Information**

Today

Primary CEC/EME Phase Test Data Collects

(b)(2),(b)(5)

Additional Test Data Collection Opportunities

FTM-17 (complete)
JFTM-3 (complete)
JFTM-4 (1QFY11)
FTG-06a (1QFY11)
FTM-21 E1/E2/E3 (1QFY13)
FTT-15 (2QFY13)
FTM-19 E1 (3QFY13)
FTM-20 E1 (4QFY13)
FTX-12 (4QFY13)
FTO-02 (3QFY15)
FTX-14 (1QFY15)
FTM-24 (4QFY15)
GTI-04e (DT/OT) (2QFY13 - 4QFY13)
GTI-04e (OT) (4QFY13)
GTD-04e (DT/OT) (3QFY13 - 4QFY13)
GTD-04e (OT) (4QFY13)
PA04 (V&V) (4QFY12-2QFY13)
PA04 (DT) (2QFY13)
PA04 (OT) (3QFY13-4QFY13)

Acquisition Phase Test Configuration

Software versions

BMD 4.0.1

*Element Flight Test Pending
CECs: Critical Engagement Conditions
EMEs: Empirical Measurement Events
KP: Knowledge Point

△ PAA phase 1 Flight Test
△ Near-Term Flight Test
⬭ Mid-Term Flight Test
◇ Far-Term Flight Test

▭ PAA Phase 1 Ground Test
▭ Near-Term Ground Test
▭ Mid-Term Ground Test
▭ Far-Term Ground Test

△⬭◇ Operational Flight Test

Approved: (b)(6)

~~FOUO~~

Attachment 3

# BMD 4.0.1/SM-3 BLOCK IB Program

## Operational Capacity Baseline (U)

**Operational Capacity Baseline**

| Aegis BMD 4.0 .1 /SM-3 Blk IB Fielding Plan | FY |
|---|---|
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |

| MDA Operational Capability Delivery | DATE |
|---|---|
| Doctrine<br>(b)(1), (b)(2), (b)(5) | 3QFY11<br>3QFY11 |
| Organization/Personnel<br>• Navy Manning Plan (NMP) | Navy Responsibility |
| (b)(1), (b)(2), (b)(5) | 3FY11 |
| Leadership and Education<br>• Will follow officer/enlisted ship training pipeline | Navy Responsibility |
| (b)(1),(b)(2),(b)(5) | 2QFY12<br>1QFY12<br>4QFY12<br>1QFY13 |
| (b)(1), (b)(2), (b)(5) | 4QFY11 |
| (b)(1), (b)(2), (b)(5) | 3FY14 |

~~FOUO~~

| Aegis BMD 4.0.1 CAPABILITIES & LIMITATIONS |
|---|
| (b)(1),(b)(2),(b)(5) |

~~SECRET~~

Approved: (b)(6)

~~FOR OFFICIAL USE ONLY~~

# BMD 4.0.1/SM-3 BLOCK IB Program

## Resource Baseline (U)

Resource Baseline

| SM-3 Block IB/BMD 4.0.1 | | | |
|---|---|---|---|
| Program Acquisition Unit Costs (BY10$M) | | | |
| Component | Qty | Current Est | Baseline |
| SM-3 Block IB AURs | 193 | 20 | 20 |
| BMD 4.0.1 Shipsets | 15 | 186 | 186 |
| Average Procurement Unit Costs (BY10$M) | | | |
| Component | Qty | Current Est | Baseline |
| SM-3 Block IB AURs | 160 | 10 | 10 |
| BMD 4.0.1 Shipsets | 13 | 36 | 36 |

•APUC calculation derived using the RDT&E funds applied to producing the BMD 4.0.1 shipsets

~~FOUO~~

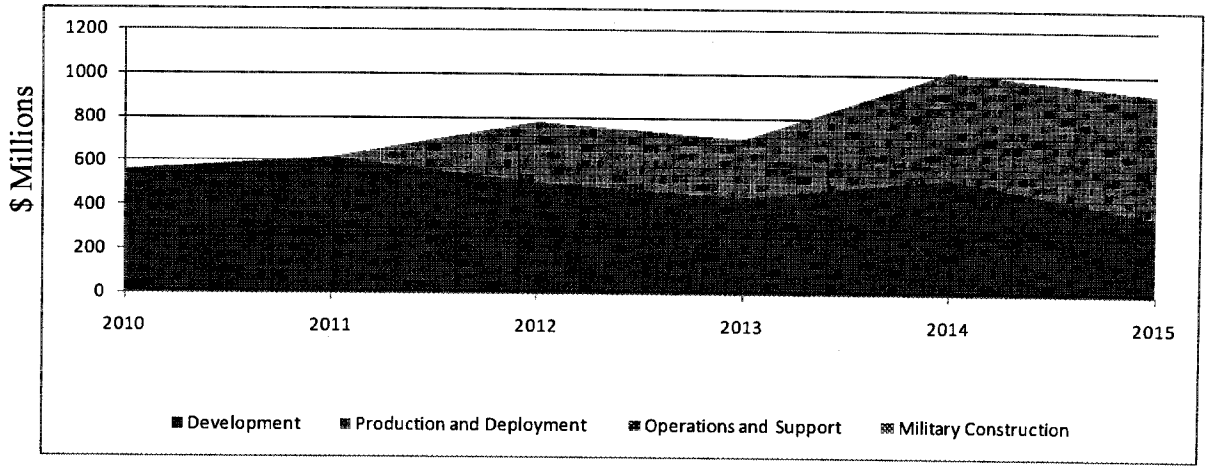
| Costs TY $M | Sunk | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP Total | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Hardware Development | 793 | 205 | 202 | 62 | 66 | 55 | 57 | 647 | | 1440 |
| Software Development | 929 | 151 | 62 | 83 | 30 | 61 | 29 | 416 | | 1345 |
| Testing | | 43 | 59 | 119 | 106 | 113 | 93 | 532 | | 532 |
| Test Item Manufacturing | 29 | 73 | 189 | 150 | 131 | 148 | 56 | 748 | 67 | 844 |
| Integration | | 82 | 94 | 68 | 57 | 73 | 61 | 435 | 30 | 465 |
| Operations and Support | | 7 | 14 | 24 | 53 | 78 | 60 | 237 | 426 | 663 |
| Development Total | 1751 | 562 | 621 | 506 | 441 | 529 | 357 | 3016 | 523 | 5289 |
| Production and Deployment | | | | 279 | 266 | 492 | 563 | 1599 | | 1599 |
| **Total Cost Estimate** | **1751** | **562** | **621** | **785** | **707** | **1020** | **919** | **4614** | **523** | **6888** |

~~FOUO~~

| SM-3 Block IB/BMD 4.0.1 Cost Estimate Description Documentation | | | | | |
|---|---|---|---|---|---|
| Cost Analysis Requirements Description | | | | | |
| CARD approval date: 10/30/2009 | | | | | |
| Updated Annually | | | | | |
| Life Cycle Cost Estimate | | | | | |
| Date Approved: MDA Cost Estimate approved 01/04/2010 | | | | | |
| Life Cycle Cost Estimate (BY10$M) | | | | | |
| | | Current Estimate | | Baseline | Variance |
| | Sunk | To Go | Total | | |
| Development | 1,751 | 3,339 | 5,090 | 5,090 | - |
| *Hardware Development* | *793* | *625* | *1,418* | *1,418* | - |
| *Software Development* | *929* | *402* | *1,330* | *1,330* | - |
| *Testing* | - | *504* | *504* | *504* | - |
| *Test Item Manufacturing* | *29* | *774* | *803* | *803* | - |
| *Integration* | - | *443* | *443* | *443* | - |
| *Operations and Support* | - | *591* | *591* | *591* | |
| Production and Deployment | - | 1,476 | 1,476 | | |
| **Total Life Cycle** | **1,751** | **4,816** | **6,567** | | |
| Explanation of Variance | | | | | |

~~FOUO~~

Time Phased Estimate Chart




~~FOUO~~

Approved: (b)(6)

**Attachment 5**

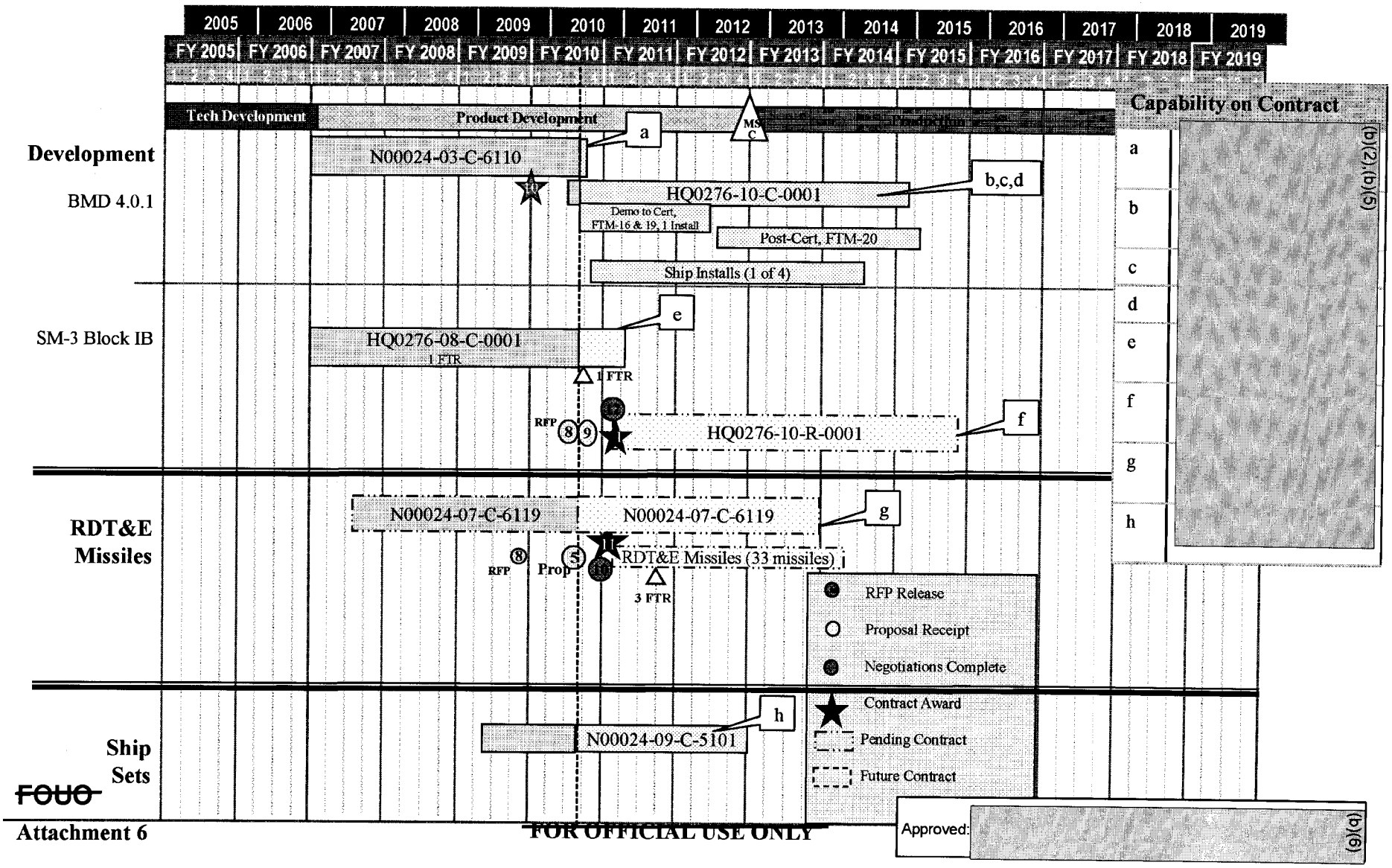
~~FOR OFFICIAL USE ONLY~~

# BMD 4.0.1/SM-3 BLOCK IB Program

## Contract Baseline (U)

Contract Baseline

~~FOUO~~




Approved: (b)(6)

~~FOUO~~

# BMD 4.0.1/SM-3 BLOCK IB Program

## Product Development Phase Exit Criteria (U)

~~FOUO~~

| # | Exit Criteria | Baseline | Req'd For Init Prod Decision | Required for FRP Decision |
|---|---|---|---|---|
| 1 | **Verified Requirements** | | | |
| 1a | All system engineering/design requirements defined, traced and validated | Operational | | |
| 1b | SM-3 Blk IB Production line qualified (Green at FTM-16 FTR Permit to Ship) | Operational | Y | Y |
| 1c | KW DVT, Environmental DVT, and Qualification (Green at the successful completion of TDACS Qual 3) | Technical | Y | Y |
| 2 | **Affordable (FYDP and Beyond)** | | | |
| 2a | CARD Approved | Resource | | |
| 2b | Independent Cost Estimate and Independent Government Estimates complete (Green when IGE completed in Dec 09 and ICE completed in 2QFY12) | Resource | Y | Y |
| 3 | **Achievable Design** | | | |
| 3a | SM-3 BLK IB design validation (Green at successful FTM-16) | Test | Y | Y |
| 3b | Developmental/Operational Tests (DT/OT) in progress and interim report supports an operationally effective and suitable assessment upon completion of OT&E (Green at successful intercept in FTM-16) | Test | | Y |
| 4 | **Manufacturing Plans** | | | |
| 4a | Subsystem EMRL[1] at 4 minimum (Manufacturing Readiness Level 9[2]) | Operational | | |
| 4b | Validated initial production line (Green at completion of CLIN 16) | Operational | Y | Y |
| 5 | **Sustainability Plans** | | | |
| 5a | Supportability Strategy approved by Navy | | | |
| 5b | All quality and reliability levels established and verified | Operational | | |
| 6 | **Weapons System Explosives Safety Review Board** | | | |
| 6a | Hazard Assessment and Insensitive Munitions testing complete (Green at successful completion of HAT) | Technical | Y | Y |
| 6b | System obtains final WSESRB approval (Green at successful completion of HAT) | Operational | | Y |
| 7 | **Verified program execution and operational transition alignment with Navy PEO IWS and SEA 21** | | | |

~~FOUO~~

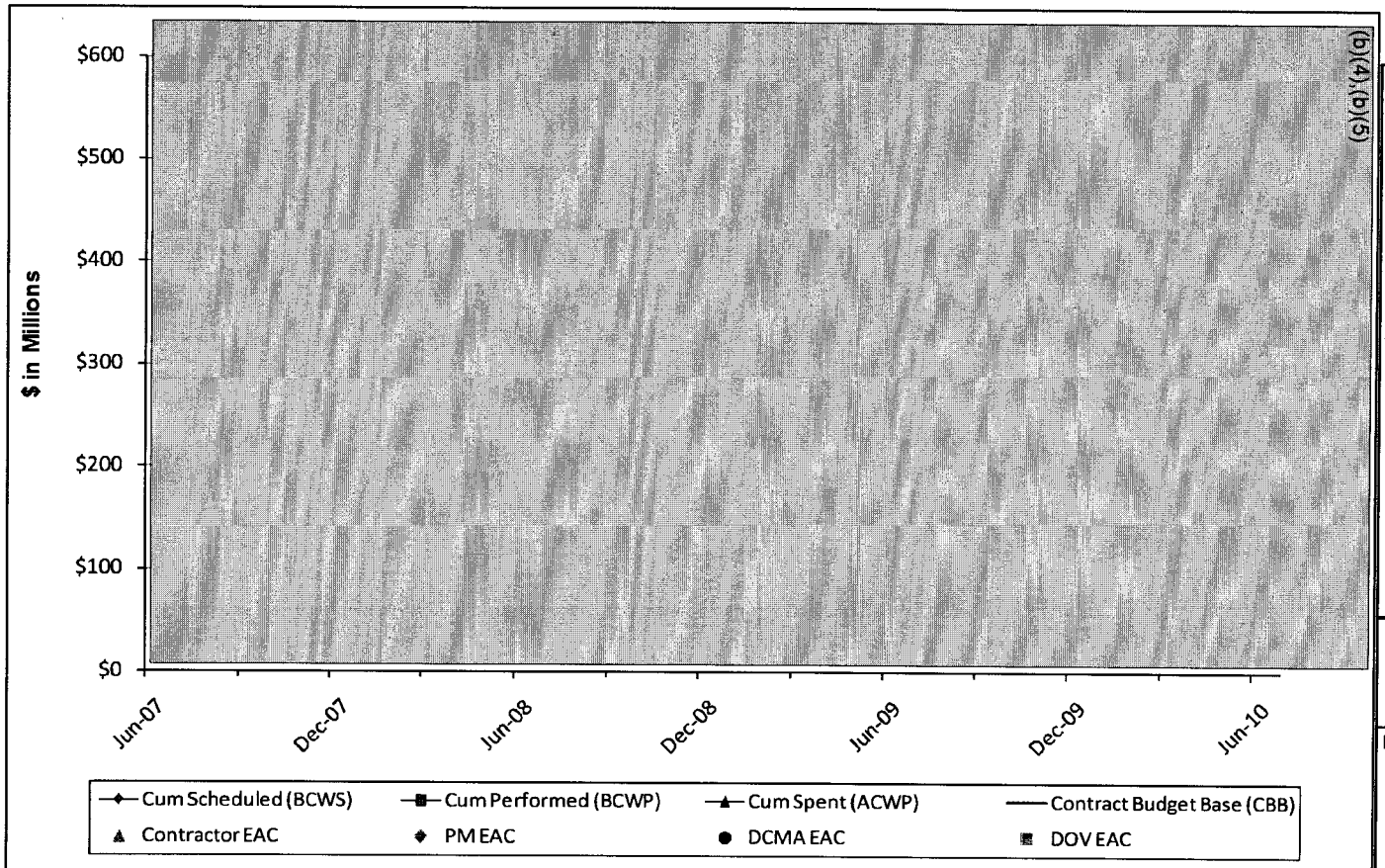
1. **EMRL 4** Similar system, component or item previously produced or in production. Or, the system, component or item is in low rate initial production. Ready for full rate production. During low rate initial production all systems engineering/design requirements should be met and there should only be minimal system engineering/design changes.
2. **MRL 9** Major system design features are stable and proven in test and evaluation. Materials are available to meet planned rate production schedules. Manufacturing processes and procedures are established and controlled to three-sigma or some other appropriate quality level to meet design key characteristic tolerances in a low rate production environment. Production risk monitoring ongoing. LRIP cost goals met, learning curve validated. Actual cost model developed for FRP environment, with impact of Continuous improvement.

Risk to Execution
Low
Medium Y
High

# BMD 4.0.1/SM-3 BLOCK IB Program

## Aegis BMD 4.0.1 Earned Value Management Data (U)

~~FOUO~~




| Prime Contractor | Contract Type | CBB | Variances | Cumulative | Current Month | | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Lockheed Martin | CPAF | (b)(4) | SV | (b)(4),(b)(5) | | PM | (b)(4),(b)(5) | |
| Period of Performance | Last IBR Date | % Complete | CV | | | KTR | | |
| Aug 2000 - Feb 2011 | 01-Mar-10 | (b)(4) | Level of Effort (LOE) Percentage | (b)(4) | | DCMA | | |

CPI (b)(4),(b)(5) SPI (b)(4),(b)(5)

**Key Cost/Schedule Variance (CV/SV) Drivers**

***Cost:*** The cum CV: (b)(4)

(b)(4),(b)(5)

***Schedule:*** The cum SV: (b)(4)

(b)(4),(b)(5)

**Projected Variance at Completion (VAC)**

DOB's VAC is (b)(4)

**Impacts (cost, schedule, technical, funding)**

(b)(4),(b)(5)

Current Funding Impact: (b)(4)

*Continued on Next Slide*

~~FOUO~~

Approved: (b)(6)

Attachment 8a

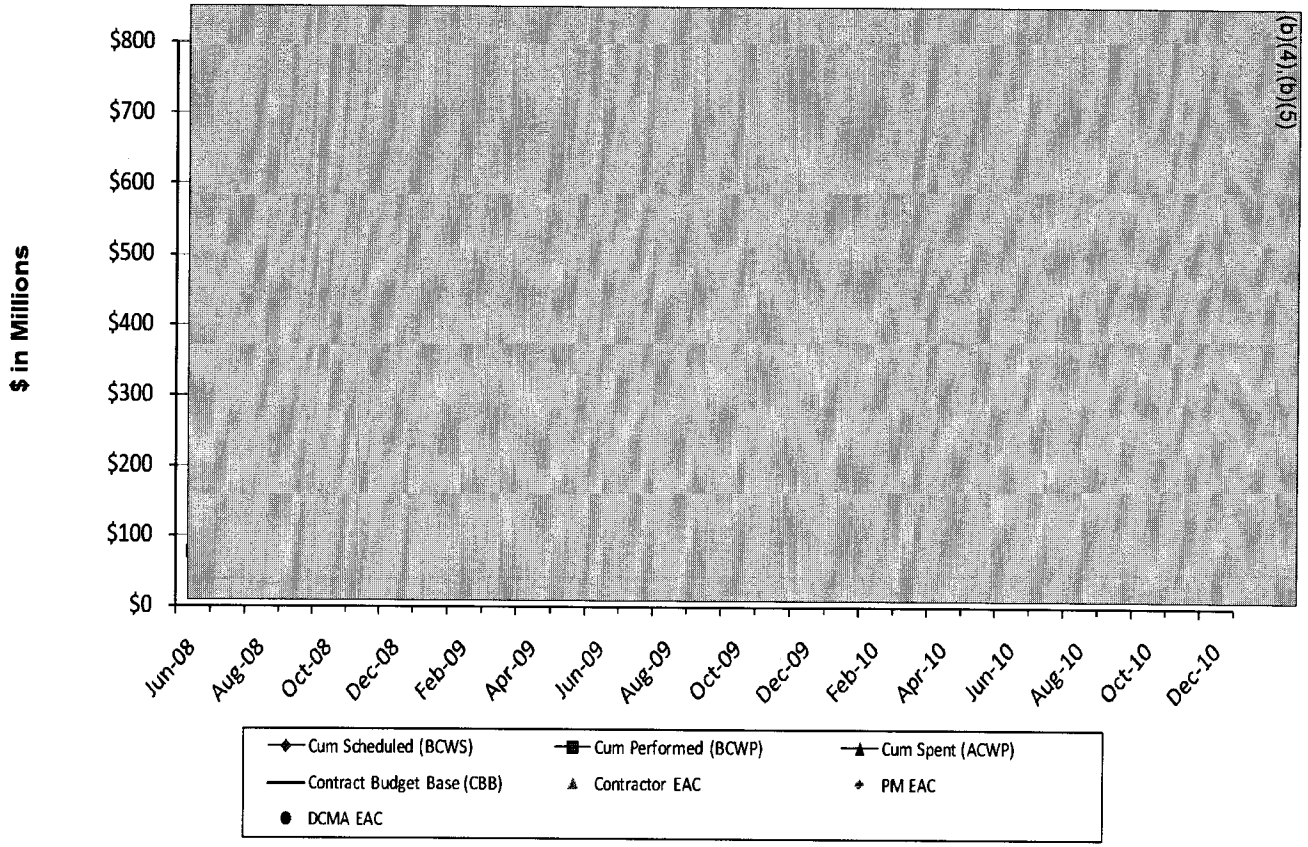
~~FOR OFFICIAL USE ONLY~~

# BMD 4.0.1/SM-3 BLOCK IB Program

## SM-3 Block IB Earned Value Management Data (U)

~~FOUO~~

CPI (b)(4),(b) SPI (b)(4),(b)




**Key Cost/Schedule Variance (CV/SV) Drivers**

***Cost:*** The cum CV is: (b)(4),(b)

(b)(4),(b)(5)

***Schedule:*** The cum SV is: (b)(4),(b)

(b)(4),(b)(5)

**Path Forward:**

(b)(4),(b)(5)

**Projected Variance at Completion (VAC)**

DOB's VAC is (b)(4),(b)

**Impacts (cost, schedule, technical, funding)**

Cost impact:

(b)(4),(b)(5)

| Prime Contractor | Contract Type | CBB | Variances | Cumulative | Current Month | | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Raytheon | CPAF | (b)(4),(b) | SV | (b)(4),(b)(5) | | PM | (b)(4),(b)(5) | |
| Period of Performance | Last IBR Date | % Complete | CV | | | KTR | | |
| Dec 2007 - Dec 2010 | 08-Dec-09 | (b)(4),(b) | Level of Effort (LOE) Percentage 16% | | | DCMA | | |

~~FOUO~~

Approved: (b)(6)

Attachment 8b

~~FOR OFFICIAL USE ONLY~~

## 3.3.2 Aegis Ashore (U)

JUN 30 2010

MEMORANDUM FOR PROGRAM MANAGER, AEGIS ASHORE, MISSILE DEFENSE AGENCY

SUBJECT: Development Decision Memorandum for Aegis Ashore Baseline Review(U)

(U) The attached schedule, technical, test, operational, resource, and contracts baselines and activities are approved for Aegis Ashore (AA).

(U) Changes to the BMDS baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the AA acquisition, development and or fielding will be implemented by the AA Program Office and documented in the Single Acquisition Management Plan. Baseline variations will be reported to the MDA Director, Assistant Secretary of the Navy (ASN (RDA)) and in the annual BMDS Accountability Report.

(U) The following activities are directed to occur during the remainder of the AA Product Development Phase:

- AA Delta Systems Requirement Review (SRR) 4QFY10
- AA Delta System Design Review (SDR) 2QFY11
- AA Delta Preliminary Design Review (PDR) 3QFY11
- AA Delta Critical Design Review (CDR) 4QFY11
- AA Engineering Agent "Deckhouse" Fabrication Complete 4QFY11
- AA Engineering Agent "Deckhouse" Site Prep Complete 4QFY11
- AA Combat System Integration Complete 3QFY12
- AA Deckhouse Disassembly Begins 4QFY12
- Navy's ACB12/TI12 DDG 113 Software Build 12 Complete 1QFY13
- AA Software Build 12 Complete 2QFY13
- AA Combat System Test and Preparation Complete 4QFY13
- AA Control Test Vehicle 01 E1/2 Firing (AACTV-01) 4QFY13
- AA Firing Test Mission 01 EI/E2 (AAFTM-01) 3QFY14

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

(U)The criteria to exit the Product Development Phase (Attachment 7) are also approved. A Development Baseline Review is expected in 4QFY14 prior to an USD (AT&L) production decision to enter Initial Production Phase.

SEAN J. STACKLEY
Assistant Secretary of the Navy
Research, Development & Acquisition

PATRICK J. O'REILLY
Lieutenant General, USA
Director

Attachments:
1. AA Schedule Baseline(U). This document is ~~"FOUO"~~
2. AA Technical Baseline(U). This document is ~~"SECRET"~~
3. AA Test Baseline(U). This document is "~~FOUO~~"
4. AA Operational Capacity Baseline(U). This document is ~~"SECRET"~~
5. AA Resource Baseline(U). This document is ~~"FOUO"~~
6. AA Contract Baseline(U). This document is "~~FOUO~~"
7. AA Exit Criteria(U). This document is "~~FOUO~~"
8. AA Earned Value(U). This document is "~~FOUO~~"

cc:
ASN RDA
MDA/DX
MDA/DE
MDA/DO
MDA/DA
MDA/DP
MDA/DT
MDA/DS
MDA/AB
IWS/1.0
OPNAV N86

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# Aegis Ashore Program

## Schedule Baseline (U)

**Schedule Baseline**

** SM-3 Block IB Missiles Acquired via ABMD 4.0.1 Program

~~FOUO~~ Status: 19 May 2010

FY10 Q1 Q2 Q3 Q4 | FY11 Q1 Q2 Q3 Q4 | FY12 Q1 Q2 Q3 Q4 | FY13 Q1 Q2 Q3 Q4 | FY14 Q1 Q2 Q3 Q4 | FY15 Q1 Q2 Q3 Q4 | FY16 Q1

| | |
|---|---|
| Program Phase<br>Program Reviews | |
| MDA/Navy BoD | |
| MDA Capability Delivery | |
| BMDS Knowledge Points<br>Element KPs | |
| Software Builds<br>ACB12/TI12 DDG 113<br>Aegis Ashore | |
| Capability Development<br>Deckhouse & Modules<br>Site Preparations<br>Combat Systems | |
| Test & Evaluation<br>IMTP 10.2 | |
| Fielding & Field Support - PMRF<br>Fielding & Field Support – HN#1<br>** SM-3 Block IB Missiles | |

(b)(2),(b)(5)

Critical Milestones highlighted in Yellow

~~FOUO~~

(b)(6)

**Attachment 1**

~~FOR OFFICIAL USE ONLY~~

~~SECRET~~

# Aegis Ashore Program
## Technical Baseline (U)

Technical Baseline

| Prioritized Capabilities List (PCL) 2009 | |
|---|---|
| Combatant Command Capability Needs | Enduring Capabilities |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |

~~SECRET~~

### Current and Future Capabilities

| Aegis Ashore PAA Phase 2 | Aegis Ashore PAA Phase 3 |
|---|---|
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |

~~FOUO~~

| KP # | Knowledge Points Phase 2 Description | Knowledge Points Phase 2 Demonstrated by | Done |
|---|---|---|---|
| 1 | (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

~~FOUO~~

Approved: (b)(6)

Attachment 2

~~SECRET~~

# Aegis Ashore Program
## Test Baseline (U)

Test Baseline

~~FOUO~~

| AA Program Plan | | FY13 | | | | FY14 | | | | FY15 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| TEST EVENTS | IMTP v. 10.2 | (b)(2),(b)(5) | | | | | | | | | | | |

**Summary Information**

**Primary CEC/EME Phase Test Data Collects**

(b)(2),(b)(5)

**Additional Test Data Collection Opportunities**

FTX-06 (4.0.1)
JFTM-3/4 (4.0.1)
FTM-16 (SM-3 IB & 4.0.1 )
FTM-19 (SM-3 IB & 5.0 )
FTM-20 (SM-3 IB)
FMT-21 (SM-3 IB)
FTM-22 (SM-3 IB & 5.0)
FTM-23 (SM-3 IB)
FTM-24 (SM-3 IB)
FTM-25 (SM-3 IB & 5.0)
PA-06
FTO-02

**Acquisition Phase Test Configuration**

**Software versions**
**BMD 5.0**

Approved: (b)(6)

Near-Term PAA Phase 1 Flight Test
Near-Term PAA Phase 1 Ground Test
Mid-Term PAA Phase 2 Flight Test
Mid-Term PAA Phase 2 Ground Test
Far-Term PAA Phase 3 Flight Test
Far-Term PAA Phase 3 Ground Test
Operational Test - Flight
Operational Test - Ground

~~FOUO~~

# Aegis Ashore Program
## Operational Capacity Baseline (U)

**Operational Capacity Baseline**

| Aegis Ashore | FY |
|---|---|
| [redacted] | (b)(1),(b)(2),(b)(5) |

*SM-3 Block IB missiles to be acquired under the Aegis BMD 4.0.1/SM-3 Block IB Program

~~FOUO~~

| Aegis Ashore CAPABILITIES & LIMITATIONS |
|---|
| [redacted] (b)(1),(b)(2),(b)(5) |

~~SECRET~~

| MDA Operational Capability Delivery | DATE |
|---|---|
| Doctrine<br>[redacted] (b)(1),(b)(2),(b)(5) | Q1FY11<br>Q2FY15 |
| Organization/Personnel<br>• Navy Manning Plan (NMP)<br>• Organization and Regulation Manual (ORM) | Navy Responsibility |
| [redacted] (b)(1),(b)(2),(b)(5) | Q2FY15<br>Q2FY15<br>Q2FY15 |
| Leadership and Education<br>• Will follow officer/enlisted ship training pipeline | Navy Responsibility |
| [redacted] (b)(1),(b)(2),(b)(5) | Q3FY2015<br>Q3FY2015<br>Q4FY2015 |
| [redacted] (b)(1),(b)(2),(b)(5) | 09/2013<br>2014<br>2015<br>2016 |
| [redacted] (b)(1),(b)(2),(b)(5) | Q1FY2015 |
| [redacted] (b)(1),(b)(2),(b)(5) | Q4FY2015 |

~~FOUO~~

Approved: [redacted] (b)(6)

Attachment 4

~~FOR OFFICIAL USE ONLY~~

Resource Baseline

# Aegis Ashore Program
## Resource Baseline Summary (U)

| Aegis Ashore Phase 2 Unit Cost Baseline | | | |
|---|---|---|---|
| Program Acquisition Unit Costs (BY10$M) | | | |
| Component | Qty | Current Est | Baseline |
| Aegis Ashore Unit Cost Baseline | 2 | 483 | 483 |
| | | | |
| Average Procurement Unit Costs (BY10$M) * | | | |
| Component | Qty | Current Est | Baseline |
| Aegis Ashore Unit Cost Baseline | 1 | 272 | 272 |

~~FOUO~~

*APUC calculation derived using the RDT&E funds applied to producing Aegis Ashore.

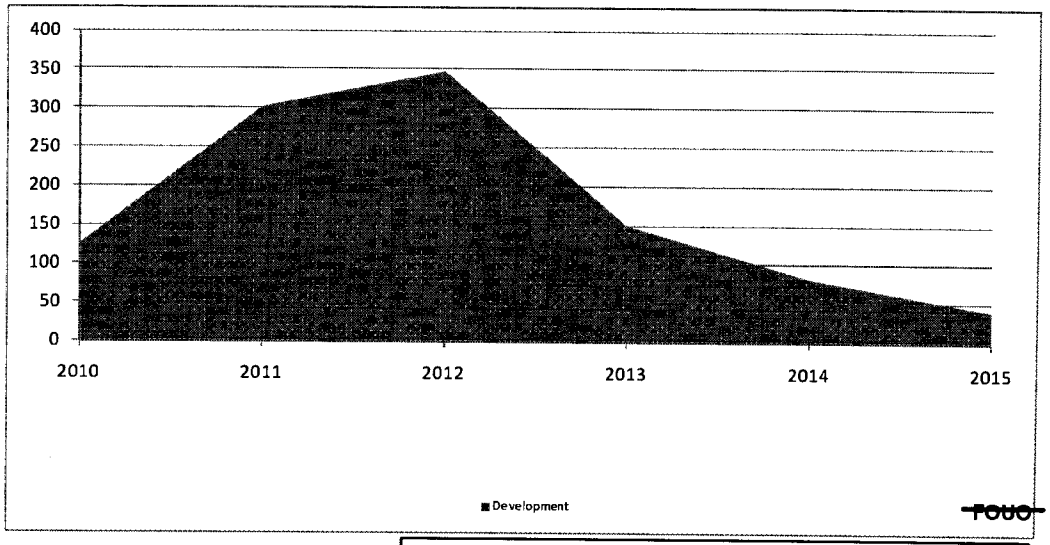
| Time Phased Estimate (as of 05-25-10) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Costs TY $M | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP Total | To Complete | Total |
| Testing | 0 | 0 | 0 | 37 | 0 | 0 | 37 | 0 | 37 |
| Test Site Fabrication | 95 | 272 | 145 | 55 | 62 | 35 | 664 | 3 | 668 |
| Site 1 Fabrication | 0 | 0 | 202 | 57 | 19 | 6 | 284 | 0 | 284 |
| Integration | 29 | 29 | 0 | 0 | 0 | 0 | 58 | 0 | 58 |
| Development Total | 124 | 302 | 348 | 150 | 81 | 41 | 1045 | 3 | 1048 |
| **Total Cost Estimate** | **124** | **302** | **348** | **150** | **81** | **41** | **1045** | **3** | **1048** |

~~FOUO~~

| Aegis Ashore Phase 2 Cost Estimate Description Documentation | | | | |
|---|---|---|---|---|
| Cost Analysis Requirements Description | | | | |
| CARD approval date: 6/30/2010 (Estimated) | | | | |
| Updated Annually | | | | |
| Life Cycle Cost Estimate | | | | |
| Date Approved: MDA Cost Estimate Approved 28 April 2010 | | | | |
| Life Cycle Cost Estimate (BY10$M) | | | | |
| | Current Estimate | | Baseline | Variance |
| | To Go | Total | | |
| Development | 966 | 966 | 966 | 0 |
| *Testing* | *35* | *35* | *35* | *0* |
| *Test Site Fabrication* | *602* | *602* | *602* | *0* |
| *Site 1 Fabrication* | *272* | *272* | *272* | *0* |
| *Integration* | *57* | *57* | *57* | *0* |
| **Total Life Cycle** | **966** | **966** | **966** | |
| Explanation of Variance | | | | |

~~FOUO~~

**Time Phased Estimate Chart**




~~FOUO~~

Approved: (b) (6)

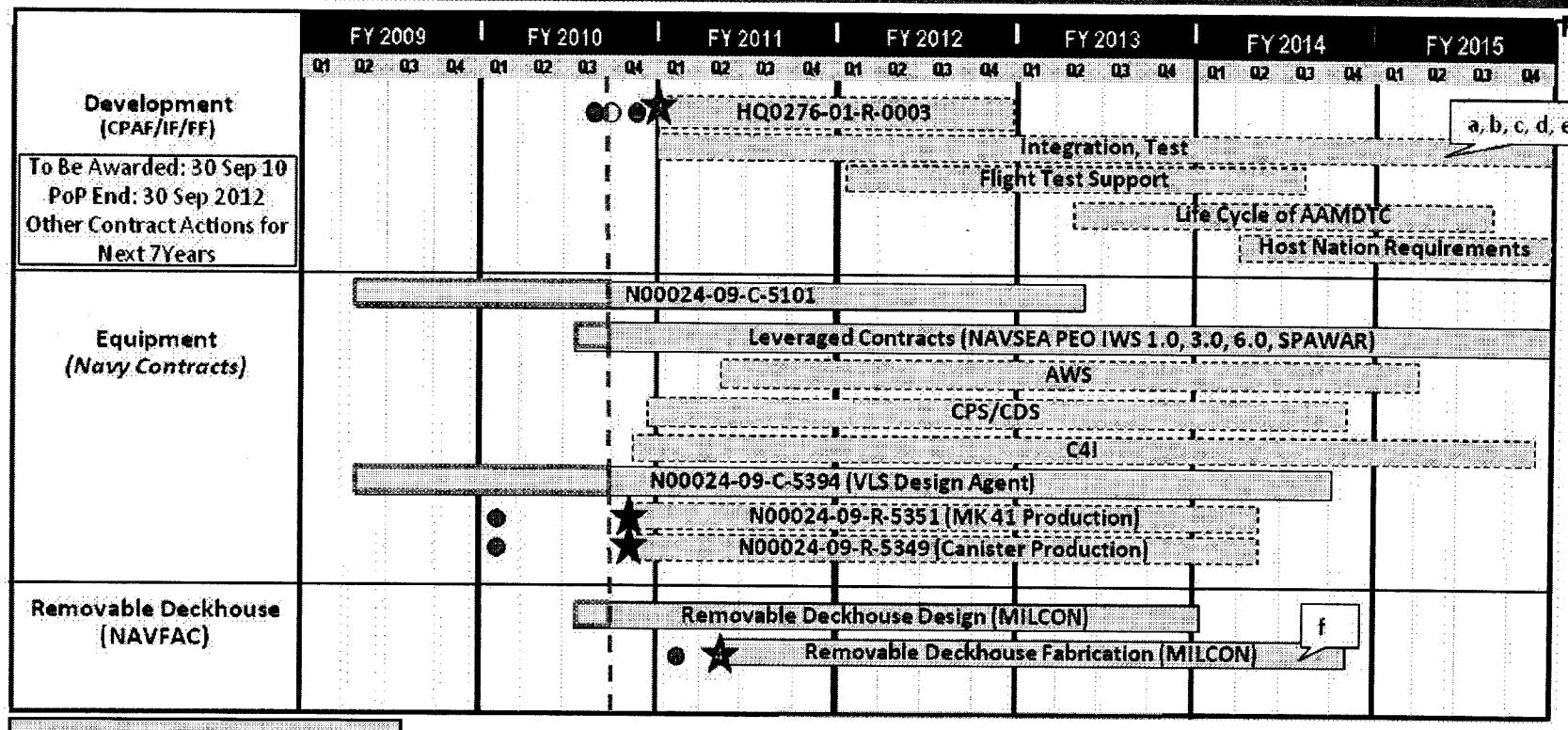
**Attachment 5**

~~FOR OFFICIAL USE ONLY~~

Contract Baseline

# Aegis Ashore Program
## Contract Baseline (U)

~~FOUO~~




| Capability on Contract (CD-06) | |
|---|---|
| a | (b)(2),(b)(5) |
| b | |
| c | |
| d | |
| e | |
| f | |

~~FOUO~~

Legend
- Negotiations Complete
- Proposal Receipt
- Capability on Contract
- RFP Release
- Major Contract Mod
- Contract Award
- Pending Contract Mod
- Future Contract

Approved: (b)(6)

Attachment 6

# Aegis Ashore Program
## Product Development Phase Exit Criteria (U)

~~FOUO~~

| # | Exit Criteria | Baseline | Required For Exit | Date |
|---|---|---|---|---|
| 1 | **Verified Requirements** | | | |
| 1a | All system engineering/design requirements defined, traced and validated (i.e. Program Protection) | Operational | G | Q4 FY14 |
| 1b | SM-3 Blk IB Production line qualified | Operational | G | Q4 FY11 |
| 1c | KW DVT, Environmental DVT, and Qualification | Technical | G | Q3 FY11 |
| 2 | **Affordable (FYDP and Beyond)** | | | |
| 2a | CARD Approved | Resource | G | Q4 FY10 |
| 2b | Independent Cost Estimate and Independent Government Estimates complete | Resource | G | Q4 FY10 |
| 3 | **Achievable Design** | | | |
| 3a | SM-3 BLK IB design validation | Test | G | Q2 FY11 |
| 3b | Developmental/Operational Tests (DT/OT) in progress and interim report supports an operationally effective and suitable assessment upon completion of OT&E | Test | G | Q4 FY14 |
| 3c | Removable Deckhouse design validation | Technical | G | Q3 FY13 |
| 4 | **Manufacturing Plans** | | | |
| 4a | Subsystem EMRL[1] at 4 minimum (Manufacturing Readiness Level 9[2]) | Operational | G | Q3 FY14 |
| 4b | Validated initial production line | Operational | G | Q4 FY14 |
| 5 | **Sustainability Plans** | | | |
| 5a | Supportability Strategy approved by Navy | Operational | G | Q4 FY13 |
| 5b | All quality and reliability levels established and verified | Operational | G | Q4 FY14 |
| 6 | **Weapons System Explosives Safety Review Board** | | | |
| 6a | System obtains final WSESRB approval | Operational | G | Q1 FY14 |
| 7 | **Verified program execution and operational transition alignment with Navy** | | G | |

~~FOUO~~

**1. EMRL 4**
Similar system, component or item previously produced or in production. Or, the system, component or item is in low rate initial production. Ready for full rate production. During low rate initial production all systems engineering/design requirements should be met and there should only be minimal system engineering/design changes.

**2. MRL 9**
Major system design features are stable and proven in test and evaluation. Materials are available to meet planned rate production schedules. Manufacturing processes and procedures are established and controlled to three-sigma or some other appropriate quality level to meet design key characteristic tolerances in a low rate production environment. Production risk monitoring ongoing. LRIP cost goals met, learning curve validated. Actual cost model developed for FRP environment, with impact of Continuous improvement.

Risk to Execution
Low
Medium
High

# Aegis Ashore Program
## Earned Value Management Data (U)

**Not Under Contract – No Earned Value Management Data**



Approved (b)(6)

### 3.3.3 Aegis 5.0 (AWS) (U)

JUN 30 2010

MEMORANDUM FOR THE PROGRAM EXECUTIVE FOR AEGIS BMD, MISSILE DEFENSE AGENCY

SUBJECT: Development Decision Memorandum for Aegis BMD 5.0 Baseline Review (U)

(U) The attached schedule, technical, test, operational, resource, and contracts baselines and activities are approved for Aegis BMD 5.0.

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the Aegis BMD 5.0 acquisition, development and/or fielding will be implemented by the Aegis BMD Program Office and documented in the Single Acquisition Management Plan. Baseline variations will be reported to the MDA Director, Assistant Secretary of the Navy (ASN) (Research, Development and Acquisitions (RDA)) and in the annual BMDS Accountability Report.

(U) The following activities are directed to occur during the remainder of the Aegis BMD 5.0 Product Development Phase:

- Common Processing System (CPS) Refresh at New Jersey Sites — 4QFY10
- Multi-Mission Signal Processor (MMSP) Radar Exercise — 1QFY12
- Aegis Light Off System Functional Test (ALO SFT) — 2QFY12
- Aegis Light Off on DDG 53 (ALO) — 4QFY12
- Advance Capability Build (ACB) 12 Demonstration (DEMO) — 1QFY13
- Flight Test Mission (FTM)-20E1 Engagement — 4QFY13
- ACB12 Certification — 1QFY14

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

(U) The criteria to exit the Product Development Phase (Attachment 7) are also approved. An Initial Production Decision is expected in 1QFY14 prior to an Under Secretary of Defense (USD) for Acquisitions, Technology and Logistics (AT&L) production decision to enter Production Phase.

SEAN J. STACKLEY
Assistant Secretary of the Navy
Research, Development & Acquisition

PATRICK J. O'REILLY
Lieutenant General, USA
Director

Attachments:
1. Aegis BMD 5.0 Schedule Baseline(U). This document is "~~FOUO~~"
2. Aegis BMD 5.0 Technical Baseline(U). This document is "~~SECRET~~"
3. Aegis BMD 5.0 Test Baseline(U). This document is "~~FOUO~~"
4. Aegis BMD 5.0 Operational Capacity Baseline (U). This document is "~~FOUO~~"
5. Aegis BMD 5.0 Resource Baseline(U). This document is "~~FOUO~~"
6. Aegis BMD 5.0 Contract Baseline(U). This document is "~~FOUO~~"
7. Aegis BMD 5.0 Exit Criteria(U). This document is "~~FOUO~~"
8. Aegis BMD 5.0 Earned Value. This document is "~~FOUO~~"

cc:
ASN RDA
MDA/DX
MDA/DE
MDA/DO
MDA/DA
MDA/DP
MDA/DT
MDA/DS
MDA/AB
IWS/1.0
OPNAV N86

# Aegis BMD 5.0 Program
## Schedule Baseline (U)

Schedule Baseline

~~FOUO~~

Status: 7 June 2010

| | FY09 | | | | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | | FY15 | | | | FY16 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q |
| **Program Phase** | Product Development Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Design Reviews & Decision Points | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Program Milestones | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Knowledge Points** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Computer Program Build** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **VLS Development** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Fielding & Field Support** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NJ Sites Delivery | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VA Sites Equip Delivery | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Training | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Ship I&T and ILS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *TDP Development* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *USS JOHN PAUL JONES (DDG 53)* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Test and Evaluation** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ground Tests | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flight Tests | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **DDG Re-Start** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DDG113 Program | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Aegis Ashore** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

(b)(2)/(b)(5)

Critical Milestones highlighted in Yellow

~~FOUO~~

Attachment 1



Approved (b)(6)

Technical Baseline

# Aegis BMD 5.0 Program
## Technical Baseline (U)

| Prioritized Capabilities List (PCL) 2009 | |
|---|---|
| Combatant Command Capability Needs | Enduring Capabilities |
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |

~~FOUO~~

### Current and Future Capabilities

**Aegis BMD 5.0**

(b)(1),(b)(2),(b)(5)

~~SECRET~~

**Aegis BMD 5.1**

(b)(1),(b)(2),(b)(5)

~~FOUO~~

| KP # | Knowledge Points Phase 2 Description | Knowledge Points Phase 2 Demonstrated by | Done |
|---|---|---|---|
| 1 | (b)(1), (b)(2), (b)(5) | (b)(1), (b)(2), (b)(5) | |

~~FOUO~~

Approved (b)(6)

Attachment 2

Test Baseline

# Aegis BMD 5.0 Program

## Test Baseline IAW Current BMDS Baseline (IMTP 10.2) (U)

~~FOUO~~

| Aegis BMD 5.0 | | FY13 | | | | FY14 | | | | FY15 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| TEST EVENTS | System/Element Flight Tests | (b)(2),(b)(5) | | | | | | | | | | | |
| | System Level GT<br>GTX-Focused<br>GTI= HWIL<br>GTD= Distributed<br>TA/ PA = Digital Assessments | | | | | | | | | | | | |
| | Chamber / Lab/ Simulation | | | | | | | | | | | | |

**Summary Information**

**Primary CEC/EME Phase Test Data Collects**

(b)(2),(b)(5)

**Additional Test Data Collection Opportunities**

AACTV-1 (4QFY13)
AAFTM-1 (3QFY14)

**Acquisition Phase Test Configuration**

AWS Computer Program BMD 5.0

Near-Term PAA Phase 1 Flight Test
Near-Term PAA Phase1 Ground Test
Mid-Term PAA Phase 2 Flight Test
Mid-Term PAA Phase 2 Ground Test
Far-Term PAA Phase 3 Flight Test
Far-Term PAA Phase 3 Ground Test
Operational Test - Flight
Operational Test - Ground

~~FOUO~~

Approved: (b)(6)

Operational Capacity Baseline

# Aegis BMD 5.0 Program
## Operational Capacity Baseline (U)

| Aegis BMD 5.0 Fielding Plan | FY |
|---|---|
| [redacted] (b)(1),(b)(2),(b)(5) | |

~~FOUO~~

| MDA Operational Capability Delivery | DATE |
|---|---|
| [redacted] (b)(1), (b)(2), (b)(5) | 1QFY14<br>1QFY14 |
| Organization/Personnel<br>• Navy Manning Plan (NMP) | Navy Responsibility |
| [redacted] (b)(1), (b)(2), (b)(5) | 2QFY12 |
| Leadership and Education<br>• Will follow officer/enlisted ship training pipeline | Navy Responsibility |
| [redacted] (b)(1),(b)(2), (b)(5) | 1QFY14 |
| [redacted] (b)(1), (b)(2), (b)(5) | 4QFY13<br>1QFY15 |
| [redacted] (b)(1), (b)(2), (b)(5) | 1QFY14 |
| [redacted] (b)(1), (b)(2), (b)(5) | 4QFY15 |

~~FOUO~~

| Aegis BMD 5.0 CAPABILITIES & LIMITATIONS |
|---|
| [redacted] (b)(1),(b)(2),(b)(5) |

~~SECRET~~

Approved: [redacted] (b)(6)

Attachment 4

Resource Baseline

# Aegis BMD 5.0 Program
## Resource Baseline Summary (U)

| Program Acquisition Unit Costs (BY10$M) | | | |
|---|---|---|---|
| Component | Qty | Current Est | Baseline |
| BMD 5.0 Shipsets | 27 | 30 | 30 |
| | | | |
| **Average Procurement Unit Costs (BY10$M)** | | | |
| Component | Qty | Current Est | Baseline |
| BMD 5.0 Shipsets | 27 | 7 | 7 |

~~FOUO~~

** APUC calculation derived using the RDT&E funds applied to producing BMD 5.0

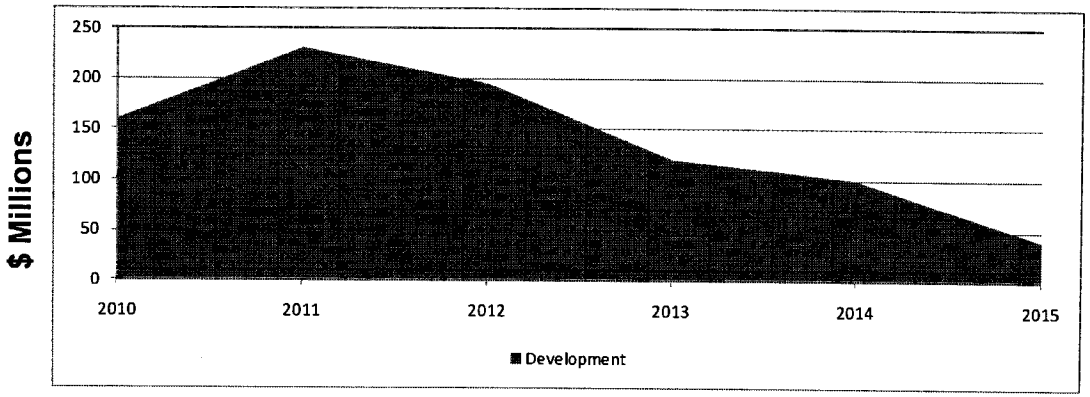
| Costs TY $M | Sunk | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP Total | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Software Development | 130 | 103 | 134 | 94 | 53 | 15 | 1 | 401 | | 531 |
| Testing | | | | | 3 | 8 | | 11 | | 11 |
| Test Item Manufacturing | | 5 | 10 | 26 | 33 | 38 | 25 | 137 | 45 | 183 |
| Integration | | 33 | 44 | 34 | 21 | 28 | 10 | 169 | 10 | 178 |
| Development Total | 130 | 140 | 188 | 154 | 110 | 89 | 36 | 717 | 55 | 902 |
| **Total Cost Estimate** | **130** | **140** | **188** | **154** | **110** | **89** | **36** | **717** | **55** | **902** |

~~FOUO~~

| Cost Analysis Requirements Description | | | | |
|---|---|---|---|---|
| CARD approval date: 30 October 2009<br>Updated Annually | | | | |
| **Life Cycle Cost Estimate** | | | | |
| Date Approved: Estimated 6/30/2010<br>Life Cycle Cost Estimate (BY10$M) | | | | |
| | | Current Estimate | | Baseline Variance |
| | Sunk | To Go | Total | |
| Development | 130 | 728 | 858 | 858 |
| *Software Development* | *130* | *389* | *519* | *519* |
| *Testing* | | *10* | *10* | *10* |
| *Test Item Manufacturing* | | *170* | *170* | *170* |
| *Integration* | | *159* | *159* | *159* |
| **Total Life Cycle** | **130** | **728** | **858** | **858** |
| **Explanation of Variance** | | | | |

~~FOUO~~

Time Phased Estimate Chart



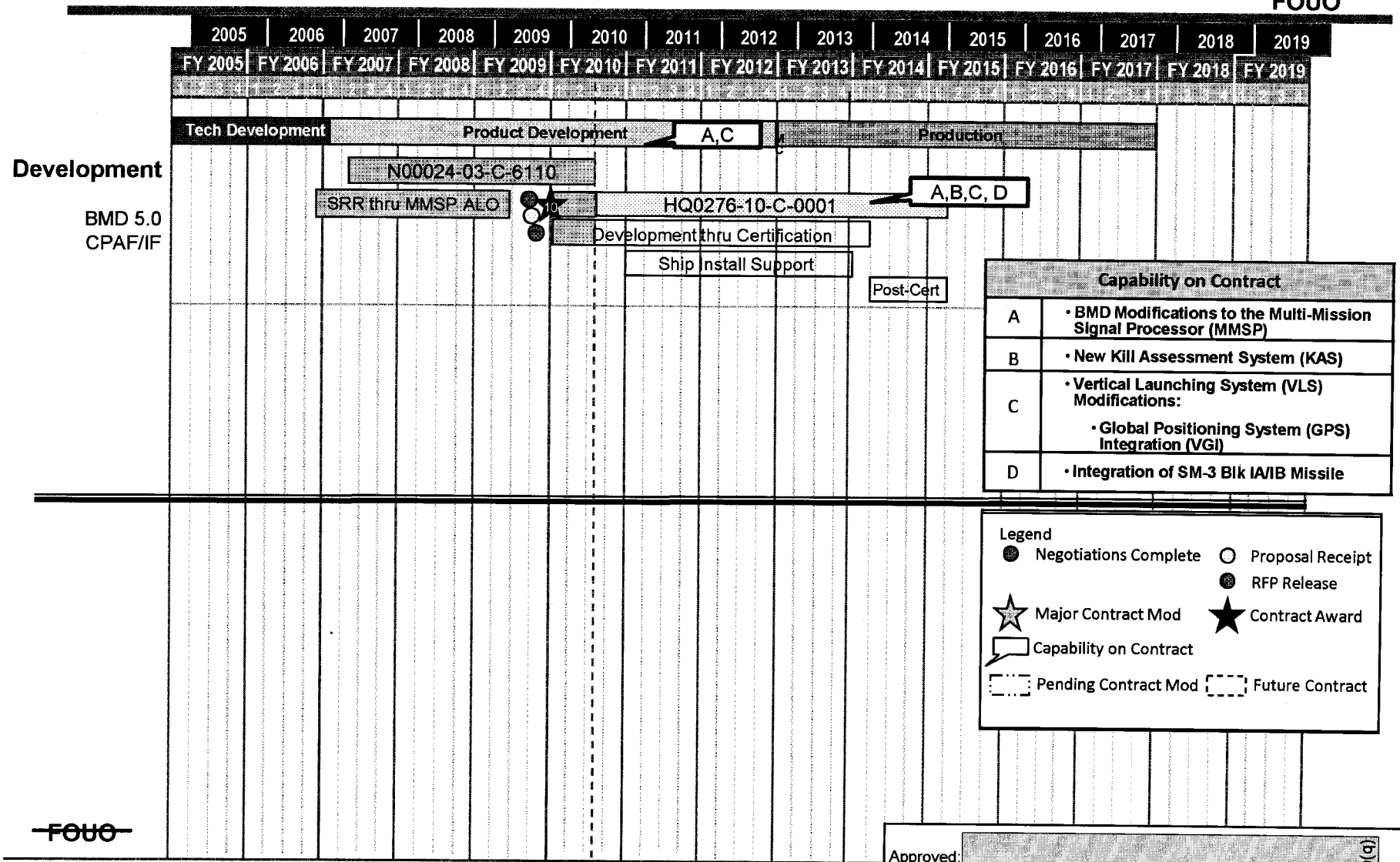

~~FOUO~~

Approved: (b)(6)

Contract Baseline

# Aegis BMD 5.0 Program
## Contract Baseline (U)

~~FOUO~~




~~FOUO~~

Approved: (b)(6)

# Aegis BMD 5.0 Program
## Product Development Phase Exit Criteria (U)

~~FOUO~~

| # | Exit Criteria | Baseline | Required for IOC |
|---|---|---|---|
| 1 | **Verified Requirements** | | |
| 1a | All system engineering/design requirements defined, traced and validated | Technical | 1QFY11 |
| 2 | **Affordable (FYDP and Beyond)** | | |
| 2a | CARD Approved | Resource | 1QFY10 |
| 2b | Independent Cost Estimate and Independent Government Estimates complete | Resource | 1QFY10 |
| 3 | **Achievable Design** | | |
| 3a | Integrate Aegis BMD 4.0.1 into Navy ACB12 | Technical | 1QFY14 |
| 3b | Developmental/Operational Tests (DT/OT) will begin with FTM -20E1 | Test | 4QFY13 |
| 4 | **Manufacturing Plans** | | |
| 4a | Subsystem EMRL[1] at 4 minimum (Manufacturing Readiness Level 9[2]) | Operational | 1QFY14 |
| 5 | **Sustainability Plans** | | |
| 5a | Supportability Strategy will be provided by Navy | Operational | N/A |
| 5b | All quality and reliability levels established and verified by Navy | Operational | N/A |
| 6 | **Weapons System Explosives Safety Review Board** | | |
| 6a | Hazard Assessment complete (will be green at Aegis BMD 4.0.1 WSESRB) | Technical | 1QFY14 |
| 6b | System obtains final WSESRB approval (Green at successful completion of ACB12 WSESRB) | Operational | 1QFY14 |
| 7 | **Program execution aligned with Navy** | | 1QFY14 |
| 8 | **Alignment with BMDS** | | 1QFY16 |

**1. EMRL 4**
Similar system, component or item previously produced or in production. Or, the system, component or item is in low rate initial production. Ready for full rate production. During low rate initial production all systems engineering/design requirements should be met and there should only be minimal system engineering/design changes.
**2. MRL 9**
Major system design features are stable and proven in test and evaluation. Materials are available to meet planned rate production schedules. Manufacturing processes and procedures are established and controlled to three-sigma or some other appropriate quality level to meet design key characteristic tolerances in a low rate production environment. Production risk monitoring ongoing. LRIP cost goals met, learning curve validated. Actual cost model developed for FRP environment, with impact of Continuous improvement.

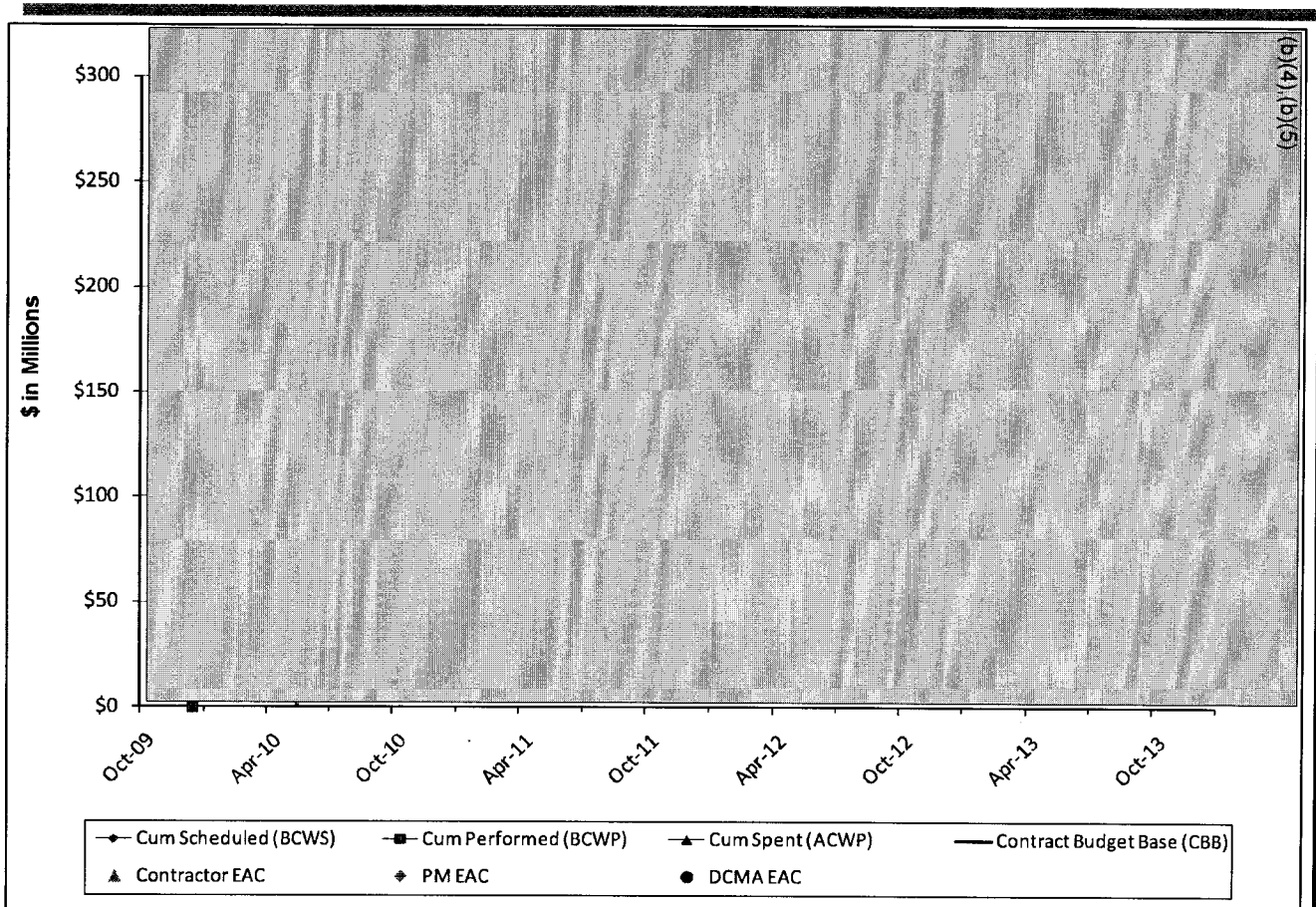
Risk to Execution
Low
Medium
High

~~FOUO~~

# Aegis BMD 5.0 Program

## Earned Value Management Data (U)

~~FOUO~~




| Prime Contractor | Contract Type | CBB | Variances | Cumulative | Current Month | | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Lockheed Martin | CPAF | (b)(4), (b)(5) | SV | (b)(4), (b)(5) | | PM | (b)(4), (b)(5) | |
| Period of Performance | Last IBR Date | % Complete | CV | | | KTR | | |
| Oct 2009 - Dec 2013 | 01-Mar-10 | (b)(4), (b)(5) | Level of Effort (LOE) Percentage | (b)(4), (b)(5) | | DCMA | None | None |

~~FOUO~~

CPI (b)(4), (b)(5) SPI (b)(4), (b)(5)

**Key Cost/Schedule Variance (CV/SV) Drivers**

***Cost:*** The cum CV: (b)(4), (b)(5)

(b)(4),(b)(5)

***Schedule:*** The cum SV: (b)(4), (b)(5)

(b)(4),(b)(5)

**Projected Variance at Completion (VAC)**

DOV's VAC is (b)(4), (b)(5)

- EAC = CBB at this time

**Impacts (cost, schedule, technical, funding)**

(b)(4),(b)(5)

Current Funding Impact: (b)(4), (b)(5)

Approved: (b)(4), (b)(5)

# 3.4 GMD (U)

~~SECRET~~

**DEPARTMENT OF DEFENSE**
**MISSILE DEFENSE AGENCY**
**7100 DEFENSE PENTAGON**
**WASHINGTON, DC 20301–7100**

GM

MEMORANDUM FOR PROGRAM DIRECTOR, GROUND-BASED MIDCOURSE DEFENSE, MISSILE DEFENSE AGENCY

SUBJECT: Developmental Decision Memorandum for Ground-Based Midcourse Defense Developmental Baseline Review (U)

(U) The attached schedule, technical, test, operational capacity, resource, and contract baselines and activities are approved for the Ground-Based Midcourse Defense (GMD) Capability Delivery 04 (CD-04).

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the GMD fielding of CD-04 will be implemented by the GMD Joint Program Office and documented in the Single Acquisition Management Plan. Baseline variances will be reported to the Director, MDA, and included in the annual BMDS Accountability Report.

~~(FOUO)~~ The following activities are directed to occur during the remainder of the CD-04 Product Development Phase:

| | |
|---|---|
| • 30 GBIs emplaced | 4QFY2010 |
| • Fort Greely Power Plant completion | 2QFY2011 |
| • FTG-06a executed | 1QFY2011 |
| • GS 6B.2 FQT | 2QFY2011 |
| • GS 6B.1.5 Suite Fielding (CD-04X delivered) | 3QFY2011 |
| • Missile Field 2 construction complete | 3QFY2012 |
| • GBIs 29-44 delivered | 1QFY2013 |
| • GT-04 Campaign complete | 4QFY2013 |
| • GS 6B.2 Suite Fielding | 2QFY2014 |

(U) I expect delivery of CD-04 in the second quarter of FY14.

Patrick J. O'Reilly

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived From: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

Attachments:

1. GMD Schedule Baseline (U). This document is ~~"FOUO."~~
2. GMD Technical Baseline (U). This document is ~~"SECRET."~~
3. GMD Test Baseline (U). This document is "FOUO."
4. GMD Operational Capacity Baseline (U). This document is ~~"SECRET."~~
5. GMD Resource Baseline (U). This document is ~~"FOUO."~~
6. GM Program Schedule, Performance & Actuals -0001 Contract (U). This document is ~~"FOUO."~~
7. GM Program Schedule, Performance & Actuals -0008 Contract (U). This document is ~~"FOUO."~~
8. GMD Contract Baseline (U). This document is ~~"FOUO."~~

cc:
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS
MDA

Schedule Baseline

# GMD Program
# CD-04 Schedule Baseline(U)

~~FOUO~~

Time Now

| Status: 23 Jun 10 | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Program Phase | | | | | | | | | Product Development | | | | | | | | | | | |
| MDA Capability Del. | | | | | | | | | | | | | | | | | | | | |
| Element KPs | | | | | | | | | | | | | | | | | | | | |
| Product Development | | | | | | | | | | | | | | | | | | | | |
| Software | | | | | | | | | | | | | | | | | | | | |
| Models & Sims | | | | | | | | | | | | | | | | | | | | |
| Test & Evaluation (IMTP 10.2) | | | | | | | | | | | | | | | | | | | | |
| Flight Test | | | | | | | | | | | | | | | | | | | | |
| Ground Test | | | | | | | | | | | | | | | | | | | | |
| Fielding & Fielded Support | | | | | | | | | | | | | | | | | | | | |
| Hardware: New Deliveries | | | | | | | | | | | | | | | | | | | | |
| Hardware: Ops Refurbs | | | | | | | | | | | | | | | | | | | | |
| Hardware: Flt Test Refurbs | | | | | | | | | | | | | | | | | | | | |
| Facilities | | | | | | | | | | | | | | | | | | | | |
| Software | | | | | | | | | | | | | | | | | | | | |

(b)(2),(b)(5)

(b)(2),

(b)(2),

(b)(2),

Critical Milestones highlighted in Yellow

(b)(6)

~~FOUO~~

Attachment 1

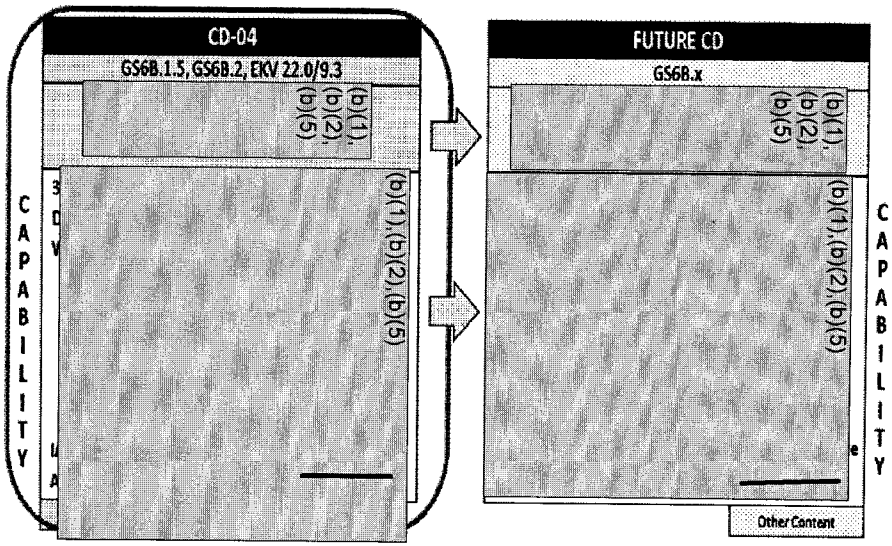
Technical Baseline

# GMD Program
# CD-04 Technical Baseline (U)

**GM related PCL items that have improvements with CD-04**

| Combatant Command Capability Needs | PRIORITIZED CAPABILITIES LIST (PCL) 2009-Enduring Capabilities (EC) |
|---|---|
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |

## Current and Future Capabilities




## Knowledge Points (U)

~~FOUO~~

| GMD KP # | DESCRIPTION | DEMONSTRATED BY | Complete |
|---|---|---|---|
| 1 | (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | |
| 2 | | | |
| 3 | | | |

Approved: (b)(6)

~~SECRET~~

(U) **ABMA** -Automated Battle Management Aids
(U) **IAMD** -Integrated Air and Missile Defense
(U) **LRBM**-Long Range Ballistic Missile
(U) **TEWA**- Threat Evaluation and Weapons Assignment

Attachment 2

# GMD Program
# CD-04 (IMTP 10.2)Test Baseline (U)

**Test Baseline**

GM Program Plan

FY10 Q1 Q2 Q3 Q4 | FY11 Q1 Q2 Q3 Q4 | FY12 Q1 Q2 Q3 Q4 | FY13 Q1 Q2 Q3 Q4

~~FOUO~~

**TEST EVENTS**

(b)(2),(b)(5)

**Summary Information**

**Primary CEC/EME Phase Test Data Collects**

(b)(2),(b)(5)

**Additional Test Data Collection Opportunities**

None for CD -04 through FY13

**Acquisition Phase Test Configuration**

GMD Fire Control - GS 6B1.5
GMD Fire Control - GS 6B.2
EKV 22.X (CE I)
EKV 9.X (CE II)

CECs: Critical Engagement Conditions
EMEs: Empirical Measurement Events

- Near -Term PAA Phase 1 Flight Test
- Near -Term PAA Phase 1 Ground Test
- Mid -Term PAA Phase 2 Flight Test
- Mid -Term PAA Phase 2 Ground Test
- Far -Term PAA Phase 3 Flight Test
- Far -Term PAA Phase 3 Ground Test
- Operational Test - Flight
- Operational Test - Ground

(b)(6)

* GM Flight test pending PCB approval

FTG-13 Shadowed event is GM test in IMTP 10.2; not required for CD -04

~~FOUO~~

Attachment 3

~~SECRET~~

# GMD Program

# CD-04 Operational Capacity Baseline (U)

**Operational Capacity Baseline**

| GMD CONFIGURATION | CD-04 (2QFY14) |
|---|---|
| [redacted] | (b)(1),(b)(2),(b)(5) |

| CD 04 CAPABILITIES & LIMITATIONS |
|---|
| [redacted] (b)(1),(b)(2),(b)(5) |

| MDA Operational Capability | DATE |
|---|---|
| Doctrine [redacted] (b)(1),(b)(2),(b)(5) | Sep 2004<br>Dec 2008<br>Jun 2008 |
| Organization / Personnel [redacted] (b)(1),(b)(2),(b)(5) | Oct 2003<br>Jan 2004 |
| Training [redacted] (b)(1),(b)(2),(b)(5) | 2009<br>2007<br>2005 |
| Materiel [redacted] (b)(1),(b)(2) | Sep 2010 |
| Leadership and Education [redacted] (b)(1),(b)(2),(b)(5) | 2005<br>2005 |
| Facilities [redacted] (b)(1),(b)(2),(b)(5) | Sep 2004<br>Sep 2004<br>Dec 2004 |
| Safety / Security / Interoperability [redacted] (b)(1),(b)(2),(b)(5) | Sep 2009<br>Oct 2008<br>Jun 2007 |
| [redacted] (b)(1),(b)(2),(b)(5) | 4QFY13 |
| [redacted] (b)(1),(b)(2),(b)(5) ~~FOUO~~ | Jan 2010 |

**(U) EAS**-Eareckson Air Station
**(U) EKV**-Exoatmospheric Kill Vehicle
**(U) FGA**-Fort Greely Alaska
(U) **MDIOC**-Missile Defense Integration and Operations Center
(U) **TOM**-Target Object Map (U)
(U) **VAFB**-Vandenberg Air Force Base (U)

Approved: [redacted] (b)(6)

Attachment 4

~~SECRET~~

# GM BMDS Accountability Report
## Resource Baseline Summary (U)

FOUO

| GMD Program Unit Cost Baseline | | | |
|---|---|---|---|
| Program Acquisition Unit Costs (BY10$M) | | | |
| Component | Qty | Current Est | Baseline |
| Interceptor | 56 | 419 | 419 |
| | | | |
| Average Procurement Unit Costs (BY10$M) | | | |
| Component | Qty | Current Est | Baseline |
| Interceptor | 44 | 71 | 71 |

GMD Time Phased Estimate (As of 15 June 2010)

| Costs TY $M | FY02-FY09 Sunk | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP Total | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Software Development | 2,067 | 46 | 36 | | | | | 83 | | 2,150 |
| Testing | 2,398 | 211 | 185 | 219 | 157 | | | 772 | | 3,170 |
| Integration | 5,199 | 289 | 237 | 136 | 125 | 104 | 98 | 990 | 649 | 6,838 |
| Hardware Dev/Fielding | 6,219 | 398 | 256 | 175 | 26 | 5 | | 860 | | 7,079 |
| Operations & Support | 2,441 | 230 | 331 | 318 | 357 | 322 | 326 | 1,883 | 10,810 | 15,134 |
| Development Total | 18,324 | 1,173 | 1,045 | 848 | 665 | 432 | 424 | 4,588 | 11,459 | 34,371 |
| **Total Progam Estimate** | **18,324** | **1,173** | **1,045** | **848** | **665** | **432** | **424** | **4,588** | **11,459** | **34,371** |

GMD Cost Estimate Description Documentation

Cost Analysis Requirements Description

CARD approval date: 16 Nov 2009

Updated Annually

Life Cycle Cost Estimate (To Sustain CD-04 Through FY32)

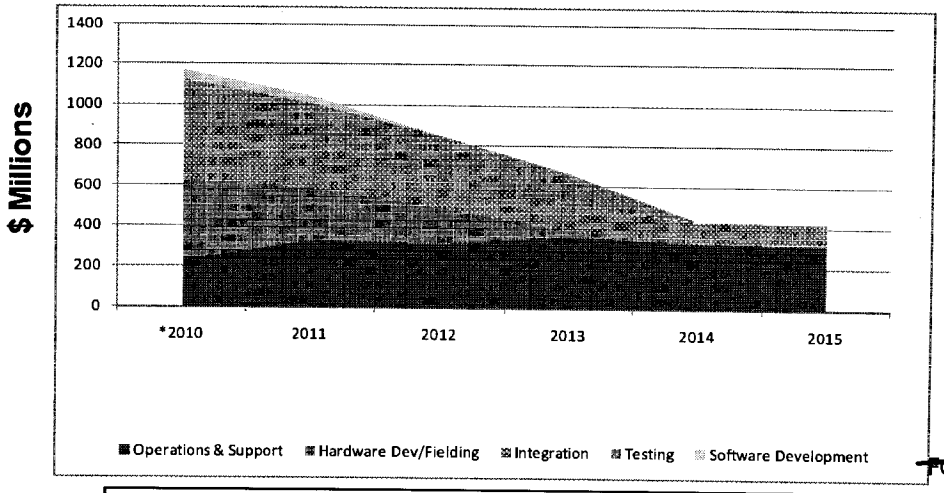
Date Approved: 15 June 2010

Life Cycle Cost Estimate (BY10$M)

| | Current Estimate Sunk | To Go | Total | Baseline | Variance |
|---|---|---|---|---|---|
| Development | 17,346 | 3,151 | 20,497 | 20,497 | - |
| *Software Development* | *2,263* | *81* | *2,344* | *2,344* | - |
| *Testing* | *2,632* | *748* | *3,380* | *3,380* | - |
| *Integration* | *5,714* | *1,481* | *7,195* | *7,195* | - |
| *Hardware Dev/Fielding* | *6,737* | *841* | *7,578* | *7,578* | - |
| | | | | | - |
| Production and Deployment | - | - | - | - | - |
| Military Construction | | | | | |
| Operations and Support | 2,595 | 10,276 | 12,871 | | |
| **Total Life Cycle** | **19,941** | **13,427** | **33,368** | | |

Explanation of Variance

### Time Phased Chart




FOUO

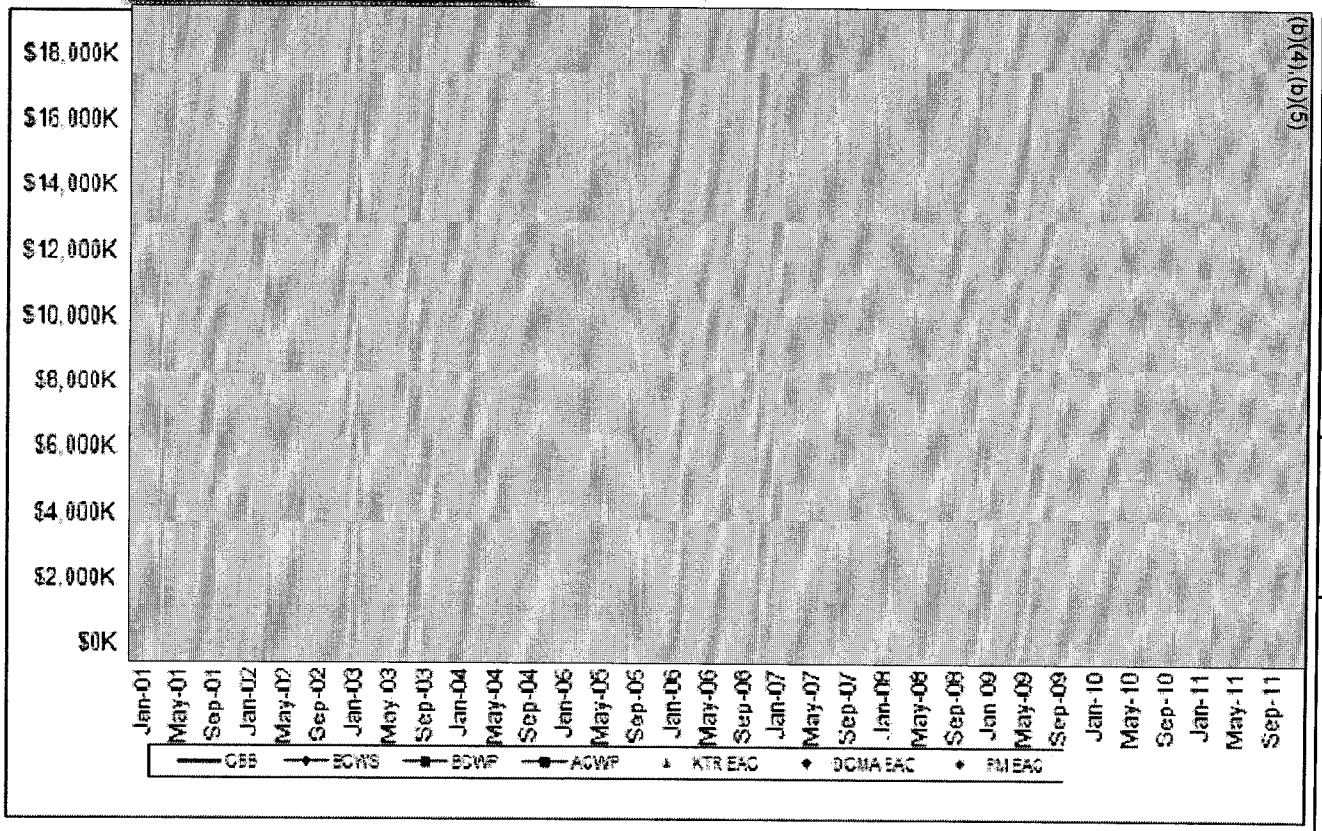
Approved: (b)(6)

Attachment 5

# GMD

## *0001 Prime Contract Earned Value Management Data (U)*

MDA EVM Data – Apr 10 CPR Data




~~FOUO~~

**Key Cost/Schedule Variance (CV/SV) Drivers:**

**Cost:** The cum CV: (b)(4), (b)(5)

(b)(4),(b)(5)

**Schedule:** The cum SV: (b)(4), (b)(5)

(b)(4),(b)(5)

**Projected Variance at Completion (VAC)**

PM's VAC is (b)(4), (b)(5)

**Impacts (cost, schedule, technical, funding):**

(b)(4),(b)(5)

**Current Impact:** (b)(4), (b)(5)

| Prime Contractor | Contract Type | CBB | Variances | Cumulative | Current Month | EAC | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Boeing | CPAF | (b)(4), (b)(5) | SV | | (b)(4), (b)(5) | PM | | (b)(4), (b)(5) |
| Period of Performance | Last IBR Date | % Complete | CV | | | KTR | | |
| Jan 2001 - Dec 2011* | Feb 2010 - TDX | (b)(4), (b)(5) | Level of Effort (LOE) Percentage | | (b)(4), (b)(5) | DCMA | | |

~~FOUO~~

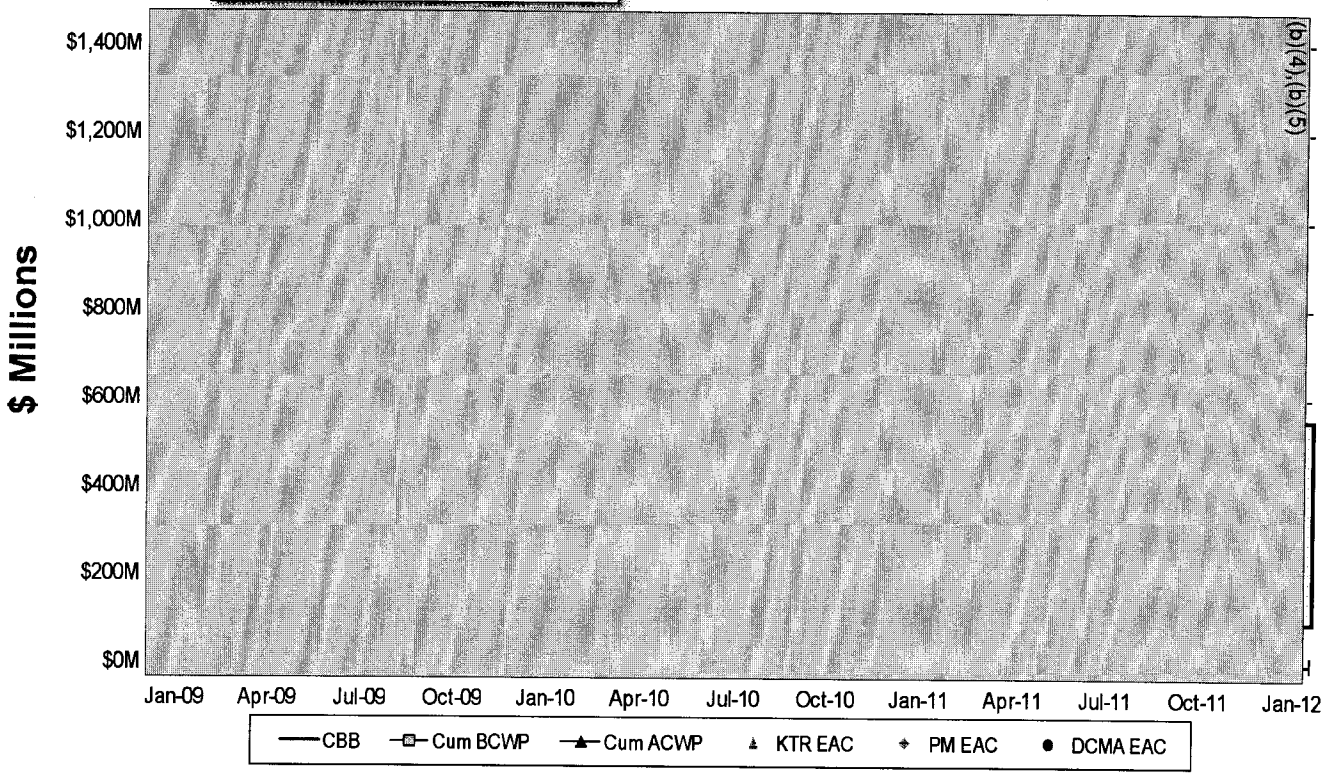
(b)(6)

Attachment 6

# GMD

## *0008 Core Completion Contract Earned Value Management Data (U)*

MDA EVM Data – Apr 10 CPR Data




| Prime Contractor | Contract Type | CPR | Variances | Cumulative | Current Month | EAC | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Boeing | CPFF | (b)(4), (b)(5) | SV | (b)(4), (b)(5) | | PM | (b)(4), (b)(5) | |
| Period of Performance | Last IBR Date | % Complete | CV | | | KTR | | |
| Jan 2009 - Dec 2011 | NA | (b)(4), (b)(5) | | | | DCMA | | |

~~FOUO~~

~~FOUO~~

**Key Cost/Schedule Variance (CV/SV) Drivers:**

**Cost:** The cum CV: (b)(4), (b)(5)

(b)(4),(b)(5)

**Schedule:** The cum SV: (b)(4), (b)(5)

**Projected Variance at Completion (VAC)**

PM's VAC is (b)(4), (b)(5)

**Impacts (cost, schedule, technical, funding):**

(b)(4),(b)(5)

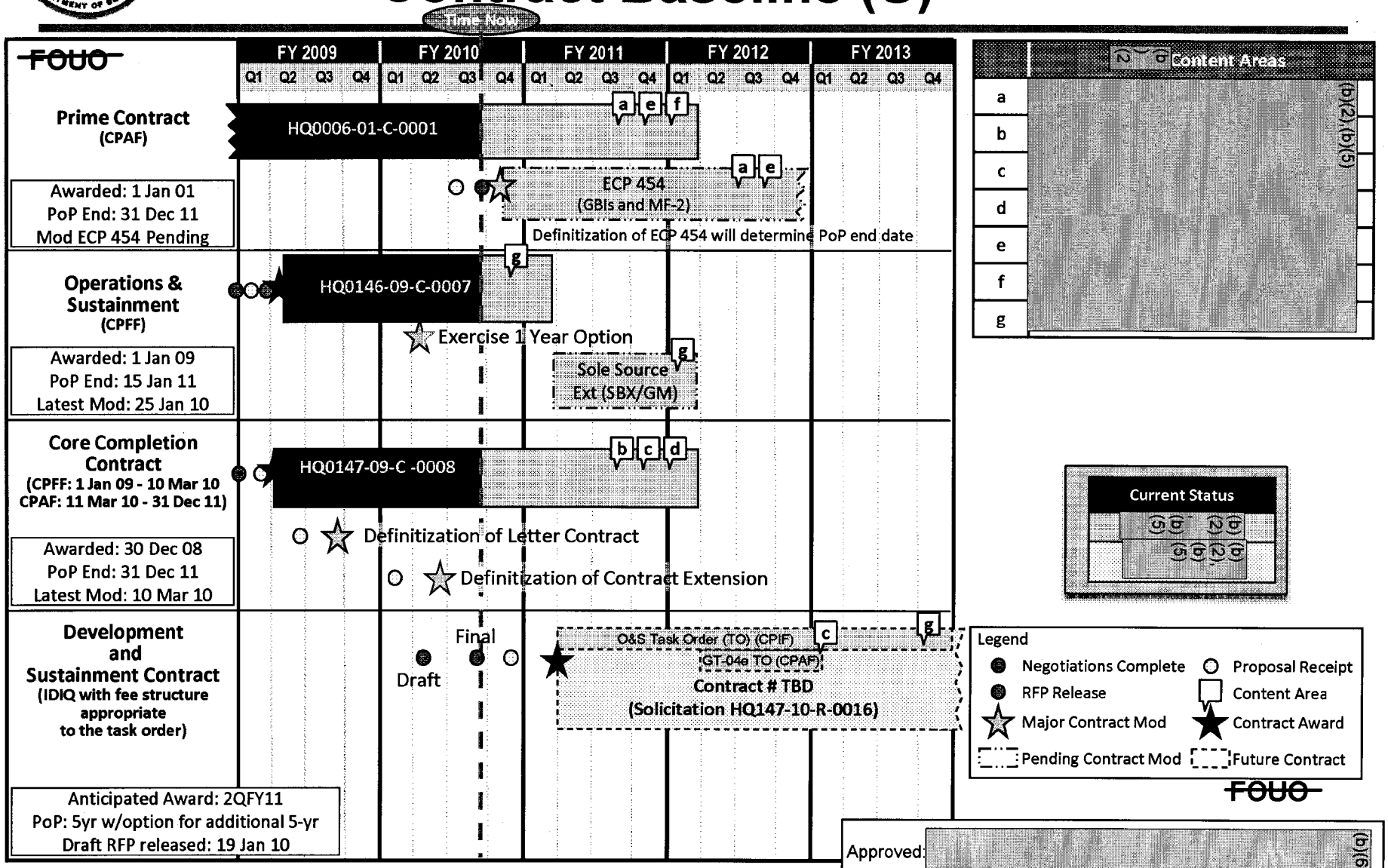
**Current Impact:** (b)(4), (b)(5)

(b)(6)

Attachment 7

# GMD Program Contract Baseline (U)

Contract Baseline




Attachment 8

# 3.5 SBX (U)

~~SECRET~~

JUN 30 2010

MEMORANDUM FOR PROGRAM DIRECTOR, SENSORS, MISSILE DEFENSE AGENCY (U)

SUBJECT: Development Decision Memorandum for Sensors Sea Based X-Band (SBX) Radar Program Baseline Review (U)

(U) The attached schedule, technical, test, operational capacity, resource, and contract baselines and exit criteria are approved for SBX radar.

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the SBX will be implemented by the Sensors Directorate, documented in the Single Acquisition Management Plan, and baseline variances will be reported to the Director, MDA and Assistant Secretary of the Navy (ASN(RDA)). Variances from the BMDS baseline will be reported in the annual BMDS Accountability Report.

(U) The following activities are directed to occur during the remainder of the SBX Product Development Phase:

| | |
|---|---|
| • (U) Navy Inspection and Survey (INSURV) | 4QFY10 |
| • (U) Fully Mission Capability (FMC) | 1QFY11 |
| • (U) American Bureau of Shipping/U.S. Coast Guard (ABS/USCG) 5 Year Certification | 1QFY11 |
| • (U) FTG-06a | 1QFY11 |
| • (U) Begin a phased transition of SBX Operations & Sustainment (O&S) to the U.S. Navy | 2QFY11 |

(U) We approve the exit criteria presented in the review, listed in Attachment 8, and the program is expected to deliver Capability Delivery-03 in the first quarter FY11 and continue X-Band Radar software research and development within MDA/Sensor Directorate through FY15.

SEAN J. STACKLEY
Research, Development, and Acquisition
Assistant Secretary of the Navy

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

Attachments:

1. SBX Program (CD-03, CD-04) Schedule Baseline (U). This document is ~~"FOUO."~~
2. SBX Program (CD-03, CD-04) Technical Baseline (U). This document is ~~"SECRET."~~
3. SBX Program Build (CD-03, CD-04) Test Baseline (U). This document is ~~"FOUO."~~
4. SBX Program (CD-03, CD-04) Operational Capacity Baseline (U). This document is ~~"SECRET."~~
5. SBX Program (CD-03, CD-04) DBR Resource Baseline (U). This document is ~~"FOUO."~~
6. SBX (CD-03, CD-04) Contract Baseline (U). This document is ~~"FOUO."~~
7. SBX Program Exit Criteria (From Product Development Phase) (U). This document is ~~"FOUO."~~

cc:
MDA/DX
MDA/DE
MDA/DA
MDA/DP
MDA/DO
MDA/DT
MDA/DS
MDA/BC
MDA/TH
OPNAV N86

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# SBX Program (CD-03, CD-04) Schedule (U)

**Schedule Baseline**

Continues to CD-04 in 2QFY14

~~FOUO~~ Status: 23 June 2010

Time Now

| | FY08 | | | | FY09 | | | | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |

**Program Phase**

Production Development Phase

**Decision Points**

**MDA Capability Del.**

**MDA/Navy BoD**

**MDEB**

**BMDS Knowledge Points**

**Capability Development**

XBR Build 1.6

XBR Build 2

XBR Build 3

X-Band Radar/SW

Model & Simulations

**Test & Evaluation (IMTP 10.2)**

Ground Test

Flight Test/TOOs

OTA/WF

**Transition and Transfer**

Documentation

INSURV

IRRT Recommendations

**Fielding & Fielding Support**

Siting Study

Shipyard (SY) (ABS/USCG Certifications)

**Operations & Sustainment**

(b)(2),(b)(5)

(b)(6)

Blue = KP# and Events * Not in IMTP 10.2

Critical Milestones highlighted in Yellow

Attachment 1

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~~SECRET~~

# SBX Program (CD-03, CD-04) Technical Baseline (U)

**Technical Baseline**

## Air & Missile Defense Prioritized Capabilities List 2009

| Combatant Command Needs | Enduring Capabilities |
|---|---|
| (b)(1), (b)(2), (b)(5) | (b)(1),(b)(2),(b)(5) |
| (b)(1),(b)(2),(b)(5) | |
| (b)(1), (b)(2), (b)(5) | |
| (b)(1),(b)(2),(b)(5) | |

## Current (CD-03) and Future (CD-04) Capabilities (U)

CD-03

(b)(1), (b)(2), (b)(5)

(b)(1), (b)(2), (b)(5)

(b)(1),(b)(2),(b)(5)

CD-04

(b)(1), (b)(2), (b)(5)

(b)(1), (b)(2), (b)(5)

(b)(1),(b)(2),(b)(5)

~~SECRET~~

SECRET

## CD-03 and CD-04 Knowledge Points (U)

| SBX KP # | Description | Demonstrated by | Comp |
|---|---|---|---|
| | Designated Fully Mission Capable by Warfighter | | |
| 1 | (b)(1),(b)(2),(b)(5) | | ✓ |
| 2 | | | |
| 3 | | | |
| 4 | | | |

Approved: (b)(6)

~~SECRET~~

Attachment 2

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~~FOR OFFICIAL USE ONLY~~

# SBX Program Build (CD-03, CD-04) Test Baseline (U)

## IAW Current 10.2 BMDS Test Baseline

Test Baseline

~~FOUO~~

Time Now

| SBX Program Plan | | FY09 | | | | FY10 | | | | FY11 | | | | FY12 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| TEST EVENTS | System/Element Flight Tests | [redacted] (b)(2),(b)(5) | | | | | | | | | | | | | | | |
| | System Level GT GTX-Focused GTI= HWIL GTD= Distributed TA/ PA = Digital Assessments | | | | | | | | | | | | | | | | |
| | Chamber / Lab/ Simulation | | | | | | | | | | | | | | | | |

**Summary Information**

**Tests for SBX Product Development Phase, SBX/XBR SW Build 2.2.1.1 (CD-03). (Note:** Tests occurred before CEC/EME creation).**

[redacted] (b)(2),(b)(5)

**Primary CEC/EME Phase Test Data Collects Opportunities**

[redacted] (b)(2),(b)(5)

**Additional Test Data Collection Opportunities**

| | |
|---|---|
| JFTM 1 & 2** | GT-201 |
| GT-198** | GT-202 |
| GT-195 | FTX-17 |
| FTX-07 | FTT-15 |
| BVT-01 | JSC (G-22-S) |
| FTT-13 | |
| FTM-15 | |

**Acquisition Phase Test Configuration**

**Software versions:**

[redacted] (b)(2),(b)(5)

CECs: Critical Engagement Conditions
EMEs: Empirical Measurement Events
KP: Knowledge Point

△ Near Term PAA Phase 1 Flight Test
○ Mid-Term Flight Test
◇ Far-Term Flight Test

□ Near Term PAA Phase 1 Ground Test
□ Mid-Term Ground Test
□ Far-Term Ground Test

△○

◇ Operational Test - Flight
□ Operational Test - Ground

~~FOUO~~

Approved: [redacted] (b)(6)



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~~SECRET~~

**Operational Capacity Baseline**

# SBX Program (CD-03, CD-04) Operational Capacity Baseline (U)

| FOUO SBX Configuration | Status |
|---|---|
| [redacted] (b)(1), (b)(2), (b)(5) | [redacted] (b)(1), (b)(2), (b)(5) ~~FOUO~~ |

| SECRET Current Capabilities & Limitation |
|---|
| [redacted] (b)(1),(b)(2),(b)(5) |

~~SECRET~~

| FOUO MDA Operational Capability Delivery | DATE |
|---|---|
| **Doctrine** [redacted] (b)(1), (b)(2), (b)(5) | 2 Nov 09<br>21 Apr 09 |
| **Organization/Personnel** [redacted] (b)(1),(b)(2), (b)(5) | Complete<br>ECD 1 Jan 2011 |
| **Training** [redacted] (b)(1), (b)(2), (b)(5) | Complete |
| **Materiel** [redacted] (b)(1), (b)(2), (b)(5) | ECD Oct 2011<br>ECD 30 June 2011 |
| **Leadership and Education** [redacted] (b)(1), (b)(2), (b)(5) | Jan 2010 |
| **Facilities** [redacted] (b)(1), (b)(2), (b)(5) | May 2010 (MDEB) |
| **Security/Interoperability** [redacted] (b)(1), (b)(2), (b)(5) | Feb 10<br>Complete |
| **Supportability** [redacted] (b)(1), (b)(2), (b)(5) | Complete |
| **BMD System Level Testing/Performance** [redacted] (b)(1),(b)(2),(b)(5) | 1QFY06<br>1QFY09<br>3QFY09<br>4QFY09 ~~FOUO~~ |

Approved: [redacted] (b)(6)

Attachment 4

~~SECRET~~

~~FOR OFFICIAL USE ONLY~~

# SBX Program (CD-03, CD-04) BMDS Accountability Report Resource Baseline Summary (U)

**Resource Baseline**

| SBX Unit Cost Baseline | | | |
|---|---|---|---|
| Program Acquisition Unit Costs (BY10$M) | | | |
| Component | Qty | Current Est | Baseline |
| SBX | 1 | 1468 | 1468 |
| | | | |
| Average Procurement Unit Costs (BY10$M) | | | |
| Component | Qty | Current Est | Baseline |
| SBX | 1 | 479 | 479 |

Time Phased Estimate Table (as of 15 June 2010)

| Costs TY$M | Sunk | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Hardware Development | 463 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 463 |
| Testing | 128 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 128 |
| Integration | 177 | 6 | 14 | 3 | 3 | 3 | 3 | 32 | 0 | 208 |
| System Fabrication | 479 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 479 |
| Software Dev & Maint | 126 | 15 | 20 | 11 | 11 | 11 | 11 | 79 | 0 | 205 |
| SBX Sustainment | 286 | 151 | 150 | 146 | 153 | 153 | 181 | 934 | 1901 | 3121 |
| **Total Cost Estimate** | **1660** | **172** | **184** | **160** | **167** | **167** | **194** | **1044** | **1901** | **4605** |

SBX Cost Estimate Description (BY10$M)

Joint Cost Analysis Requirements Description

CARD approval date: MDA approved November 2009

Updated Annually

Joint Life Cycle Cost Estimate

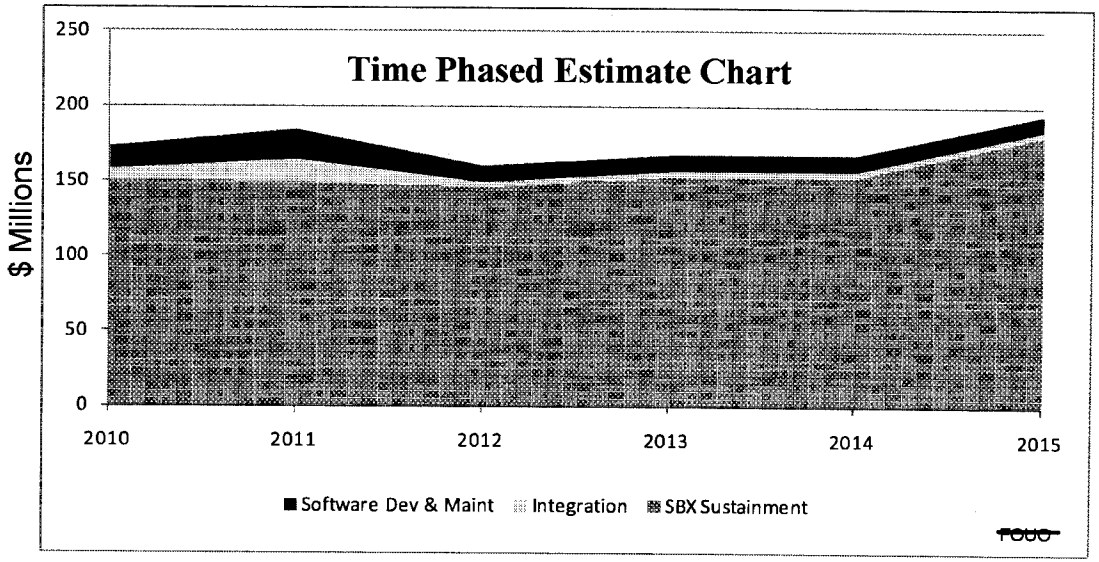
Date Approved: 4/01/2010

Life Cycle Cost Estimate (BY10$M)

| | Current Estimate | | | Baseline | Variance |
|---|---|---|---|---|---|
| | Sunk | To Go | Total | | |
| Development | *1,373* | *98* | *1,471* | *1,471* | - |
| *Hardware Development* | *463* | | *463* | *463* | - |
| *System Fabrication* | *479* | | *479* | *479* | - |
| *Software Dev & Maint* | *126* | *78* | *204* | *204* | - |
| *Testing* | *128* | | *128* | *128* | - |
| *Integration* | *177* | *20* | *196* | *196* | - |
| Operations and Support | 286 | 2,264 | 2,550 | | |
| **Total Life Cycle** | **1,660** | **2,362** | **4,021** | | |

Explanation of Variance

~~FOUO~~




• APUC calculation is derived using the RDT&E funds applied to produce the SBX

(b)(6)



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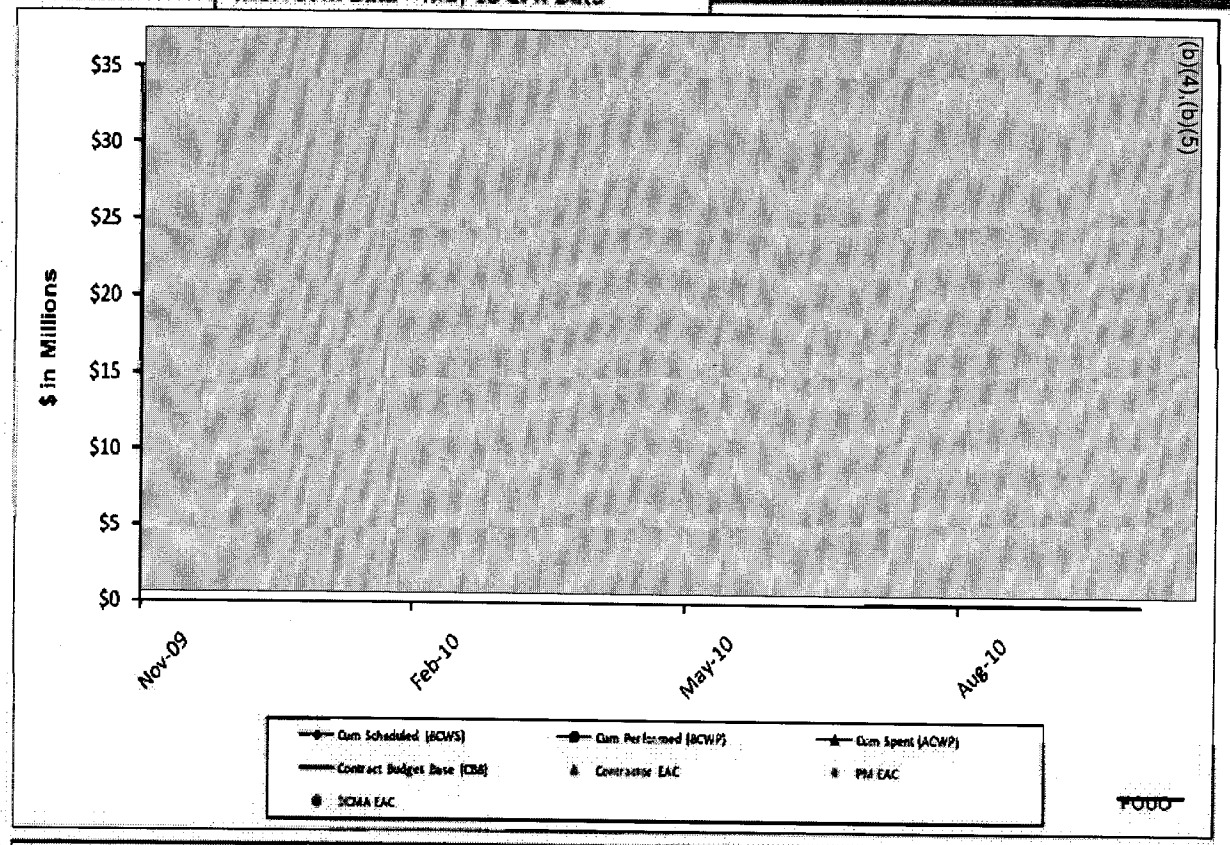
# CCLS Task Order 8 XBR

## *Earned Value Management Data*

**MDA EVM Data – May 10 CPR Data**




| Prime Contractor | Contract Type | CBB | Variances | Cumulative | Current Month | | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Raytheon | CPAF | (b)(4) | SV | (b)(4), (b)(5) | | PM | (b)(4), (b)(5) | |
| Period of Performance | Last IBR: | % Complete | CV | | | KTR | | |
| Nov 09 to Sep 10 | | (b)(4) (b) | Level of Effort (LOE) Perecentage | (b)(4) | | DCMA | NA | NA |

**Key Cost/Schedule Variance (CV/SV) Drivers**

Cost: The Cum CV is (b)(4), (b)(5)

Schedule: The cumulative schedule variance is (b)(4),(b)(5)

**Projected Variance at Completion (VAC)**

PM VAC is (b)(4), (b)(5)

KTR VAC is

**Impacts (Cost, Schedule, Technical Funding):** (b)(4), (b)(5)

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(b)(6)

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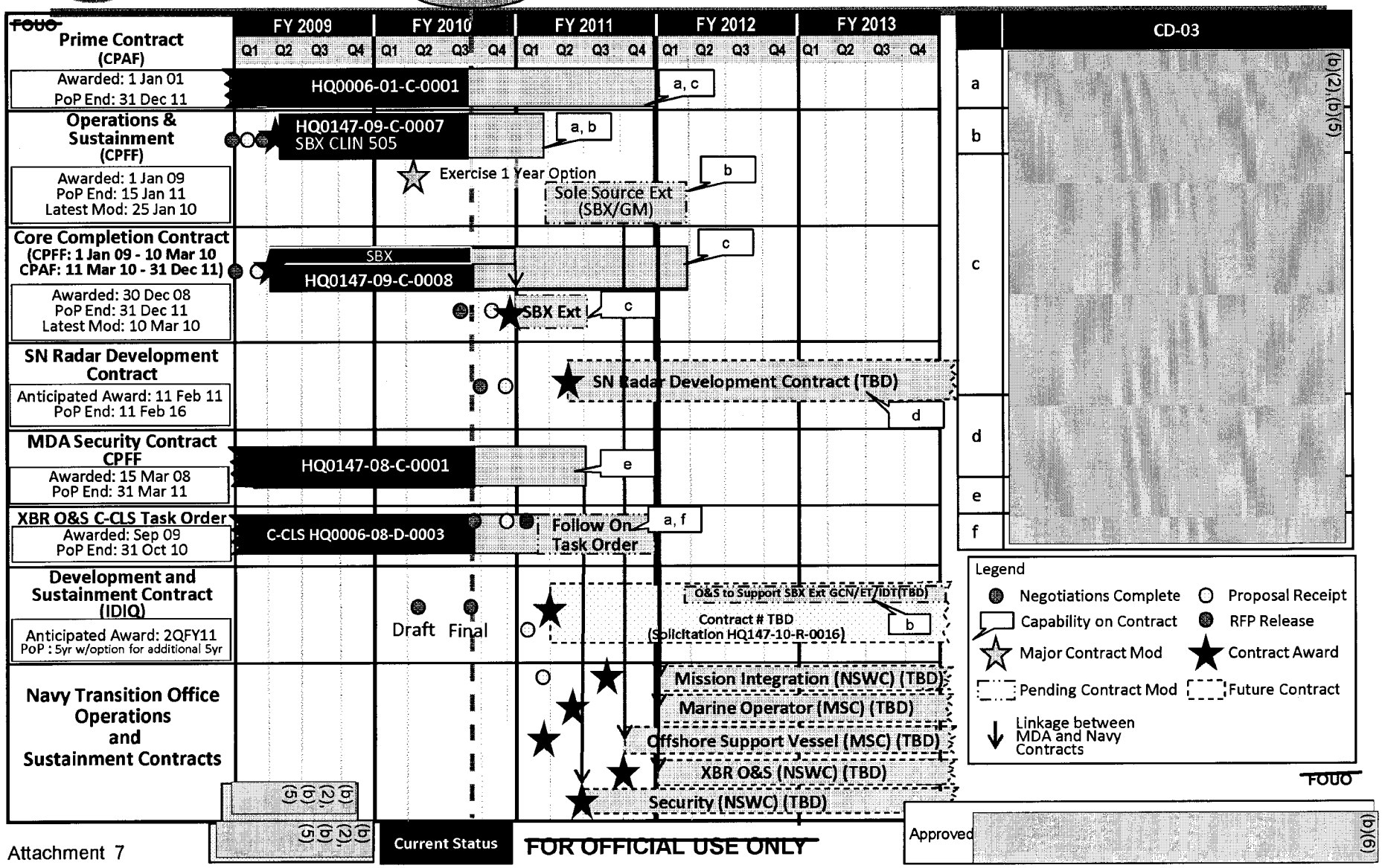
# SBX Program (CD-03, CD-04)
# DBR Contract Baseline (U)

Contract Baseline




Attachment 7

# SBX Program Exit Criteria (From Product Development Phase) (U)

| FOUO | Exit Criteria | Baseline | Status |
|---|---|---|---|
| 1 | **Verified Requirements** | | |
| 1a | Acceptance testing using Verification Cross Reference Matrix completed | Technical | |
| 1b | Fully Mission Capable Declared. Results of IMTP tests assessed for operational effectiveness, suitability, and military utility of SBX | Technical | |
| 2 | **Affordable (FYDP and Beyond)** | | |
| 2a | Joint Cost Estimate completed | Resource | |
| 2b | Joint Cost Analysis Requirements Document completed | Resource | |
| 2c | Budget assigned | Resource | |
| 3 | **Achievable Design** | | |
| 3a | Final Design Review completed 24 Jun 03 | Technical | |
| 3b | Technical Performance Measurements verified | Technical | |
| 3c | SBX Capabilities and Limitations incorporated into the BMDS Handbook, 31 Jan 10 | Technical | |
| 3d | Completed PA-09, GTI-03, GTD-03, GTX-03c/e and FTG-05 IMTP test objectives, schedule, and data collection requirements | Test | |
| 3e | Capability Delivery 03 completed | Technical | |
| 4 | **Manufacturing Plans** | | |
| 4a | Single system developed, manufactured, and tested to support Ballistic Missile Defense System Operational and Test requirements | Operational | |
| 5 | **Sustainability Plans** | | |
| 5a | SBX Support Basing analysis completed | Schedule | |
| 5b | Sustainability plans in-place; crews trained and ready | Operational | |
| 6 | **Contracts & Acquisition** | | |
| 6a | Approved Contract Strategy | Contract | |

(U) Note: Interdependency linked to Navy/MDA MOA Milestones

~~FOUO~~

Risk to Execution
Low
Medium
High
Y

## 3.6.1 ICBM (U)

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

DA

MEMORANDUM FOR PROGRAM DIRECTOR, TARGETS AND COUNTERMEASURES, MISSILE DEFENSE AGENCY

SUBJECT: Developmental Decision Memorandum for Targets and Countermeasures Intercontinental Ballistic Missile (ICBM) Developmental Baseline Review (U)

(U) The attached schedule, technical, test, resource, and contract baselines and activities are approved for the Targets and Countermeasures (TC) ICBM Program.

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the TC acquisition will be implemented by the TC Program Office and documented in the Single Acquisition Management Plan. Baseline variances will be reported to the Director, MDA, and included in the annual BMDS Accountability Report.

~~(FOUO)~~ The following activities are directed to occur during the remainder of the TC ICBM Product Development Phase:

| | |
|---|---|
| • ICBM T1/T2 Contract Award | 4QFY2011 |
| • ICBM T1/T2 PDR | 2QFY2012 |
| • ICBM T1/T2 CDR | 4QFY2012 |
| • Deliver ICBM T1/T2 Ship-set #1 | 3QFY2014 |

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

Attachments:
1. TC Schedule Baseline (U). This document is "~~FOUO.~~"
2. TC Technical Baseline (U). This document is ~~"SECRET."~~
3. TC Test Baseline (U). This document is "~~FOUO.~~"
4. TC Resource Baseline (U). This document is "~~FOUO.~~"
5. TC Contract Baseline (U). This document is "~~FOUO.~~"

cc:
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS

Schedule Baseline

# ICBM Program Schedule Baseline (U)

~~FOUO~~

Status: 13 Jun 2010

| | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | | FY15 | | | | FY16 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Program Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Decision Points | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capability Del. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMDS Knowledge Points | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Element KPs | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Model & Simulations Pre and Post Flight Test Model Updates | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capability Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICBM T1/T2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICBM T3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

(b)(2),(b)(5)

Blue = KP #1 & events (U)
Green = KP #2 & events (U)
Brown = KP #3 & events (U)
Critical Milestones highlighted in Yellow (U)

Models & Sims
Purple = new development (U)
Black = re-use (U)

~~FOUO~~

(b)(6)

Attachment 1

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Technical Baseline

# ICBM Program
# Technical Baseline (U)

## ICBM Target to TCC&R Comparison

~~SECRET~~

(b)(1),(b)(2),(b)(5)

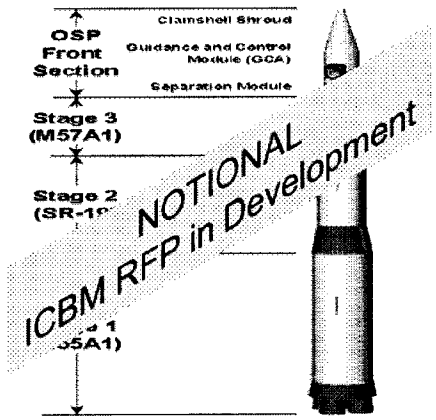
(b)(1),(b)(2),(b)(5)

(b)(1),(b)(2),(b)(5)

~~SECRET~~

## Current Capabilities

~~FOUO~~




~~FOUO~~

## Knowledge Points

~~FOUO~~

| ICBM Class KP # | Description | Demonstrated by | Complete |
|---|---|---|---|
| ICBM #1 | | (b)(1),(b)(2),(b)(5) | |
| ICBM #2 | | | |
| ICBM #3 | | | |

~~FOUO~~

Approved: (b)(6)

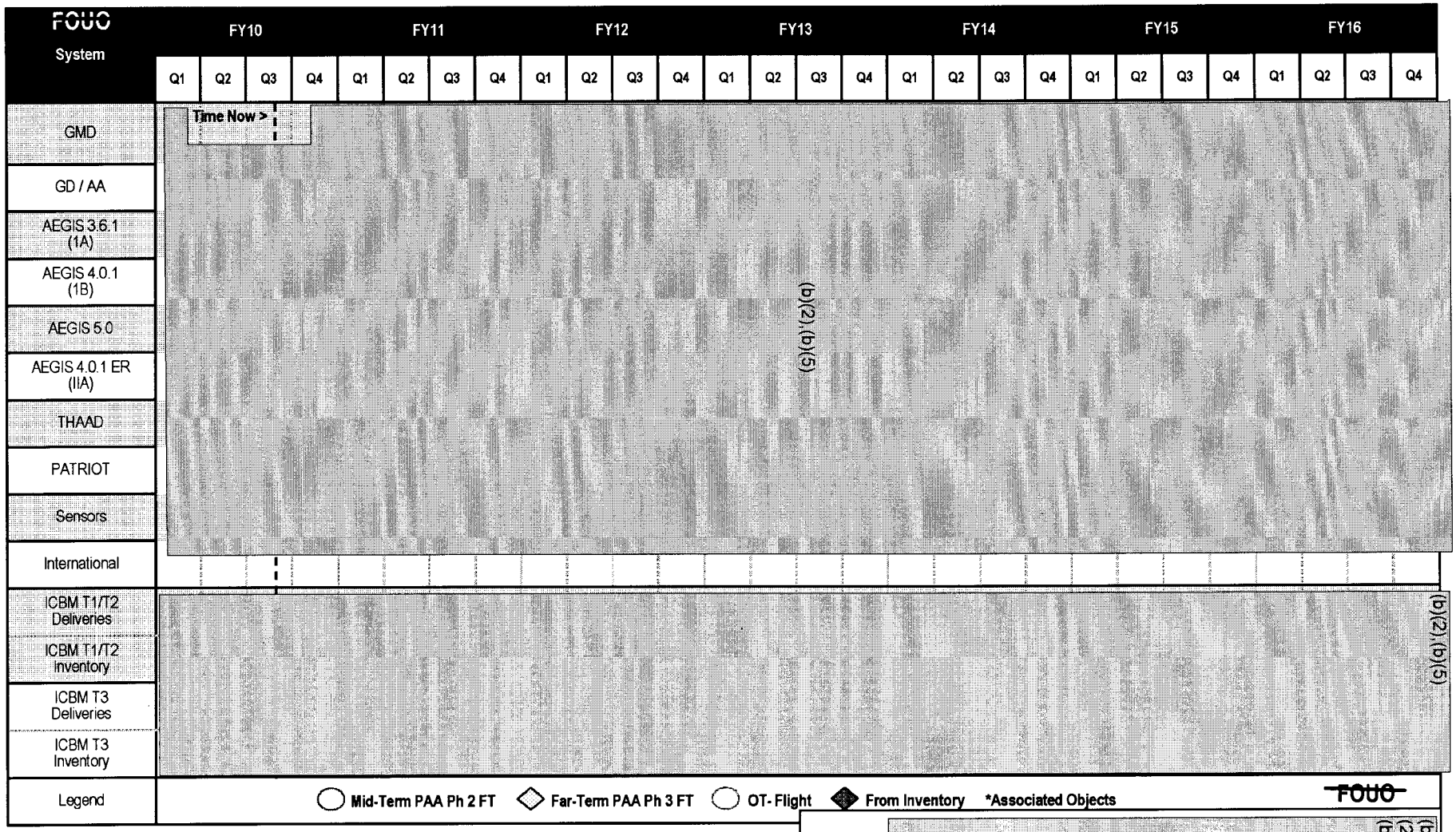
Attachment 2

~~SECRET~~

~~FOR OFFICIAL USE ONLY~~

# ICBM Program
# Test Baseline (U)
## IAW IMTP 10.2 BMDS Test Baseline 20100614 1400 (U)

**Test Baseline**




Approved: (b)(2),(b)(5)

Attachment 3

~~FOR OFFICIAL USE ONLY~~

# ICBM Target Program BMDS Accountability Report
# Resource Baseline Summary (U)

**Resource Baseline**

~~FOUO~~

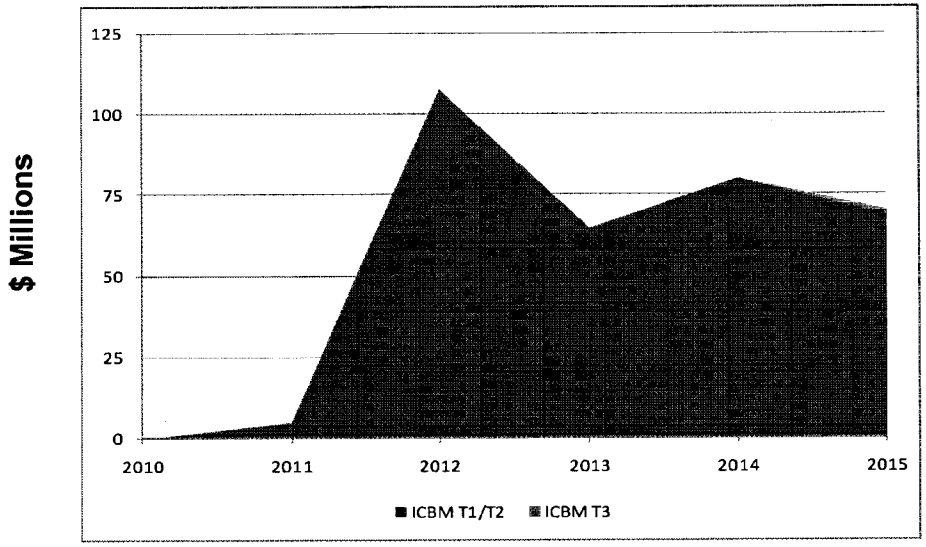
| ICBM | | | |
|---|---|---|---|
| Non-Recurring BY10$M | | | |
| Component | | Current Est | Baseline |
| ICBM T1/T2 | | 205 | 205 |
| ICBM T3 | | 0 | 0 |
| Average Unit Cost BY10$M | | | |
| Component | Qty | Current Est | Baseline |
| ICBM T1/T2 | 2 | 43 | 43 |
| ICBM T1/T3 | | - | - |

•Non-Recurring costs include Hardware Development & General Support.
•Average Unit Cost is calculated for missions on manifest FY10-15.

MDA ICBM Time Phased Estimate (as of 06-15-10)

| Costs TY $M | Sunk | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP Total | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| ICBM T1/T2 | | | 5 | 108 | 65 | 80 | 69 | 326 | 278 | 605 |
| ICBM T3 | | | | | | | 2 | 2 | 155 | 157 |
| Development Total | | | 5 | 108 | 65 | 80 | 70 | 328 | 433 | 762 |
| **Total Cost Estimate** | | | **5** | **108** | **65** | **80** | **70** | **328** | **433** | **762** |

## Time Phased Estimate Chart




| ICBM Cost Estimate Description Documentation | | | | |
|---|---|---|---|---|
| Cost Analysis Requirements Description | | | | |
| CARD approval date: 06/01/2010 | | | | |
| Updated Annually | | | | |
| Program Cost Estimate (FY10 - FY15) | | | | |
| Date Approved: 06/03/2010 | | | | |
| Life Cycle Cost Estimate (BY10$M) | | | | |
| | Current Estimate | | Baseline | Variance |
| | To Go | Total | | |
| Development | 308 | 308 | 308 | |
| *ICBM T1/T2* | *307* | *307* | *307* | |
| *ICBM T3* | *1* | *1* | *1* | |
| **Total Life Cycle** | **308** | **308** | **308** | |
| Explanation of Variance | | | | |

Does not include Launch execution, Range Support & Logistics

~~FOUO~~

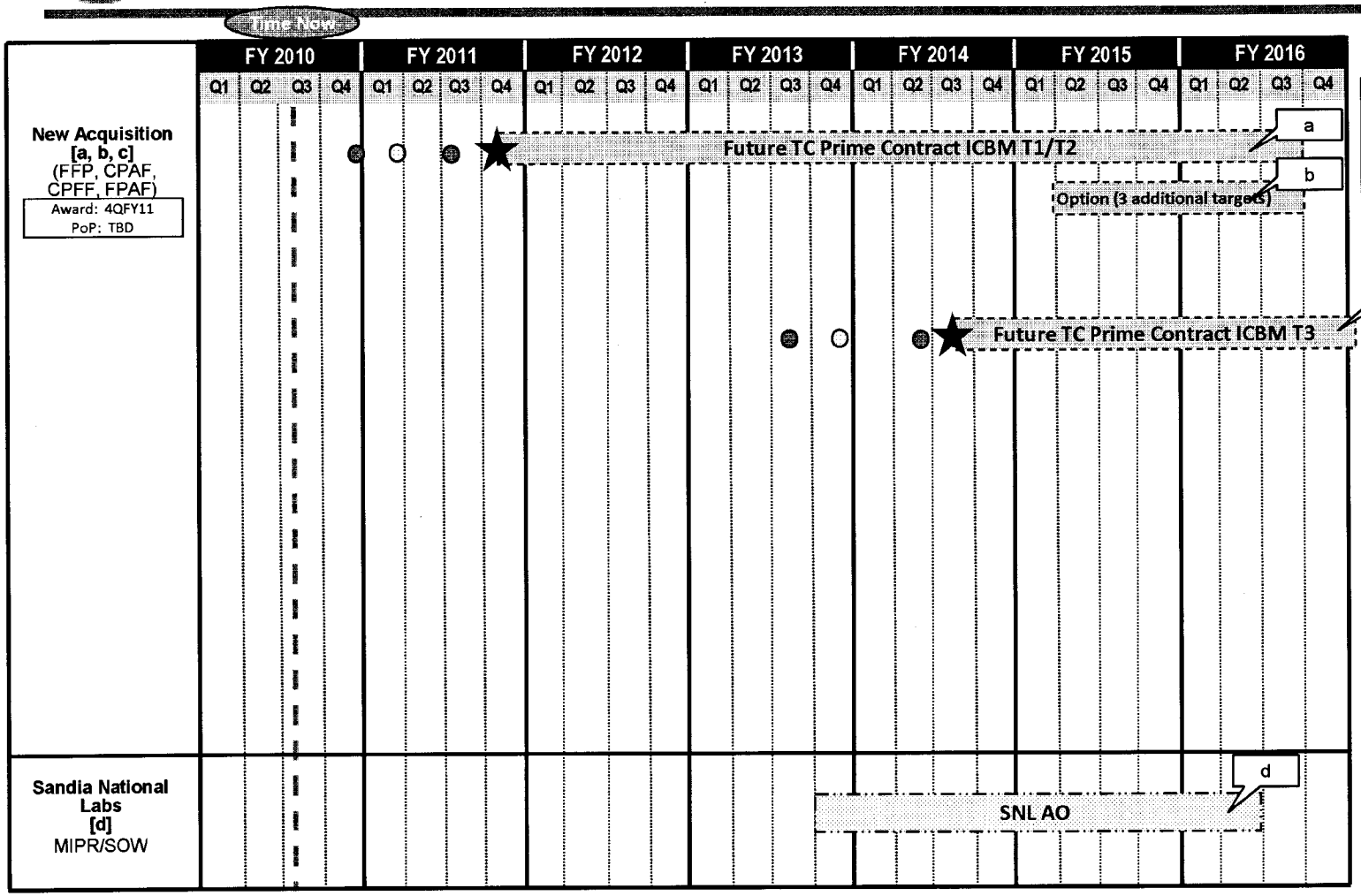
Approved: (b)(2), (b)(5)

Attachment 4

Contract Baseline

# ICBM Program
# Contract Baseline (U)

~~FOUO~~




| Capability on Contract | |
|---|---|
| a | 3 ICBM T1/T2 Targets |
| b | 3 ICBM T1/T2 Targets |
| c | 1 ICBM T3 Target |
| d | Family 1C AOs Delivered |

Legend
- Negotiations Complete
- RFP Release
- Major Contract Mod
- Pending Contract Mod
- Proposal Receipt
- Contract Award
- Future Contract

~~FOUO~~

Prime | Non-Prime

(b)(6)

Attachment 5

## 3.6.2 IRBM (U)

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

DA

MEMORANDUM FOR PROGRAM DIRECTOR, TARGETS AND COUNTERMEASURES, MISSILE DEFENSE AGENCY

SUBJECT: Developmental Decision Memorandum for Targets and Countermeasures Intermediate Range Ballistic Missile (IRBM) Developmental Baseline Review (U)

(U) The attached schedule, technical, test, resource, and contract baselines and activities are approved for the Targets and Countermeasures (TC) IRBM Program.

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the TC acquisition will be implemented by the TC Program Office and documented in the Single Acquisition Management Plan. Baseline variances will be reported to the Director, MDA, and included in the annual BMDS Accountability Report.

~~(FOUO)~~ The following activities are directed to occur during the remainder of the TC IRBM Product Development Phase:

- IRBM T1/T2 Contract Award — 2QFY2011
- IRBM T1/T2 Qualification Testing Complete — 3QFY2013

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

Attachments:

1. TC Schedule Baseline (U). This document is "~~FOUO.~~"
2. TC Technical Baseline (U). This document is "~~SECRET.~~"
3. TC Test Baseline (U). This document is "~~FOUO.~~"
4. TC Resource Baseline (U). This document is "~~FOUO.~~"
5. TC LM Prime Earned Value Management Chart (U). This document is "~~FOUO.~~"
6. TC Contract Baseline (U). This document is "~~FOUO.~~"

cc:
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS
MDA/BC

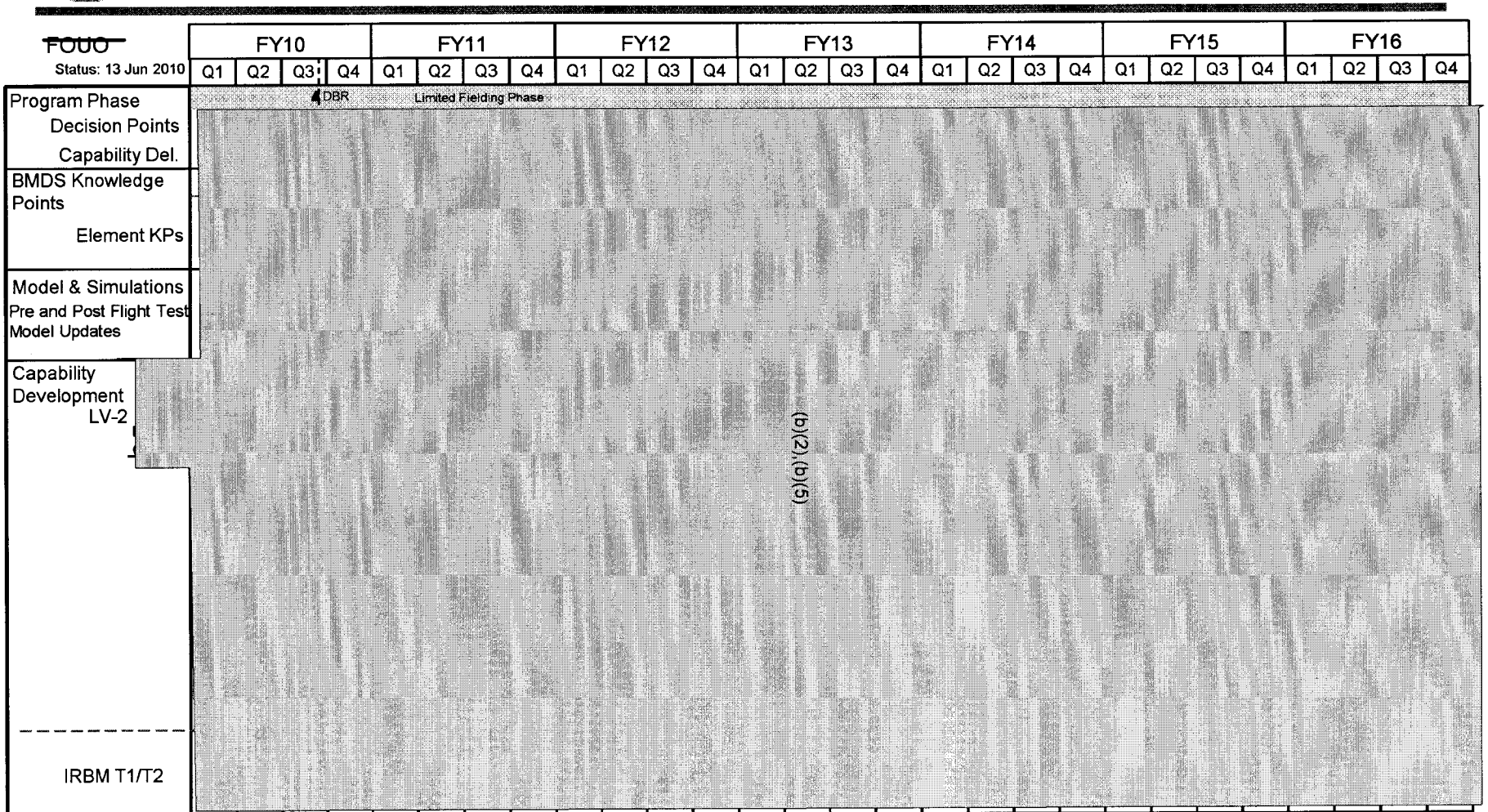
~~FOR OFFICIAL USE ONLY~~

Schedule Baseline

# IRBM Program
# Schedule Baseline (U)

~~FOUO~~

Status: 13 Jun 2010




Blue = KP #1 (LV-2) & events (U)
Green = KP #2 (LV-2) & events (U)
Brown = KP #3 (LV-2) & events (U)
Purple = KP #1 (IRBM T1) & events (U)
Orange = KP #2 (IRBM T1) & events (U)
Critical Milestones highlighted in Yellow (U)

Models & Sims
Purple = new development (U)
Black = re-use (U)

~~FOUO~~

(b)(6)

Attachment 1

~~FOR OFFICIAL USE ONLY~~

~~SECRET~~

Technical Baseline

# IRBM Program
# Technical Baseline (U)

## ~~SECRET~~ IRBM Target to TCC&R Comparison

| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |
|---|---|---|---|
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |

## Current Capabilities

**LV-2 System**

(b)(1),(b)(2),(b)(5)

~~SECRET~~ (U) IRBM T1/T2 Capability in Procurement – Configuration TBD

~~FOUO~~

## Knowledge Points

| KP # | Description | Demonstrated by | Complete |
|---|---|---|---|
| MDA/D KP | (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) | √ 31 Jan 2010 |
| LV-2 #1 | | | |
| LV-2 #2 | | | |
| LV-2 #3 | | | |
| IRBM T1/T2 #1 | | | |
| IRBM T1/T2 #2 | | | |

~~FOUO~~

Approved (b)(6)

Attachment 2

~~SECRET~~

~~FOR OFFICIAL USE ONLY~~

# IRBM Program
# Test Baseline (U)
## IAW IMTP 10.2 BMDS Test Baseline

**Test Baseline**

| ~~FOUO~~ System | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | | FY15 | | | | FY16 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| GMD | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GD / AA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AEGIS 3.6.1 (1A) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AEGIS 4.0.1 (1B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AEGIS 5.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AEGIS 4.0.1 ER (IIA) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| THAAD | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PATRIOT | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sensors | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| International | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ship Set Module Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LV-2 Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LV-2 Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IRBM T1/T2 Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IRBM T1/T2 Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Legend | △ Near-Term PAA Ph 1 FT ◯ Mid-Term PAA Ph 2 FT ◇ Far-Term PAA Ph 3 FT ◯ OT- Flight ☆ Knowledge Point ▲ Ship Set ◆ From Inventory *Associated Objects ~~FOUO~~ | | | | | | | | | | | | | | | | | | | | | | | | | | | |

(b)(2),(b)(6)

(b)(6)

Attachment 3

~~FOR OFFICIAL USE ONLY~~

# IRBM Target Program BMDS Accountability Report
# Resource Baseline Summary (U)

**Resource Baseline**

~~FOUO~~

| IRBM | | | |
|---|---|---|---|
| Non-Recurring BY10$M | | | |
| Component | | Current Est | Baseline |
| LV-2 | | 141 | 141 |
| IRBM | | 323 | 323 |
| Average Unit Cost BY10$M | | | |
| Component | Qty | Current Est | Baseline |
| LV-2 | 6 | 62 | 62 |
| IRBM | 6 | 40 | 40 |

•Non-Recurring costs include Hardware Development & General Support.
•Average Unit Cost is calculated for missions on manifest FY10-15.

MDA IRBM Time Phased Estimate ($ BY06-15-40)

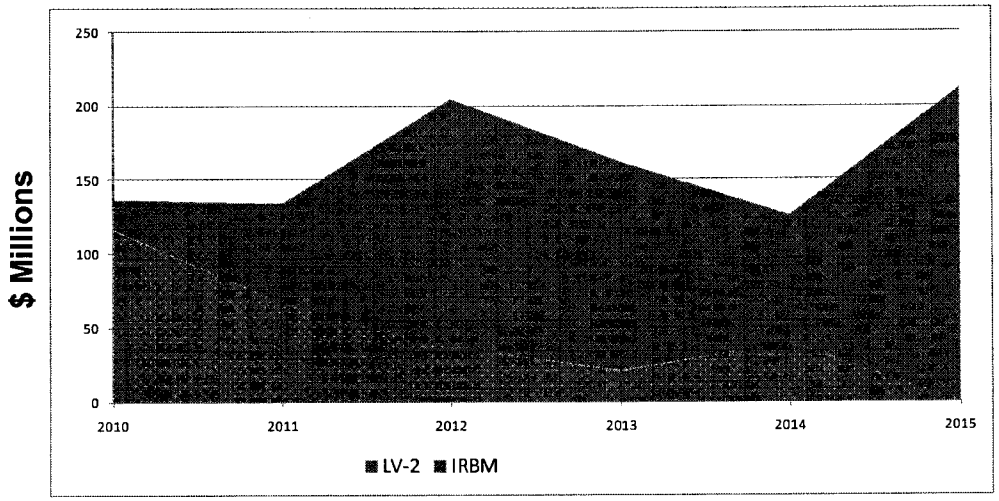
| Costs TY $M | Sunk | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP Total | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| LV-2 | 927 | 117 | 67 | 37 | 21 | 40 | | 281 | | 1,208 |
| IRBM | | 20 | 68 | 168 | 141 | 86 | 211 | 694 | 663 | 1,356 |
| Development Total | 927 | 136 | 134 | 205 | 162 | 126 | 211 | 974 | 663 | 2,564 |
| **Total Cost Estimate** | **927** | **136** | **134** | **205** | **162** | **126** | **211** | **974** | **663** | **2,564** |

| IRBM Cost Estimate Description Documentation | | | | |
|---|---|---|---|---|
| Cost Analysis Requirements Description | | | | |
| CARD approval date: 02/01/2010 | | | | |
| Updated Annually | | | | |
| Program Cost Estimate (FY10 - FY15) | | | | |
| Date Approved: 06/03/2010 | | | | |
| Life Cycle Cost Estimate (BY10$M) | | | | |
| | Current Estimate | | Baseline | Variance |
| | To Go | Total | | |
| Development | 926 | 926 | 926 | |
| *LV-2* | *273* | *273* | *273* | |
| *IRBM* | *653* | *653* | *653* | |
| **Total Life Cycle** | **926** | **926** | **926** | |
| Explanation of Variance | | | | |
| | | | | |

•Does not include Launch execution, Range Support & Logistics.

~~FOUO~~

## Time Phased Estimate Chart

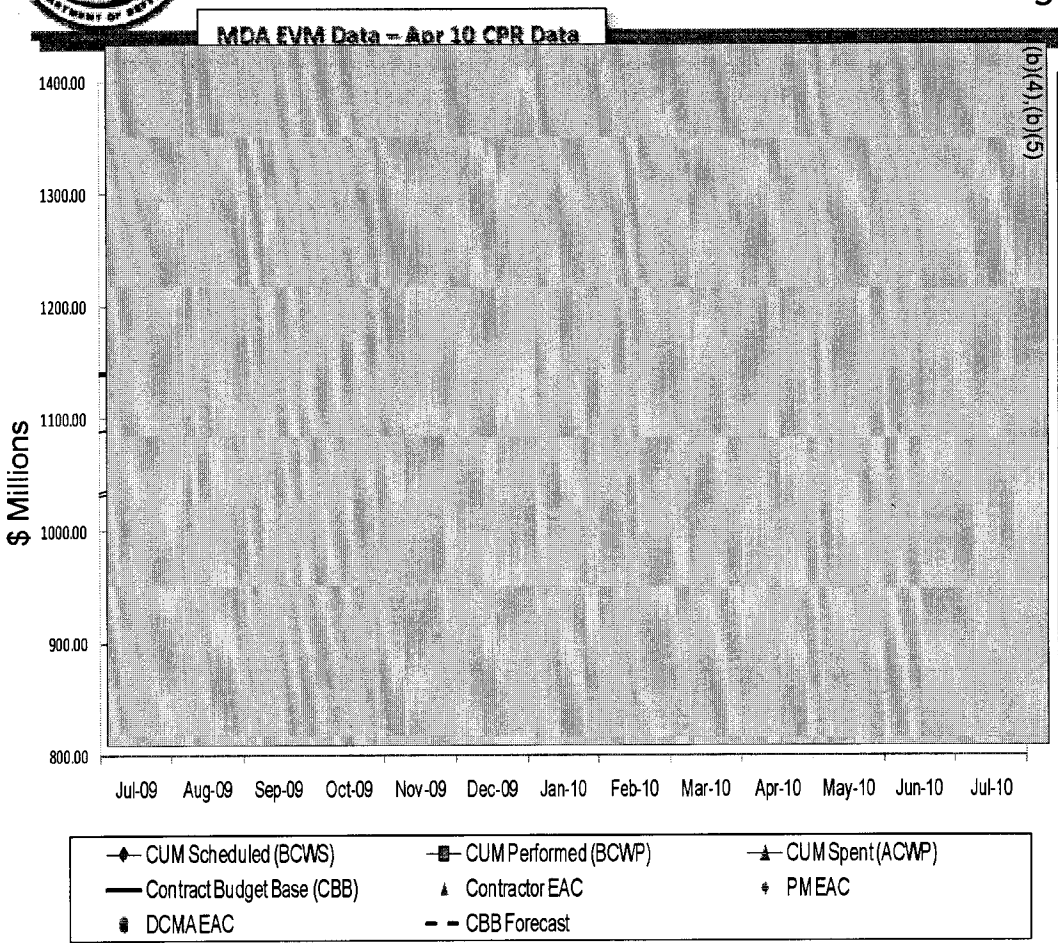



(b)(6)

# TC LM Prime Contract Schedule (U)

*Earned Value Management Data*

~~FOUO~~




## Key Cost/Schedule Variance Drivers, Impacts and Actions

**CPI** (b)(4),(b)(5) **SPI** (b)(4),(b)(5)

*Cumulative Cost Variance/Schedule Variance Cause, Impacts and Actions:*

(b)(4),(b)(5)

*Current Cost Variance:*

*Intermediate Range Ballistic Missile (IRBM):*

(b)(4),(b)(5)

*Current Schedule Variance:*

*IRBM:* (b)(4),(b)(5)

*Short Range Ballistic Missile (SRBM):* (b)(4),(b)(5)

•***High Level of Effort:***

(b)(4),(b)(5)

| Prime Contractor | Contract Type | CBB | Variances | Cumulative | Current Month | | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Lockheed Martin | CPAF | (b)(4),(b)(5) | SV | (b)(4),(b)(5) | (b)(4),(b)(5) | MDA | (b)(4),(b)(5) | |
| Period of Performance | Last IBR Date | % Complete | CV | | | KTR | | |
| Dec 2003 - Dec 2013 | 3/12/2010 | (b)(4),(b)(5) | Level of Effort (LOE) Percentage | | (b)(4),(b)(5) | DCMA | | |

(b)(6)

~~FOUO~~

~~FOR OFFICIAL USE ONLY~~

# IRBM Program Contract Baseline (U)

**Contract Baseline**

~~FOUO~~

Time Now

| | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|
| | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 |
| **Prime Contract [a, b, c, d, e]** (CPAF) HQ0006-04-D-0006 — Awarded: 9 Dec 2003; PoP: 8 Dec 2011 | Option 1 | | Option 2; Exercise Option 2 | | | | |
| **Hardware Delivery Order** (CPAF) — Awarded: 06 Jul 05; PoP: 31 Dec 10; Latest Mod: 26 Apr 10* | a; DO8 | a, b | | | | | |
| Awarded: 14 Jan 09; PoP: 07 Feb 11; Latest Mod: 3 May 10 | DO-22 | | DO-22 Mods (AI&T) | | c | | |
| **Data Analysis Delivery Order** (CPAF) — Awarded: 6 Nov 09; PoP: 15 Jan 12; Latest Mod: 16 Apr 10 | DO-24 | | d; DO-24 Mods (Planning & Analysis SS#5, SS#6) | | e | | |
| **New Acquisition [k, m] (FFP, FPAF, FPIF, CPAF, CPFF, CPIF)** — Award: 2QFY11; PoP: 2QFY15 | | Future TC Prime Contract IRBM | | | k | Option (6 additional targets); m | |
| **ATK Tech. Services [f]** (CPFF) W9113M-06-D-0002 — T/O Awarded: 17 Apr 09; PoP: 31 Oct 10; Latest Mod: 30 Apr 10 | f; Task Order 0005, C4 Aging & Surveillance Support | Future T/O Mod; Follow-on Contract (Annual Options) | | | | f | |
| **Sandia National Labs [g, h]** MIPR/SOW | SNL AO; g | SNL AO | h | | | | |
| **MIT/Lincoln Lab [i, j]** MIPR/SOW | MIT/LL AO | i; MIT/LL AO | j | | | | ~~FOUO~~ |

| Capability on Contract | |
|---|---|
| a | 6 LV-2 Ship Sets |
| b | 2 LV-2 Ship Set Integration |
| c | LV-2 SS Integration Options |
| d | 2 Data Analysis Efforts • Trajectories |
| e | LV-2 Data Analysis Options |
| f | Annual Aging & Surveillance Report |
| g | Family 1C AO Long Lead H/W |
| h | Family 1C & 1F AOs Deliv. |
| i | 1 Family 1G Prototype Developed |
| j | Family 1G AO Delivered |
| k | 8 IRBM T1 Ship Sets |
| m | 6 IRBM T1 Options |

*DO8 Mod for de-obligation of funds

Legend
- Negotiations Complete
- RFP Release
- Major Contract Mod
- Pending Contract Mod
- Proposal Receipt
- Contract Award
- Future Contract
- Current Status

Approved: [redacted] (b)(6)

Attachment 6 — Prime | Non-Prime

~~FOR OFFICIAL USE ONLY~~

## 3.6.3 MRBM (U)

**DEPARTMENT OF DEFENSE**
**MISSILE DEFENSE AGENCY**
**7100 DEFENSE PENTAGON**
**WASHINGTON, DC 20301–7100**

DA

MEMORANDUM FOR PROGRAM DIRECTOR, TARGETS AND COUNTERMEASURES, MISSILE DEFENSE AGENCY

SUBJECT: Developmental Decision Memorandum for Targets and Countermeasures Medium Range Ballistic Missile (MRBM) Developmental Baseline Review (U)

(U) The attached schedule, technical, test, resource, and contract baselines and activities are approved for the Targets and Countermeasures (TC) MRBM Program.

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the TC acquisition will be implemented by the TC Program Office and documented in the Single Acquisition Management Plan. Baseline variances will be reported to the Director, MDA, and included in the annual BMDS Accountability Report.

~~(FOUO)~~ The following activities are directed to occur during the remainder of the TC MRBM Product Development Phase:

| | |
|---|---|
| • Future MRBM T1 Contract Award | 1QFY2012 |
| • MRBM T3 Contract Award | 1QFY2012 |
| • E-LRALT Ship Set #1 to Inventory | 2QFY2012 |
| • eMRBM Ship Set #1 to Inventory | 3QFY2012 |
| • MRBM T1 Ship Set #1 to Inventory | 2QFY2014 |
| • MRBM T3 Ship Set #1 to Inventory | 3QFY2014 |

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

Attachments:

1. TC Schedule Baseline (U). This document is "~~FOUO.~~"
2. TC Technical Baseline (U). This document is "~~SECRET.~~"
3. TC Test Baseline (U). This document is "~~FOUO~~."
4. TC Resource Baseline (U). This document is "~~FOUO.~~"
5. TC Earned Value Management Charts (U). This document is "~~FOUO.~~"
6. TC Contract Baseline (U). This document is "~~FOUO.~~"

cc:
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS
MDA/BC

~~FOR OFFICIAL USE ONLY~~

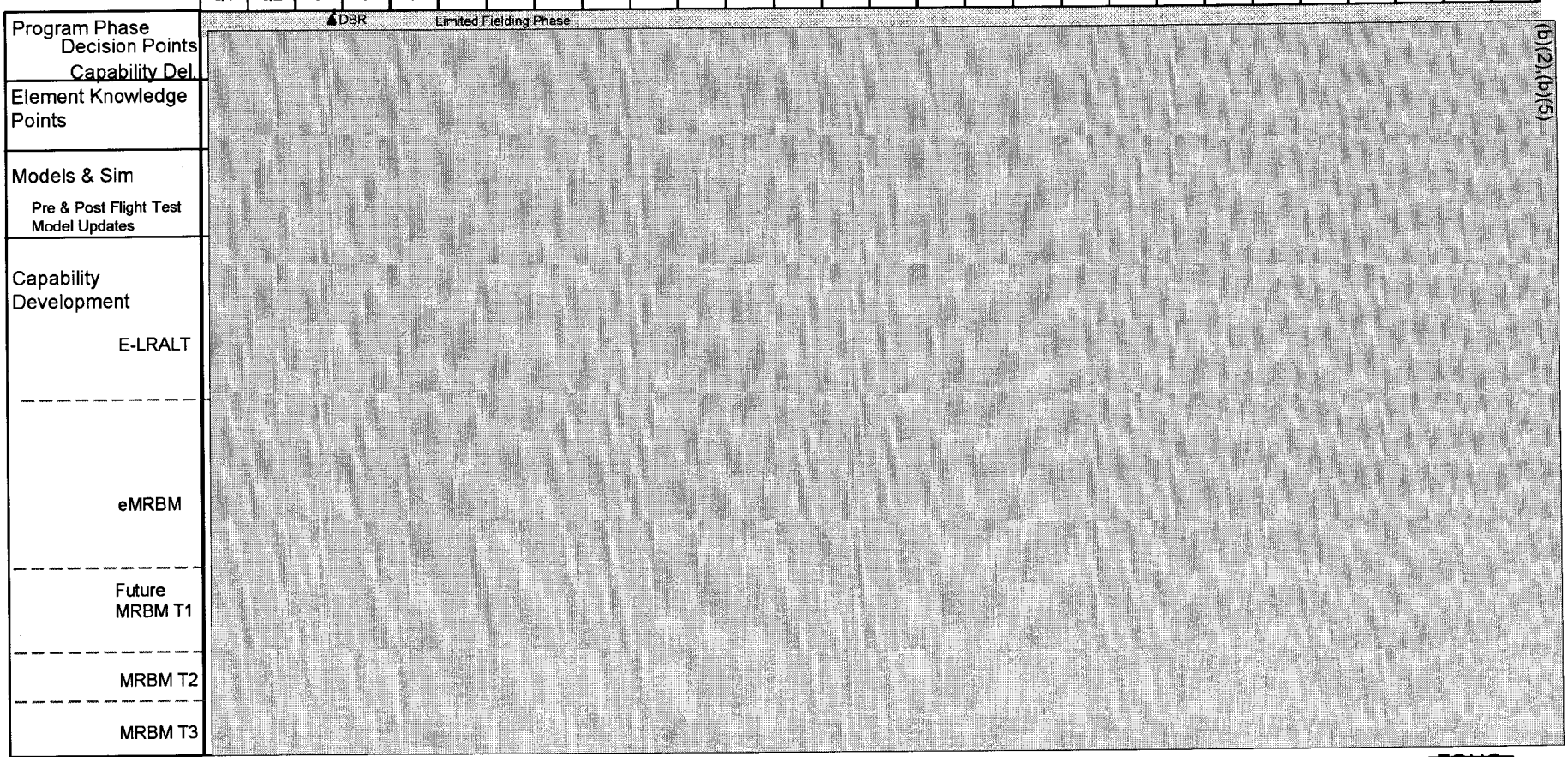
# MRBM Program
# Schedule Baseline (U)

**Schedule Baseline**

~~FOUO~~

Status: 13 Jun 2010

| | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | | FY15 | | | | FY16 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |




~~FOUO~~

(b)(6)

Blue = KP #1 (E-LRALT) & events (U)
Green = KP #2 (E-LRALT) & events (U)
Brown = KP #3 (E-LRALT) & events (U)
Purple = KP #4 (eMRBM) & events (U)

Models & Sims
Purple = new development (U)
Black = re-use (U)

Attachment 1

Critical Milestones highlighted in Yellow (U)

~~FOR OFFICIAL USE ONLY~~

~~SECRET~~

# MRBM Program Technical Baseline (U)

## MRBM Target to TCC&R Comparison

(b)(1),(b)(2),(b)(5)

(b)(1),(b)(2),(b)(5)

(b)(1),(b)(2),(b)(5)

(b)(1),(b)(2),(b)(5)

(b)(1),(b)(2),(b)(5)

(b)(1),(b)(2),(b)(5)

(b)(1),(b)(2),(b)(5)

(b)(1),(b)(2),(b)(5)

## MRBM Capability

**eMRBM**

(b)(1),(b)(2),(b)(5)

**eLRALT**

(b)(1),(b)(2),(b)(5)

**MRBM**

(b)(1),(b)(2),(b)(5)

~~SECRET~~

## Knowledge Points

| KP # | Description | Demonstrated by | Complete |
|---|---|---|---|
| MRBM #1 | | (b)(1),(b)(2),(b)(5) | |
| MRBM #2 | | | |
| MRBM #3 | | | |
| MRBM #4 | | | |

~~FOUO~~

Approved: (b)(6)

Attachment 2

~~SECRET~~

~~FOR OFFICIAL USE ONLY~~

# MRBM Program
# Test Baseline (U)
## IAW IMTP 10.2 BMDS Test Baseline 20100614 1400 (U)

**Test Baseline**

| ~~FOUO~~ System | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | | FY15 | | | | FY16 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | 1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| GMD | Time Now > | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GD / AA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AEGIS 3.6.1 (1A) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AEGIS 4.0.1 (1B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AEGIS 5.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AEGIS 4.0.1 ER (IIA) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| THAAD | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PATRIOT | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sensors | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| International | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E-LRALT Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E-LRALT Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| eMRBM Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| eMRBM Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Future MRBM T1 Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Future MRBM T1 Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MRBM T2 Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MRBM T2 Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MRBM T3 Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MRBM Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Legend | Near-Term PAA Ph 1 FT; Mid-Term PAA Ph 2 FT; Far-Term PAA Ph 3 FT; OT- Flight; From Inventory; *Associated Objects | | | | | | | | | | | | | | | | | | | | | | | | | | | |

(b)(2)(b)(5)

~~FOUO~~

Approved: (b)(6)

Attachment 3

~~FOR OFFICIAL USE ONLY~~

# MRBM Target Program BMDS Accountability Report
# Resource Baseline Summary (U)

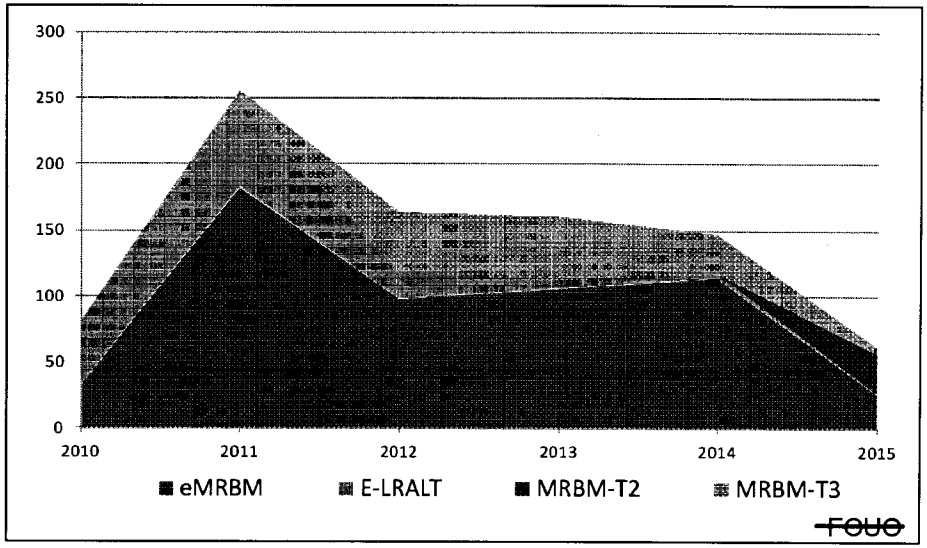
**Resource Baseline**

| MRBM ~~FOUO~~ | | | |
|---|---|---|---|
| Non-Recurring BY10$M | | | |
| Component | | Current Est | Baseline |
| eMRBM | | 236 | 236 |
| E-LRALT | | 91 | 91 |
| MRBM-T2 | | 28 | 28 |
| MRBM-T3 | | 86 | 86 |
| Average Unit Cost BY10$M | | | |
| Component | Qty | Current Est | Baseline |
| eMRBM | 9 | 29 | 29 |
| E-LRALT | 2 | 41 | 41 |
| MRBM-T3 | 2 | 21 | 21 |

•Non-Recurring costs include Hardware Development & General Support.
•Average Unit Cost is calculated for missions on manifest FY10-15.

| MRBM Time Phased Estimate (as of 06-24-2010) ~~FOUO~~ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Costs TY $M** | **Sunk** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **FYDP Total** | **To Complete** | **Total** |
| eMRBM | - | 32 | 183 | 98 | 106 | 114 | 27 | 560 | 132 | 692 |
| E-LRALT | 46 | 49 | 64 | 20 | 6 | 3 | - | 143 | - | 189 |
| MRBM-T2 | - | - | - | - | - | - | 30 | 30 | 109 | 140 |
| MRBM-T3 | - | - | 8 | 45 | 48 | 30 | 6 | 138 | 65 | 203 |
| Development Total | 46 | 81 | 256 | 164 | 161 | 147 | 63 | 871 | 306 | 1224 |
| **Total Cost Estimate** | **46** | **81** | **256** | **164** | **161** | **147** | **63** | **871** | **306** | **1224** |
| **Funding Delta** | - | - | - | - | - | - | - | - | | |

## Time Phased Estimate Chart




| MRBM Cost Estimate Description Documentation ~~FOUO~~ | | | |
|---|---|---|---|
| Cost Analysis Requirements Description | | | |
| CARD approval date: 02/01/2010 | | | |
| Updated Annually | | | |
| Program Cost Estimate (FY10 - FY15) | | | |
| Date Approved: 6/03/2010 | | | |
| Life Cycle Cost Estimate (BY10$M) | | | |
| Current Estimate | Current Estimate To Go | Current Estimate Total | Baseline Variance |
| Development | 837 | 837 | 837 |
| *eMRBM* | *538* | *538* | *538* |
| *E-LRALT* | *140* | *140* | *140* |
| *MRBM-T2* | *28* | *28* | *28* |
| *MRBM-T3* | *131* | *131* | *131* |
| **Total Life Cycle** | **837** | **837** | **837** |
| Explanation of Variance | | | |

•Does not include Launch execution, Range Support & Logistics.

Cost baselines for targets are treated differently because of uncertainty about the quantity of targets needed for testing beyond the FYDP period. As a result, "to complete" costs are not included in cost baselines for targets.

Attachment 4



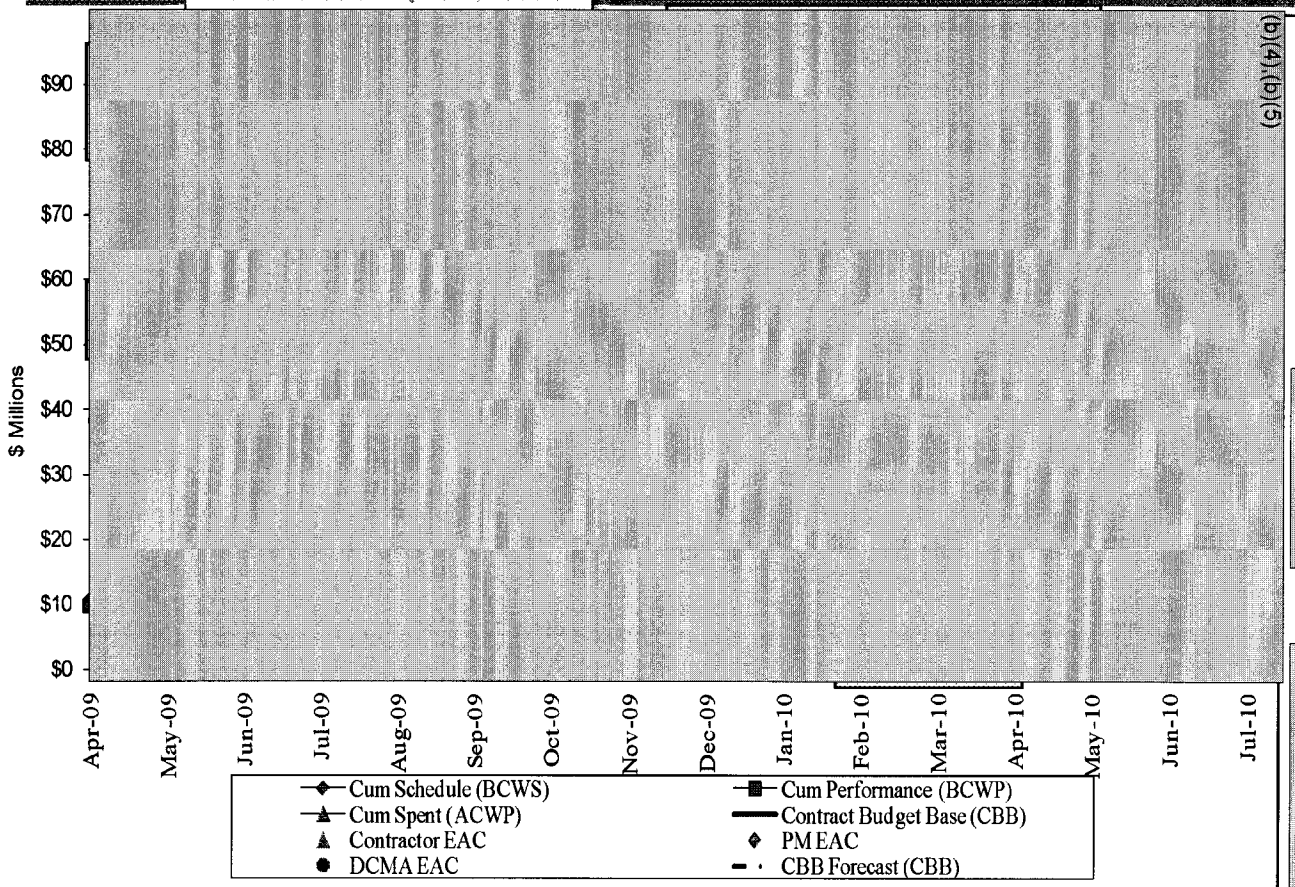
(b)(6)

# TC E-LRALT Target Design (U)

*Earned Value Management Data*

~~FOUO~~

MDA EVM Data – Apr 10 CPR Data




## Key Cost/Schedule Variance Drivers, Impacts and Actions

CPI (b)(4),(b)(5) SPI (b)(4),(b)(5)

Cum Schedule Variance

(b)(4),(b)(5)

Cum Cost Variance

(b)(4),(b)(5)

Current Cost Variance
Primarily attributed to:

(b)(4),(b)(5)

| Prime Contractor | Contract Type | CBB | Variances | Cumulative | Current Month | | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| L3/Coleman Aerospace Corp | CPIF | (b)(4),(b) | SV | (b)(4),(b)(5) | (b)(4),(b) | MDA | (b)(4),(b)(5) | |
| Period of Performance | Last IBR Date | % Complete | CV | | | KTR | | |
| Jun 2008 - Oct 2010 | TBD | (b)(4),(b) | Level of Effort (LOE) Percentage: | | | DCMA | | |

~~FOUO~~

(b)(6)

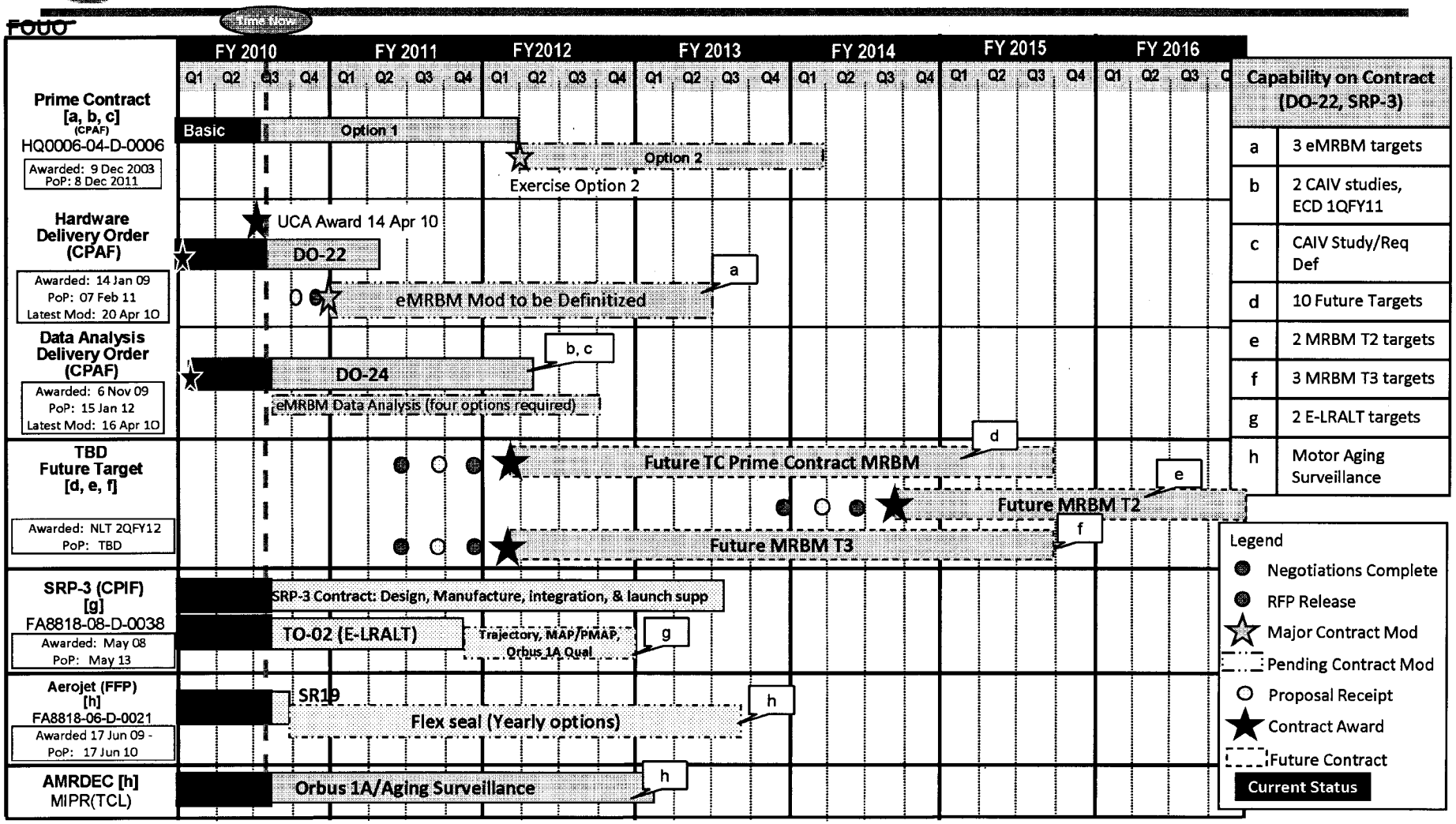
Attachment 5

~~FOR OFFICIAL USE ONLY~~

# MRBM Program
# Contract Baseline (U)

**Contract Baseline**

~~FOUO~~




| Capability on Contract (DO-22, SRP-3) | |
|---|---|
| a | 3 eMRBM targets |
| b | 2 CAIV studies, ECD 1QFY11 |
| c | CAIV Study/Req Def |
| d | 10 Future Targets |
| e | 2 MRBM T2 targets |
| f | 3 MRBM T3 targets |
| g | 2 E-LRALT targets |
| h | Motor Aging Surveillance |

~~FOUO~~

Attachment 6

~~FOR OFFICIAL USE ONLY~~

Approved: [redacted] (b)(6)

## 3.6.4 SRBM (U)

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301–7100

DA

MEMORANDUM FOR PROGRAM DIRECTOR, TARGETS AND COUNTERMEASURES, MISSILE DEFENSE AGENCY

SUBJECT: Developmental Decision Memorandum for Targets and Countermeasures Short Range Ballistic Missile (SRBM) Developmental Baseline Review (U)

(U) The attached schedule, technical, test, resource, and contract baselines and activities are approved for the Targets and Countermeasures (TC) SRBM Program.

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the TC acquisition will be implemented by the TC Program Office and documented in the Single Acquisition Management Plan. Baseline variances will be reported to the Director, MDA, and included in the annual BMDS Accountability Report.

~~(FOUO)~~ The following activities are directed to occur during the remainder of the TC SRBM Product Development Phase:

- Aegis Readiness Assessment Vehicle (ARAV)-C AO Capable Delta CDR 3QFY2010
- Deliver 2 FMA-2s 1QFY2011
- Short Range Air Launch Target (SRALT) Return to Flight (RTF) 2QFY2011
- Deliver 3 Medium Range Targets (MRT) 3QFY2011
- Deliver 5 Foreign Material Acquisition (FMA)-1s 3QFY2012
- Deliver 4 SRALTs 3QFY2012
- Deliver 4 ARAV-As 2QFY2013
- Deliver 6 ARAV-Bs 4QFY2014
- Deliver 6 ARAV-Cs 4QFY2014

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

Attachments:

1. TC Schedule Baseline (U). This document is ~~"FOUO."~~
2. TC Technical Baseline (U). This document is ~~"SECRET."~~
3. TC Test Baseline (U). This document is ~~"FOUO."~~
4. TC Resource Baseline (U). This document is ~~"FOUO."~~
5. TC Earned Value Management Charts (U). This document is ~~"FOUO."~~
6. TC Contract Baseline (U). This document is ~~"FOUO."~~

cc:
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS
MDA/BC

# SRBM Program Schedule Baseline (U)

**Schedule Baseline**

Status: 14 Jun 2010

| | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | | FY15 | | | | FY16 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |

Limited Fielding Phase

Program Phase Decision Points
- Coleman Aerospace
- Return to Fligh

Element Knowledge Points

Models & Sim
- Pre & Post Flight Test Model Updates

Capability Development
- FMA-1
- FMA-2
- MRT
- ARAV-A
- ARAV-B
- ARAV-C
- SRALT

Ship set #3 to inventory

(b)(2),(b)(5)

(b)(6)

Attachment 1

Blue = KP#2 and Events
Green = KP#3 and Events

Critical Milestones highlighted in Yellow

Technical Baseline

# SRBM Program Technical Baseline (U)

~~SECRET~~

## SRBM Target to TCC&R Comparison (U)

[redacted] (b)(1),(b)(2),(b)(5)

~~SECRET~~

~~FOUO~~

## Knowledge Points (U)

| KP # | Description | Demonstrated by | Complete |
|---|---|---|---|
| SRBM #1 | [redacted] (b)(1),(b)(2),(b)(5) | | √ 26 Jan 2010 |
| SRBM #2 | | | |
| SRBM #3 | | | |

~~FOUO~~

Approved [redacted] (b)(6)

~~FOR OFFICIAL USE ONLY~~

# SRBM Program
# Test Baseline (U)
## IAW IMTP 10.2 BMDS Test Baseline

**Test Baseline**

| ~~FOUO~~ System | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | | FY15 | | | | FY16 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| GMD | | Time Now > | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GD / AA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AEGIS 3.6.1 (1A) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AEGIS 4.0.1 (1B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AEGIS 5.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AEGIS 4.0.1 ER (IIA) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| THAAD | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PATRIOT | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sensors | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| International | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Technology | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FMA-1 Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FMA-1 Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FMA-2 Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FMA-2 Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MRT Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MRT Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ARAV-A Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ARAV-A Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ARAV-B Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ARAV-B Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ARAV-C Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ARAV-C Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SRALT Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SRALT Inventory | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

(b)(2),(b)(5)

Legend: Near-Term PAA Ph 1 FT; Mid-Term PAA Ph 2 FT; Far-Term PAA Ph 3 FT; OT- Flight; Tech FT; From Inventory; *Associated Objects

~~FOUO~~

(b)(6)

Attachment 3

~~FOR OFFICIAL USE ONLY~~

# SRBM Target Program BMDS Accountability Report
# Resource Baseline Summary (U)

Resource Baseline

~~FOUO~~

## SRBM Unit Cost Baseline

| Non-Recurring BY10$M | | | Average Unit Cost BY10$M | | | |
|---|---|---|---|---|---|---|
| Component | Current Est | Baseline | Component | Qty | Current Est | Baseline |
| ARAV-A | 3 | 3 | ARAV-A | 4 | 2 | 2 |
| ARAV-B | 20 | 20 | ARAV-B | 6 | 3 | 3 |
| ARAV-C | 39 | 39 | ARAV-C | 6 | 17 | 17 |
| FMA | 9 | 9 | FMA | 7 | 6 | 6 |
| MRT | 3 | 3 | MRT | 3 | 16 | 16 |
| SRALT | 42 | 42 | SRALT | 4 | 27 | 27 |

•Non-Recurring costs include Hardware Development & General Support.
•Average Unit Cost is calculated for missions on manifest FY10-15.

## MDA SRBM Time Phased Estimate (As of 6-15-2010)

| Costs TY $M | Sunk | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP Total | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| ARAV-A | 1 | - | 2 | 7 | 0 | - | - | 9 | - | 10 |
| ARAV-B | 3 | 14 | 2 | 6 | 3 | 14 | 0 | 39 | - | 42 |
| ARAV-C | 50 | 41 | 49 | 10 | 15 | 18 | 2 | 135 | 79 | 264 |
| FMA | 111 | 5 | 4 | 0 | 11 | 9 | 0 | 30 | 6 | 147 |
| MRT | 187 | 1 | 9 | - | - | - | - | 10 | - | 196 |
| SRALT | 63 | 35 | 11 | 15 | 11 | 2 | 28 | 103 | 22 | 188 |
| Development Total | 415 | 95 | 76 | 39 | 41 | 43 | 31 | 326 | 107 | 848 |
| **Total Cost Estimate** | **415** | **95** | **76** | **39** | **41** | **43** | **31** | **326** | **107** | **848** |

## SRBM Cost Estimate Description Documentation

**Cost Analysis Requirements Description**

CARD approval date: 02/01/2010
Updated Annually

**Program Cost Estimate FY10-FY15**

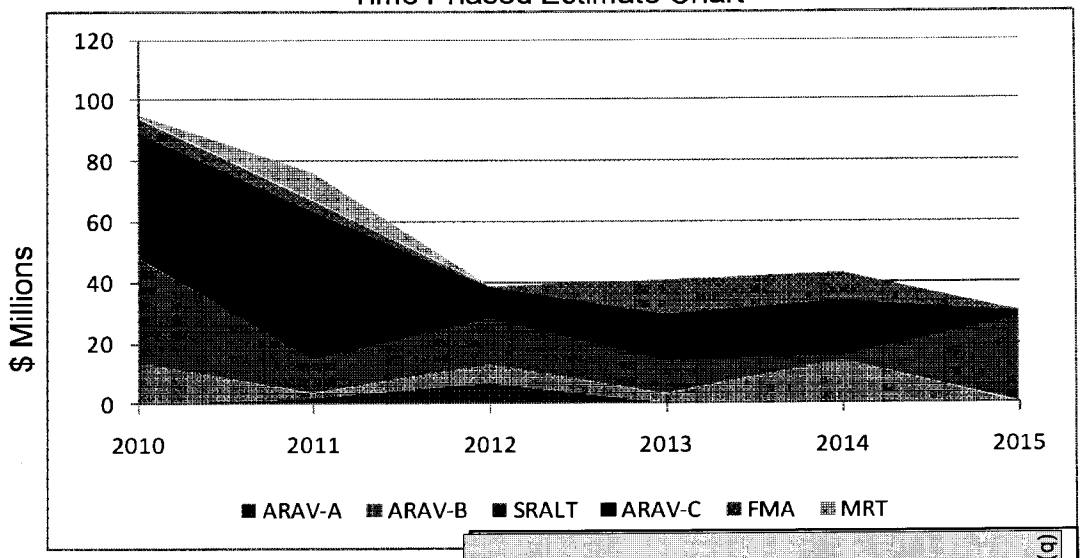
Date Approved: 06/03/2010
Life Cycle Cost Estimate (BY10$M)

| | Current Estimate To Go | Current Estimate Total | Baseline | Variance |
|---|---|---|---|---|
| Development | 317 | 317 | 317 | |
| *ARAV-A* | *9* | *9* | *9* | |
| *ARAV-B* | *38* | *38* | *38* | |
| *ARAV-C* | *132* | *132* | *132* | |
| *FMA* | *29* | *29* | *29* | |
| *MRT* | *10* | *10* | *10* | |
| *SRALT* | *99* | *99* | *99* | |
| **Total Life Cycle** | **317** | **317** | **317** | |

**Explanation of Variance**

•Does not include Launch execution, Range Support & Logistics.

## Time Phased Estimate Chart




(b)(6)

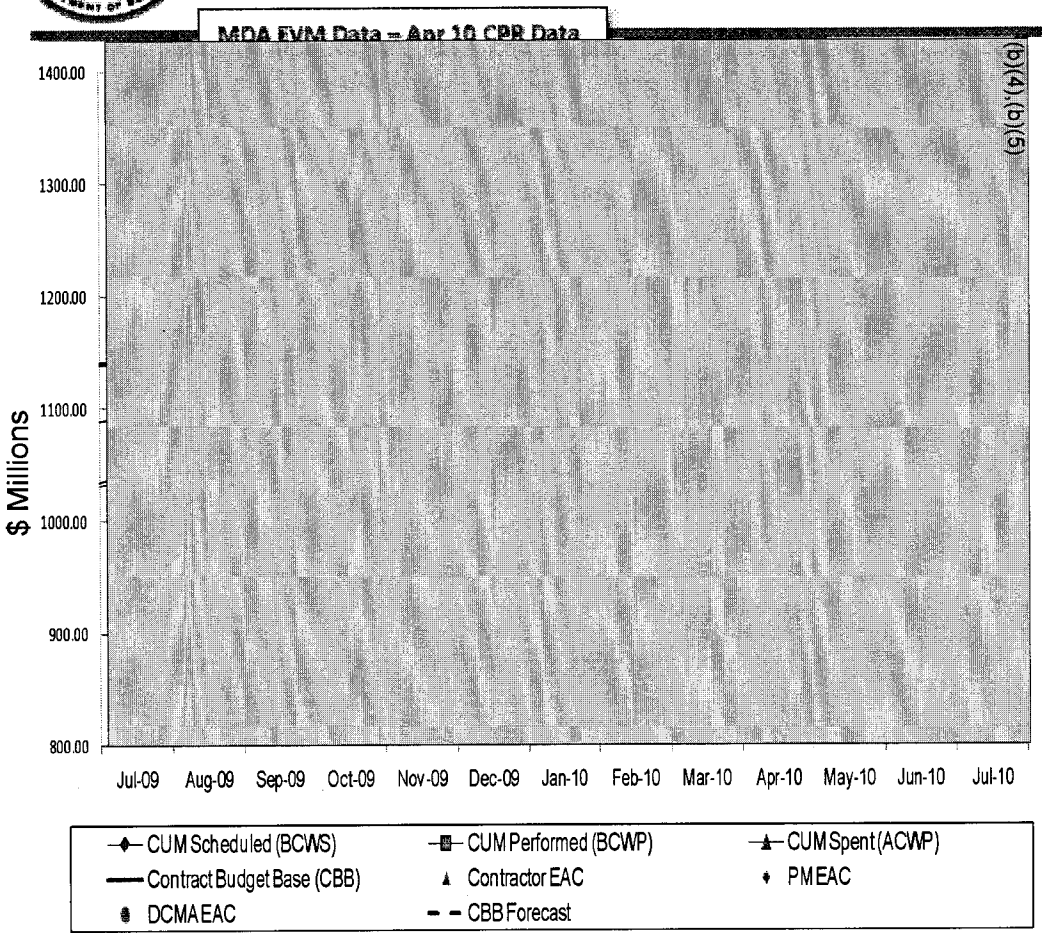
~~FOUO~~

~~FOR OFFICIAL USE ONLY~~

# TC LM Prime Contract Schedule (U)

*Earned Value Management Data*

~~FOUO~~




## Key Cost/Schedule Variance Drivers, Impacts and Actions

**CPI** (b)(4),(b)(5) **SPI** (b)(4),(b)(5)

*Cumulative Cost Variance/Schedule Variance Cause, Impacts and Actions:*

(b)(4),(b)(5)

*Current Cost Variance:*
*Intermediate Range Ballistic Missile (IRBM):*

(b)(4),(b)(5)

*Current Schedule Variance:*
*IRBM:*

(b)(4),(b)(5)

***•High Level of Effort:***

(b)(4),(b)(5)

| Prime Contractor | Contract Type | CPR | Variances | Cumulative | Current Month | | EAC | VAC |
|---|---|---|---|---|---|---|---|---|
| Lockheed Martin | CPAF | (b)(4),(b) | SV | (b)(4),(b)(5) | | MDA | | (b)(4),(b)(5) |
| Period of Performance | Last IBR Date | % Complete | CV | | | KTR | | |
| Dec 2003 - Dec 2013 | 3/12/2010 | (b)(4),(b) | Level of Effort (LOE) Percentage | (b)(4),(b) | | DCMA | | |

(b)(6)

~~FOUO~~



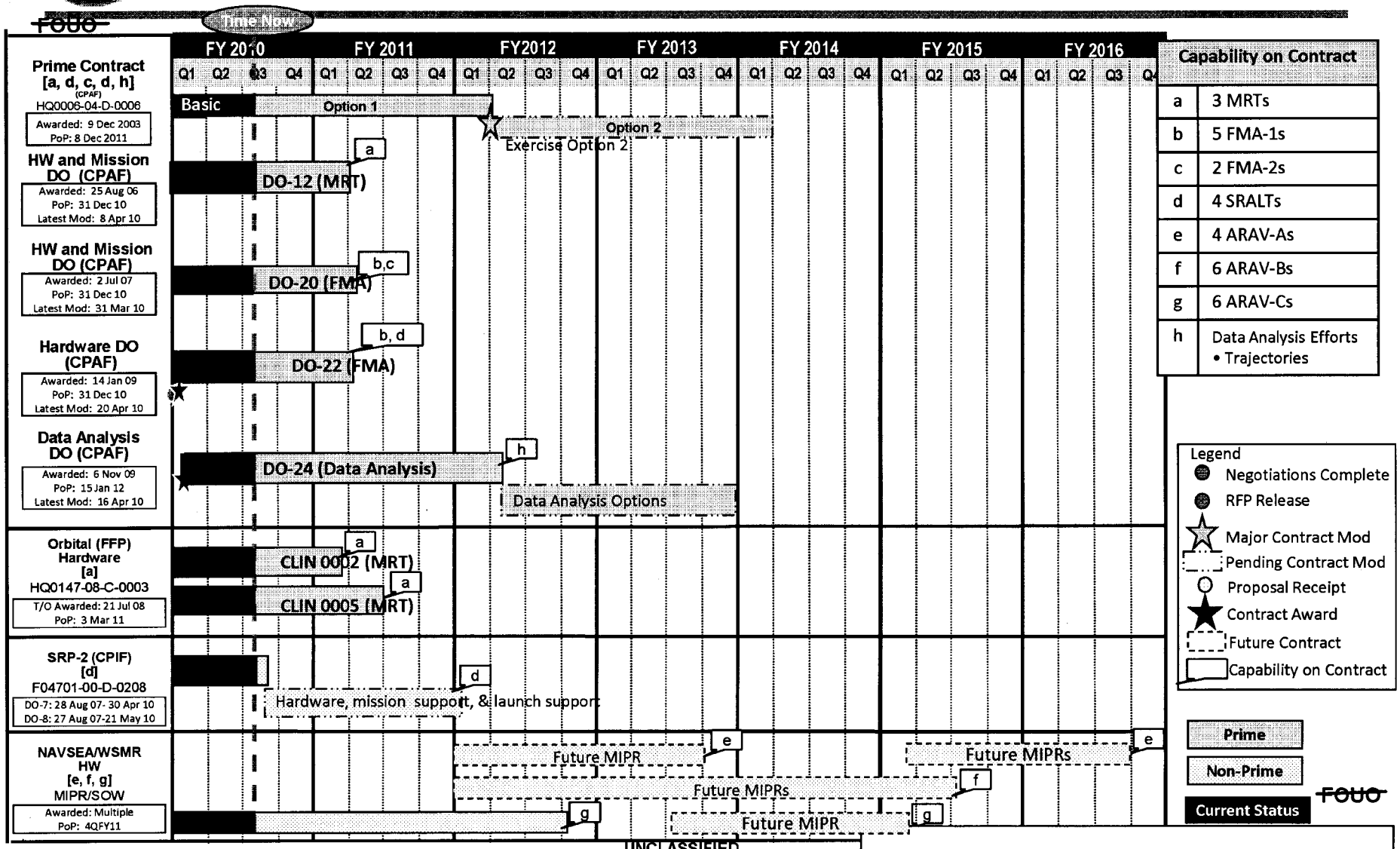
~~FOR OFFICIAL USE ONLY~~

~~FOR OFFICIAL USE ONLY~~

# SRBM Program
# Contract Baseline (U)

**Contract Baseline**

~~FOUO~~




~~FOUO~~

UNCLASSIFIED

~~FOR OFFICIAL USE ONLY~~

Approved: Original Signed by Ms. McFarland Date: June 24, 2010
Katharina G. McFarland, Director of Acquisition

## 3.7.1 David's Sling Weapons System (U)

~~SECRET~~

**DEPARTMENT OF DEFENSE**
**MISSILE DEFENSE AGENCY**
**7100 DEFENSE PENTAGON**
**WASHINGTON, DC 20301-7100**

DA

JUN 25 2010

MEMORANDUM FOR PROGRAM MANAGER, DAVID'S SLING WEAPON SYSTEM

SUBJECT: Developmental Decision Memorandum for David's Sling Weapon System (DSWS) Developmental Baseline Review (U)

(U) The attached resource, schedule, technical, test and contract baselines and activities are approved for the continued development of the David's Sling Weapon System Program.

(U) Changes to the BMDS baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. Any PCB-approved changes that impact the acquisition will be tracked by the MDA/IP Program Office, documented in its System Acquisition Master Plan (SAMP), and baseline variances will be reported to the Director, MDA. Variances from the BMDS baseline will be reported in the annual BMDS Accountability Report (BAR). The DSWS developmental baseline charts are at Attachments 1 through 6.

(b)(1) [redacted]

- (b)(1) [redacted]

(U) I approve the exit criteria presented in the review, listed in Attachment 6, and expect a Development Baseline Review 2QFY2011.

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

Attachments:

1. David's Sling Weapon System Schedule Baseline (U). This document is "~~SECRET.~~"
2. David's Sling Weapon System Technical Baseline (U). This document is "~~SECRET.~~"
3. David's Sling Weapon System Test Baseline (U). This document is "~~SECRET.~~"
4. David's Sling Weapon System Resource Baseline (U). This document is "~~FOUO.~~"
5. David's Sling Weapon System Contract Baseline (U). This document is "~~FOUO.~~"
6. David's Sling Weapon System Exit Criteria (U). This document is "~~FOUO.~~"

cc:
MDA/IP
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS

Schedule Baseline

# David's Sling Block 1 Schedule Baseline*(U)

| ~~SECRET~~ CY | 08 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|
| FY | | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| Program Phase<br>Design Reviews<br>Decision Points | | | | | | | | |
| Knowledge Points<br>(Definition in-progress in new PA) | | | | | | | | |
| Software Builds | | | | | | | | |
| Capability Development | | | | | | | | |
| Test and Evaluation<br>(DSWS Not in IMTP)<br>Flight Tests<br>Radar Field Tests | | | | | | | | |
| Initial Lot Production Planning | | | | | | | | |

(b)(1),(b)(3):10 USC §130c

(b)(6)

(b)(1), (b)(3):10 USC §130c

Attachment 1

Critical Milestones highlighted in Yellow

# DSWS Program Technical Baseline* (U)

Technical Baseline

## Current and Future Capabilities

### DSWS Block 1

(b)(1),(b)(3):10 USC §130c

### DSWS Block 2

(b)(1),(b)(3):10 USC §130c

### DSWS Block 3

(b)(1),(b)(3):10 USC §130c

(b)(1),(b)(3):10 USC §130c

## Knowledge Points**

| KP # | Description | Demon-strated By | Complete |
|---|---|---|---|
| 1.0 | (b)(1),(b)(3):10 USC §130c | (b)(1),(b)(3):10 USC §130c | |
| 1.1 | | | |
| 1.2 | | | |
| 1.3 | | | |
| 2.0 | | | |
| 2.1 | | | |
| 2.2 | | | |
| 2.3 | | | |
| 2.4 | | | |
| 2.5 | | | |
| 3.0 | | | |
| 3.1 | | | |
| 3.2 | | | |
| 3.3 | | | |
| 4.0 | | | |
| 4.1 | | | |
| 4.2 | | | |
| 4.3 | | | |
| 4.4 | | | |
| 5.0 | | | |
| 5.1 | | | |
| 6.0 | | | |
| 6.1 | | | |
| 6.2 | | | |

**Pending signature of new DSWS Project Agreement

Approved (b)(6)

Attachment 2

# DSWS Program
# Test Baseline* (U)
## Not Included in IMTP

Test Baseline

SECRET

| David's Sling Weapon System | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | | FY15 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| **Test Events** | | | | | | | | | | | | | | | | | | | | | | | | |
| System/Element Flight Tests | | | | | | | | | | | | | | | | | | | | | | | | |
| System Level GT | | | | | | | | | | | | | | | | | | | | | | | | |
| Chamber/Lab/ Simulation | | | | | | | | | | | | | | | | | | | | | | | | |

(b)(1),(b)(3):10 USC §130c

**Summary Information**

Test Description / Primary Objectives*

(b)(1),(b)(3):10 USC §130c

(b)(1), (b)(3):10 USC §130c

(b)(1), (b)(3):10 USC §130c

Acquisition Phase Test Configuration

(b)(1),(b)(3):10 USC §130c

SECRET

*Element Flight Test Pending
CECs: Critical Engagement Conditions
EMEs: Empirical Measurement Events
KP: Knowledge Point

PAA Phase 1 Flight Test
Near-Term Flight Test
Mid-Term Flight Test
Far-Term Flight Test

PAA Phase 1 Ground Test
Near-Term Ground Test
Mid-Term Ground Test
Far-Term Ground Test

Operational Flight Test
Operational Ground Test

Approved: (b)(6)

~~FOR OFFICIAL USE ONLY~~

# David's Sling Weapon System (DSWS) Block 1
# BMDS Accountability Report
# Resource Baseline Summary (U)

**Resource Baseline**

~~FOUO~~

**David's Sling Weapon System (DSWS) Unit Cost Baseline**

| Program Acquisition Unit Costs | | (b)(3):10 USC §130c | |
|---|---|---|---|
| Component | Qty | Current Est | Baseline |
| | | | |

| Average Procurement Unit Costs | | (b)(3):10 USC §130c | |
|---|---|---|---|
| Component | Qty | Current Est | Baseline |
| | | | |

| Program Acquisition Costs | | (b)(3):10 USC §130c | |
|---|---|---|---|
| Component | | Current Est | Baseline |
| | | | |

**David's Sling Weapon System (DSWS) Time Phased Estimate as of 06-16-2010**

| Costs TY $M | Sunk | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP Total | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |

(b)(3):10 USC §130c

**David's Sling Weapon System (DSWS) Cost Estimate Description Documentation**

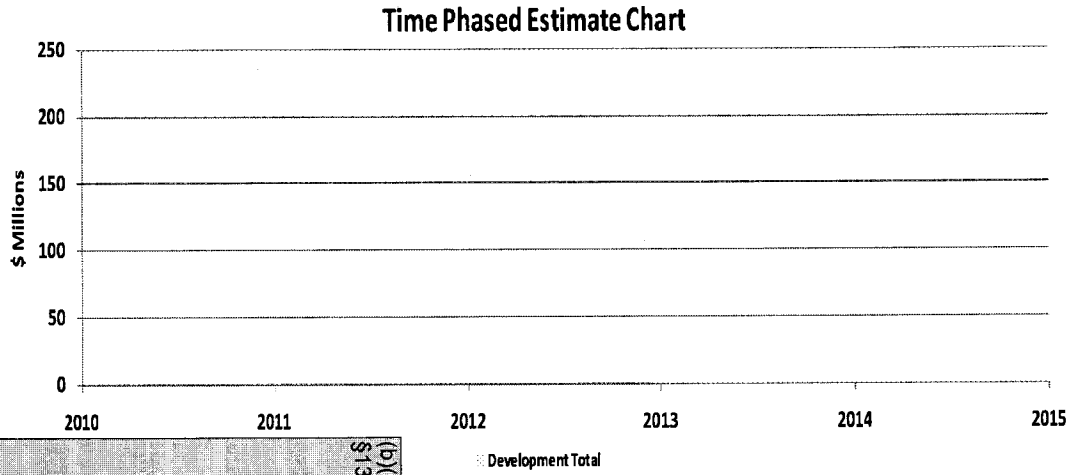
| Cost Analysis Requirements Description | (b)(3):10 USC §130c |
|---|---|
| | |

Life Cycle Cost Estimate

(b)(3):10 USC §130c

Explanation of Variance

(b)(3):10 USC §130c




Approved: (b)(6)

~~FOUO~~
Attachment 4

~~FOR OFFICIAL USE ONLY~~

# David's Sling Program
# DBR Contract Baseline* (U)

**Contract Baseline**

~~FOUO~~

Time Now

| | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|---|---|
| | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 |
| **Systems Engineering and Launch Site (CPFF)**<br>Awarded: 1 Jan 07<br>PoP End: 31 Dec 10<br>Annual Scope Mods | a | b | c | d | e |
| **BMC Development Contract (CPFF)**<br>Awarded: 1 Jan 07<br>PoP End: 31 Dec 10<br>Annual Scope Mods | a | b | c | d | e |
| **Radar Development Contract (CPFF)**<br>Awarded: 1 Jan 07<br>PoP End: 31 Dec 10<br>Annual Scope Mods | a | b | c | d | e |

(b)(3):10 USC §130c

(b)(3):10 USC §130c

Legend
- Negotiations Complete
- Proposal Receipt
- Capability on Contract
- RFP Release
- Major Contract Mod
- Contract Award
- Pending Contract Mod
- Future Contract

**Capability on Contract (David's Sling Weapon System (DSWS))**

| | |
|---|---|
| A | (b)(3):10 USC §130c |
| B | |
| C | |
| D | |
| e | |

Approved: (b)(6)

~~FOUO~~

Exit Criteria

# DSWS
# Product Development Exit Criteria (U)

~~FOUO~~

| # | Exit Criteria | Baseline | Status | Risk |
|---|---|---|---|---|
| 1 | (b)(3):10 USC §130c | | | |
| 1a | | (b)(3):10 USC §130c | (b)(3):10 USC §130c | (b)(3):10 USC §130c |
| 1b | | | | |
| 2 | | | | |
| 2a | | | | |
| 2b | | | | |
| 2c | | | | |
| 2d | | | | |
| 3 | | | | |
| 3a | | | | |
| 3b | | | | |

~~FOUO~~

Risk to Execution
Low
Medium
High
Y

### 3.7.2 Arrow 3 (U)

**DEPARTMENT OF DEFENSE**
**MISSILE DEFENSE AGENCY**
**7100 DEFENSE PENTAGON**
**WASHINGTON, DC 20301-7100**

DA

JUN 25 2010

MEMORANDUM FOR PROGRAM MANAGER, ARROW-3

SUBJECT: Development Decision Memorandum for Arrow-3 Developmental Baseline Review (U)

(U) The attached resource, schedule, technical, test and contract baselines and activities are approved for the continued development of the Arrow-3 Program.

(U) Changes to the BMDS baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. Any PCB-approved changes that impact the acquisition will be tracked by the MDA/IP Program Office, documented in its System Acquisition Master Plan (SAMP), and baseline variances will be reported to the Director, MDA. Variances from the BMDS baseline will be reported in the annual BMDS Accountability Report (BAR). The Arrow-3 developmental baseline charts are at Attachments 1 through 5.

(b)(1) [redacted]

(b)(1) [redacted]

(U) I approve the exit criteria presented in the review, listed in Attachment 6, and expect an initial production decision in second quarter of FY12.

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

Attachments:

1. Arrow-3 Schedule Baseline (U). This document is "~~SECRET~~."
2. Arrow-3 Technical Baseline (U). This document is "~~SECRET~~."
3. Arrow-3 Test Baseline (U). This document is "~~SECRET~~."
4. Arrow-3 Resource Baseline (U). This document is "~~FOUO~~."
5. Arrow-3 Contract Baseline (U). This document is "~~FOUO~~."
6. Arrow-3 Exit Criteria (U). This document is "~~FOUO~~."

cc:
MDA/IP
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS

~~SECRET~~

# Upper Tier / Arrow-3 Schedule Baseline* (U)

Schedule Baseline

| ~~SECRET~~ CY | 08 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|
| FY | | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |

(b)(1),(b)(3):10 USC §130c

(b)(6)

(b)(1),(b)(3):10 USC §130c

Attachment 1

Critical Milestones highlighted in Yellow

~~SECRET~~

# Upper-Tier / Arrow-3 Program Technical Baseline* (U)

Technical Baseline

## Current and Future Capabilities

**Arrow-3**

(b)(1), (b)(3):10 USC §130c, (b)(5)

(b)(1),(b)(3):10 USC §130c,(b)(5)

~~Secret~~

**Arrow-3**

(b)(1), (b)(3):10 USC §130c, (b)(5)

(b)(1),(b)(3):10 USC §130c,(b)(5)

~~Secret~~

(b)(1), (b)(3):10 USC §130c, (b)(5)

Attachment 2

## Knowledge Points

| KP# | Description | Demon-strated By | Complete |
|---|---|---|---|
| 1.0 | (b)(1),(b)(3):10 USC §130c,(b)(5) | (b)(1),(b)(3):10 USC §130c,(b)(5) | |
| 1.1 | | | √ |
| 1.2 | | | √ |
| 1.3 | | | |
| 1.4 | | | |
| 1.5 | | | |
| 1.6 | | | |
| 2.0 | | | |
| 2.1 | | | √ |
| 2.2 | | | |
| 2.3 | | | √ |
| 2.4 | | | |
| 2.5 | | | |
| 2.6 | | | |
| 2.7 | | | |
| 3.0 | | | |
| 3.1 | | | √ |
| 3.2 | | | |
| 3.3 | | | |
| 3.4 | | | |
| 4.0 | | | |
| 4.1 | | | |
| 4.2 | | | |
| 4.3 | | | |

~~SECRET~~

Approved: (b)(6)

# Upper-Tier/Arrow-3 Program Test Baseline* (U)

IAW Current BMDS Test Baseline

Test Baseline

~~SECRET~~

[redacted]

| Upper-Tier / Arrow-3 | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | | FY15 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |

**Test Events**

(b)(1),(b)(3):10 USC §130c

**Summary Information**

Test Description / Primary Objectives*

(b)(1),(b)(3):10 USC §130c

(b)(1),(b)(3):10 USC §130c

Acquisition Phase Test Configuration

| Event | (b)(1),(b)(3):10 | (b)(1),(b)(3):10 | (b)(1),(b)(3):10 | (b)(1),(b)(3): |
|---|---|---|---|---|
| (b)(1),(b)(3): | | | | |
| (b)(1),(b)(3): | | | | |
| (b)(1),(b)(3):10 | | | | |
| (b)(1),(b)(3):10 US | | | | |
| (b)(1),(b)(3):10 US | | | | |

(b)(1),(b)(3):10 USC §130c

(b)(1),(b)(3):10 USC §130c

~~SECRET~~

*Element Flight Test Pending
CECs: Critical Engagement Conditions
EMEs: Empirical Measurement Events
KP: Knowledge Point

PAA Phase 1 Flight Test
Near-Term Flight Test
Mid-Term Flight Test
Far-Term Flight Test

PAA Phase 1 Ground Test
Near-Term Ground Test
Mid-Term Ground Test
Far-Term Ground Test

Operational Flight Test
Operational Ground Test

Approved (b)(6)

Attachment 3

# Arrow-3 BMDS Accountability Report

## Resource Baseline Summary (U)

**Resource Baseline**

~~FOUO~~

### Arrow-3 Unit Cost Baseline

Program Acquisition Unit Costs (b)(3):10 USC §130c

| Component | Qty | Current Est | Baseline |
|---|---|---|---|
| | | | |

Average Procurement Unit Costs (BY10$M) (b)(3):10 USC §130c

| Component | Qty | Current Est | Baseline |
|---|---|---|---|
| | | | |

Program Acquisition Costs (BY10$M) (b)(3):10 USC §130c

| Component | Current Est | Baseline |
|---|---|---|
| | | |

### Arrow-3 Cost Estimate Description Documentation

Cost Analysis Requirements Description (b)(3):10 USC §130c

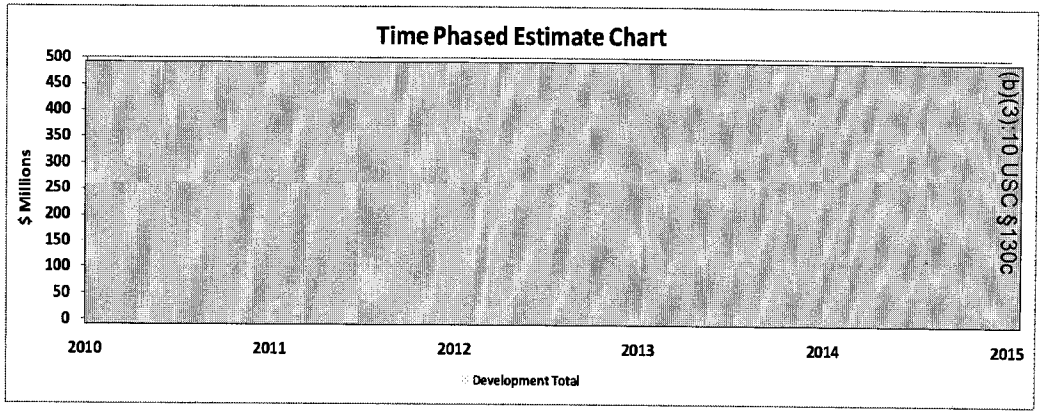
Life Cycle Cost Estimate

Explanation of Variance

### Arrow-3 Time Phased Estimate (as of 06-10-2010)

| Costs TY $M | Sunk | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP Total | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |

(b)(3):10 USC §130c




***Signed US/Israeli Program Agreement (PA) Pending***

(b)(3):10 USC §130c

~~FOUO~~

Approved: (b)(6)

# Israel Upper Tier Program DBR Contract Baseline* (U)

Contract Baseline

~~FOUO~~

Time Now

| | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|---|---|
| | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 |
| **Arrow-3 Development & Block 5 Integration Contract (CPFF)**<br>Awarded: 1 Jan 06<br>PoP End: 31 Dec 10<br>Annual Scope Mods | a | b | c | d | e |
| **Long Range Target Development Contract** (CPFF)**<br>Awarded: TBD<br>PoP End: TBD<br>Annual Scope Mods | | | f | g | h |

- All Contracts Awarded and Managed by the Israeli Missile Defense Organization (IMDO)
- MDA approves all scope changes in excess of $500K

Legend
- Negotiations Complete
- Proposal Receipt
- Capability on Contract
- RFP Release
- Major Contract Mod
- Contract Award
- Pending Contract Mod
- Future Contract

(b)(3):10 USC §130c

**Capability on Contract (Israel Upper Tier Interceptor)**

| | |
|---|---|
| a | |
| b | |
| c | |
| d | |
| e | |
| f | |
| g | |
| h | |

(b)(3):10 USC §130c

Approved (b)(6)

Exit Criteria

# Upper Tier / Arrow-3
# Product Development Exit Criteria (U)

~~FOUO~~

| # | Exit Criteria | Baseline | Status | Risk |
|---|---|---|---|---|
| 1 | | | | |
| 1a | (b)(3):10 USC §130c | | | |
| 1b | | | | |
| 2 | | | | |
| 2a | | | | |
| 2b | | (b)(3):10 USC §130c | | |
| 2c | | | | |
| 2d | | | | |
| 3 | | | | |
| 3a | | | (b)(3):10 USC §130c | |
| 3b | | | | (b)(3):10 USC §130c |

Risk to Execution
Low
Medium
High
Y

~~FOUO~~

Attachment 6

### 3.7.3 Arrow 2 Block 4 (U)

~~SECRET~~

**DEPARTMENT OF DEFENSE**
**MISSILE DEFENSE AGENCY**
**7100 DEFENSE PENTAGON**
**WASHINGTON, DC 20301-7100**

DA

JUN 25 2010

MEMORANDUM FOR PROGRAM MANAGER, ARROW BLOCK 4

SUBJECT: Development Decision Memorandum for Arrow Block 4 Developmental Baseline Review (U)

(U) The attached resource, schedule, technical, test and contract baselines and activities are approved for the continued development of the Arrow Block 4 Program.

(U) Changes to the BMDS baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. Any PCB-approved changes that impact the acquisition will be tracked by the MDA/IP Program Office, documented in its System Acquisition Master Plan (SAMP), and baseline variances will be reported to the Director, MDA. Variances from the BMDS baseline will be reported in the annual BMDS Accountability Report (BAR). The Arrow Block 4 developmental baseline charts are at Attachments 1 through 5.

(b)(1)

(b)(1)

(U) I approve the exit criteria presented in the review, listed in Attachment 6, and expect a Development Baseline Review 2QFY2011.

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

Attachments:

1. Arrow Block 4 Weapon System Schedule Baseline (U). This document is "~~SECRET.~~"
2. Arrow Block 4 Weapon System Technical Baseline (U). This document is "~~SECRET.~~"
3. Arrow Block 4 Weapon System Test Baseline (U). This document is "~~SECRET.~~"
4. Arrow Block 4 Weapon System Resource Baseline (U). This document is "~~FOUO.~~"
5. Arrow Block 4 Weapon System Contract Baseline (U). This document is "~~FOUO~~."
6. Arrow Block 4 Weapon System Exit Criteria (U). This document is "~~FOUO.~~"

cc:
MDA/IP
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS

~~SECRET~~

Schedule Baseline

# Arrow Block 4
# Schedule Baseline* (U)

| ~~SECRET~~ CY | 08 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|
| FY | | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |

(b)(1),(b)(3):10 USC §130c

(b)(6)

Attachment 1

Critical Milestones highlighted in Yellow

~~SECRET~~

# Arrow Block 4 Program Technical Baseline* (U)

Technical Baseline

~~SECRET~~

## Current and Future Capabilities

| Capability | |
|---|---|
| [redacted] | (b)(1),(b)(2),(b)(3):10 USC §130c,(b)(5) |

| Capability | |
|---|---|
| [redacted] | (b)(1),(b)(2),(b)(3):10 USC §130c,(b)(5) |

**(U) Not Part of Cooperative Program

## Knowledge Points†

| KP # | Description | Demon-strated by | Complete |
|---|---|---|---|
| 1.0 | [redacted] | (b)(1),(b)(2),(b)(3):10 USC §130c,(b)(5) | |
| 1.1 | | | |
| 1.2 | | | |

[redacted] (b)(1),(b)(2),(b)(3):10 USC §130c,(b)(5)

[redacted] (b)(1),(b)(2),(b)(3):10 USC §130c,(b)(5)

Approved [redacted] (b)(6)

# Arrow Block 4
# Test Baseline* (U)
## IAW Current BMDS Test Baseline

Test Baseline

~~SECRET~~

| Arrow Block 4 | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | | FY15 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Test Events | (b)(1),(b)(3):10 USC §130c | | | | | | | | | | | | | | | | | | | | | | | |
| Summary Information | Test Description / Primary Objectives* | | | | | | | | | | | | | | | | | | | | | | | |
| | (b)(1),(b)(3):10 USC §130c | | | | | | | | | | | | | | | | | | | | | | | |

Acquisition Phase Test Configuration

| Event | (b)(1),(b)(3):10 USC §130c | (b)(1),(b)(3):10 USC §130c | (b)(1),(b)(3):10 USC §130c | (b)(1),(b)(3):10 USC §130c |
|---|---|---|---|---|
| | (b)(1),(b)(3):10 USC §130c | | | |

~~SECRET~~

*Element Flight Test Pending
CECs: Critical Engagement Conditions
EMEs: Empirical Measurement Events
KP: Knowledge Point

PAA Phase 1 Flight Test
Near-Term Flight Test
Mid-Term Flight Test
Far-Term Flight Test

PAA Phase 1 Ground Test
Near-Term Ground Test
Mid-Term Ground Test
Far-Term Ground Test

Operational Flight Test
Operational Ground Test

Approved (b)(6)

# Arrow Block 4 Program
# PB 11 Budget Only* (U)

**Resource Baseline**

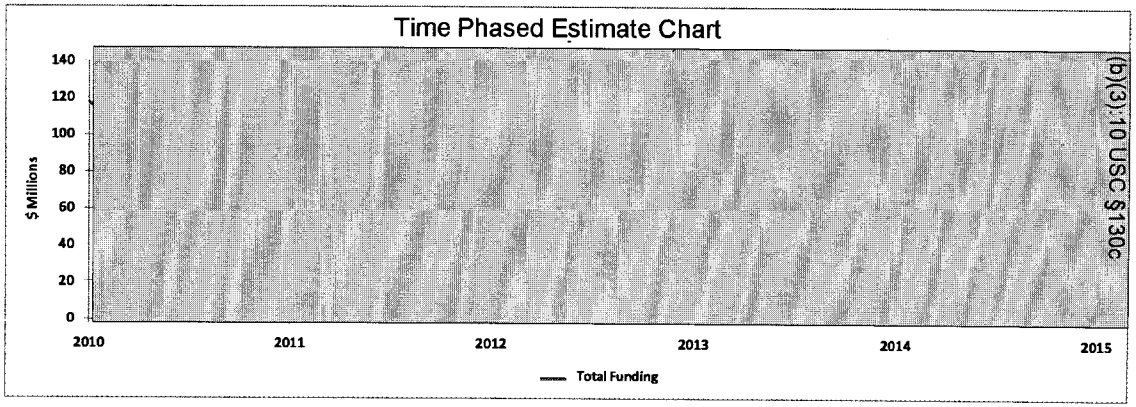
~~FOUO~~

(b)(3):10 USC §130c

Arrow Block 4 Time Phased Budget (as of 6/16/2010)

| Cost TY $M | Sunk | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | FYDP | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| (b)(3):10 USC §130c | | | | | | | | | (b)(3):10 USC §130c | (b)(3):10 |

Time Phased Estimate Chart




(b)(3):10 USC §130c

(b)(3):10 USC §130c

(b)(6)

~~FOUO~~

Attachment 4

~~FOR OFFICIAL USE ONLY~~

# Arrow Block 4 Program
# DBR Contract Baseline* (U)

Contract Baseline

~~FOUO~~

Time Now

FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013

Q1 Q2 Q3 Q4

**Systems Engineering & Launch Site Contract (CPFF)**

Awarded: 1 Jan 01
PoP End: 31 Dec 10
Annual Scope Mods

**BMC Development Contract (CPFF)**

Awarded: 1 Jan 01
PoP End: 31 Dec 10
Annual Scope Mods

**Radar Development Contract (CPFF)**

Awarded: 1 Jan 01
PoP End: 31 Dec 10
Annual Scope Mods

a b c d

- All Contracts Awarded and Managed by the Israeli Missile Defense Organization (IMDO)
- Status of Contracts Reported at Program In-Progress Reviews (3 Times per Year)

Legend

- Negotiations Complete
- Proposal Receipt
- Capability on Contract
- RFP Release
- Major Contract Mod
- Contract Award
- Pending Contract Mod
- Future Contract
- Work Complete

~~FOUO~~

(b)(3):10 USC §130c

| Capability on Contract | (b)(3):10 USC §130c |
|---|---|
| a | |
| b | |
| c | |
| d | |

(b)(3):10 USC §130c

Approved: (b)(6)

Attachment 5

~~FOR OFFICIAL USE ONLY~~

# Arrow Weapon System Block 4
# Product Development and Production Phases
# Exit Criteria (U)

Exit Criteria

~~FOUO~~

| # | Exit Criteria | Rationale | Status | Risk |
|---|---|---|---|---|
| 1 | System Performance Verified | | | |
| 1a | (b)(3):10 USC §130c | (b)(3):10 USC §130c | (b)(3):10 USC §130c | (b)(3):10 USC §130c |
| 1b | | | | |
| 1c | | | | |
| 1d | | | | |
| 2 | | | | |
| 2a | | | | |
| 2b | | | | |
| 2c | | | | |
| 2d | | | | |

~~FOUO~~

| Risk to Execution | |
|---|---|
| Low | |
| Medium | Y |
| High | |

Attachment 6

## 3.8.1 Precision Tracking and Space Surveillance (PTSS) (U)

~~SECRET~~

**DEPARTMENT OF DEFENSE**
**MISSILE DEFENSE AGENCY**
**7100 DEFENSE PENTAGON**
**WASHINGTON, DC 20301-7100**

JUN 29 2010

MEMORANDUM FOR PROGRAM MANAGER, PRECISION TRACKING SPACE SYSTEM

SUBJECT: Materiel Solutions Analysis Decision Memorandum for Precision Tracking Space System (PTSS) (U)

(U) I approve the plan and approach for the materiel solutions analysis (MSA) for the Precision Tracking Space System. I approve the attached initial technical, schedule, contracts, and resource objectives and plans and the MSA exit criteria.

(U) The following activities are directed to occur during the remainder of the PTSS MSA phase:

- System Concept Review Completion — 4QFY10
- Capability Planning Specification Delivery — 4QFY10
- Technology Development Decision — 1QFY11

(U) The PTSS Program Manager will provide quarterly reviews to assess progress of the analysis and updates to the objectives and plans. I expect to review the analysis in 1QFY11 to make a Technology Development Decision to transition PTSS to the Technology Development Phase.

Patrick J. O'Reilly

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

Attachments:
1. PTSS MSA Schedule Plan (U). This document is "~~FOUO.~~"
2. PTSS MSA Technical Objectives (U). This document is "~~SECRET.~~"
3. PTSS MSA Resources Plan (U). This document is "~~FOUO~~."
4. PTSS MSA Contracts Plan (U). This document is "~~FOUO.~~"
5. PTSS MSA Exit Criteria (U). This document is "~~FOUO.~~"

cc:
MDA/AB
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS

~~FOR OFFICIAL USE ONLY~~

Schedule Plan

# PTSS Schedule (U)

~~FOUO~~

Time Now

| | FY10 | | | | FY11 | | | | FY12 | | | | FY13 | | | | FY14 | | | | FY15 | | | | FY16 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| | O N D | J F M | A M J | J A S | O N D | J F M | A M J | J A S | O N D | J F M | A M J | J A S | O N D | J F M | A M J | J A S | O N D | J F M | A M J | J A S | O N D | J F M | A M J | J A S | O N D | J F M | A M J | J A S |
| **Milestones☆** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Mission System Engineering & Operations Testing △** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Performance Assessment △** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ***Ground Segment* ▲** Mission Operations Management Systems (MOMS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ground Entry Point (GEP) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Constellation Operations (COPS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ***Space Segment* ▲** **Payload** *Optical Payload* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Comm Payload △* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Spacecraft ▲** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Test Beds (TB) △** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Flight Software ▲** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

(b)(2)(b)(6)

(b)(6)

~~FOUO~~

Attachment 1

~~FOR OFFICIAL USE ONLY~~

# PTSS -- Technical Objectives (U)

~~FOUO~~ The Air & Missile Defense Prioritized Capabilities List of 18 March 2010 (U)

| Combatant Command Capability Needs | Enduring Capabilities |
|---|---|
| (b)(1),(b)(2),(b)(5) | (b)(1),(b)(2),(b)(5) |

## Future Capabilities

**Key Functions**

(b)(1),(b)(2),(b)(5)

**Interdependencies**

(b)(1),(b)(2),(b)(5)

~~FOUO~~

- (U) Develop 2 System Baseline spacecraft

(b)(1),(b)(2),(b)(5)

~~SECRET~~

~~FOUO~~

## Knowledge Points

| | KP # | Description | Demonstrated by | Complete |
|---|---|---|---|---|
| MS-A Phase | 1 | (b)(1),(b)(2),(b)(5) | | ☑ |
| | 2 | | | ☑ |
| | 3 | | | ☑ |
| | 4 | | | |
| Tech. Dev. Phase | 5 | | | |
| | 6 | | | |
| | 7 | | | |
| | 8 | | | |

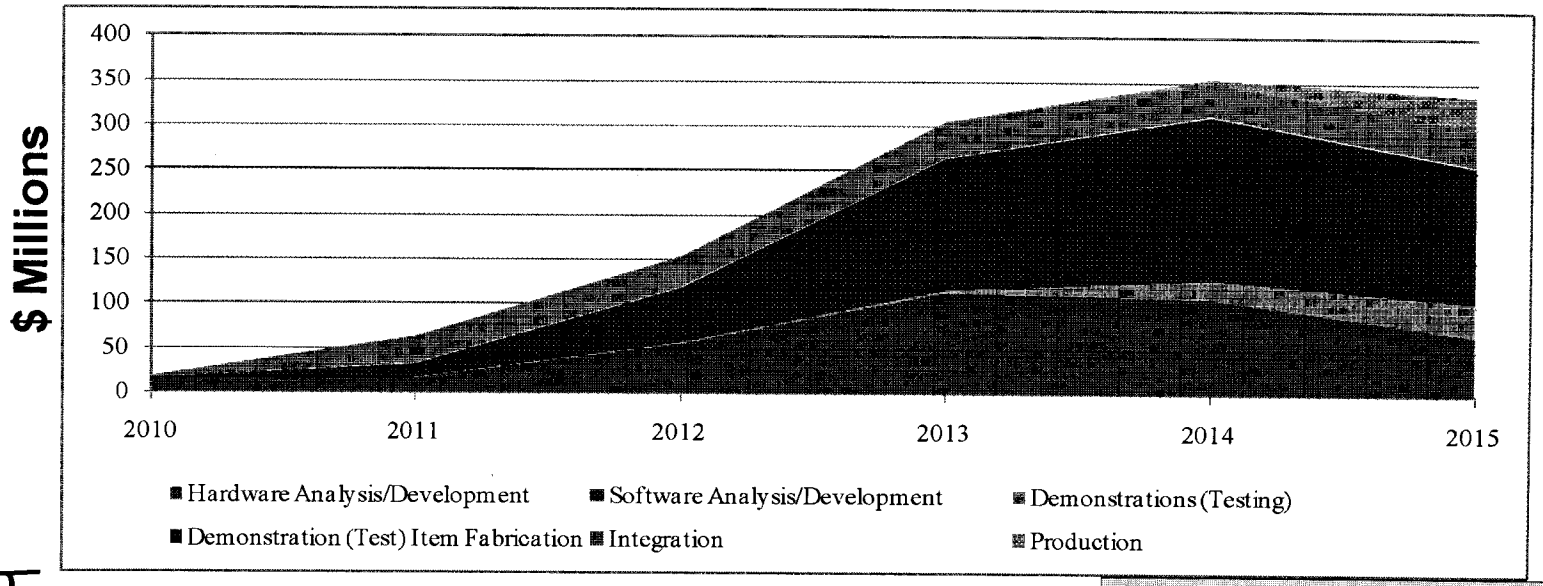
~~FOUO~~

# PTSS – Resource Plan (U)

~~FOUO~~

| Time Phased Estimate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Costs TY $M** | **Sunk** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **FYDP Total** |
| Hardware Analysis/Development | 2 | 17 | 18 | 46 | 93 | 86 | 55 | 315 |
| Software Analysis/Development | | | 0 | 11 | 22 | 22 | 13 | 68 |
| Demonstrations (Testing) | | | 1 | 1 | 3 | 22 | 38 | 64 |
| Demonstration (Test) Item Fabrication | | | 15 | 61 | 148 | 182 | 152 | 559 |
| Integration | 6 | 3 | 31 | 34 | 41 | 37 | 42 | 187 |
| Production | | | | | | 5 | 36 | 41 |
| **Cost Estimate** | 8 | 20 | 65 | 154 | 305 | 354 | 336 | 1233 |

**Time Phased Estimate Chart**

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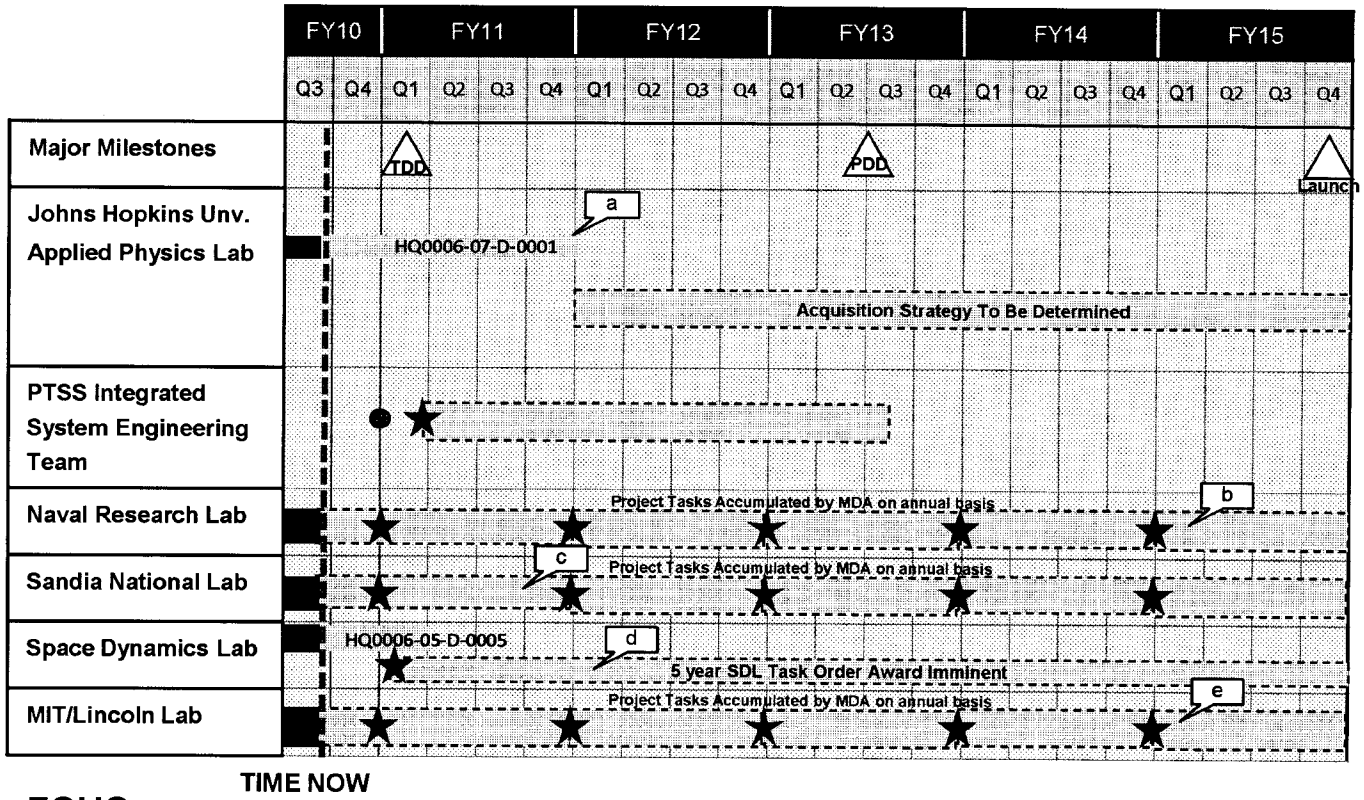
Approved: (b)(6)

# PTSS - Contracts Plan (U)

~~FOUO~~




| Contract and MIPRs Deliverables/Content | |
|---|---|
| a | Lead Developer |
| b | RF/COMM & Tracking, Telemetry & Commanding Payload |
| c | Processing System Support |
| d | Optics Payload |
| e | Scheduling Algorithms & Test Support |

**LEGEND**

- Acq Events/Milestones
- RFP Release
- Proposal Receipt
- Negotiations Complete
- Major Contract mod
- Contract/MIPR Award
- Contract delivery/content
- Period of Performance
- Future/Pending Contract

**Current Status**

~~FOUO~~

Approved: (b)(6)

# Exit Criteria from Materiel Solution Analysis Phase (U)

~~FOUO~~

| Exit Criteria | Baseline Component | Required For Technology Development Decision |
|---|---|---|
| **1) Define an operational concept** | | |
| 1 A) Developmental ops concept approved at System Concept Review | Operational | G |
| **2) Identify competitive alternative materiel solutions** | | |
| 2 A) Alternatives available at System Concept Review | Technical | G |
| **3) Establish current critical technology maturity** | | |
| 3 A) Identify knowledge points for Tech Dev Phase | Technical | G |
| **4) Adequate funding for technology developments** | | |
| 4A) Approved budget for Tech Dev Phase<br>4B) Prepared Cost Analysis Requirements Document | Resource | G |

~~FOUO~~

**Risk to Execution**
Low
Medium
High

## 3.8.2 Aegis SM-3 Block IIB (U)

~~SECRET~~

**DEPARTMENT OF DEFENSE**
**MISSILE DEFENSE AGENCY**
**7100 DEFENSE PENTAGON**
**WASHINGTON, DC 20301-7100**

JUN 29 2010

MEMORANDUM FOR PROGRAM MANAGER, STANDARD MISSILE 3 BLOCK IIB

SUBJECT: Materiel Solutions Analysis Decision Memorandum for Standard Missile 3 Block IIB (SM-3 BLK IIB) (U)

(U) I approve the plan and approach for the Materiel Solutions Analysis (MSA) for the Standard Missile 3 Block IIB. I approve the attached initial technical, schedule, contracts, and resource objectives and plans and the MSA exit criteria.

(U) The following activities are directed to occur during the remainder of the SM-3 BLK IIB MSA phase:

- System Concept Review Completion — 4QFY10
- Capability Needs Document Delivery — 4QFY10
- Technology Development Decision — 1QFY11

(U) The SM-3 BLK IIB Program Manager will provide quarterly reviews to assess progress of the analysis and updates to the objectives and plans. I expect to review the analysis in 1QFY11 to make a Technology Development Decision to transition SM-3 Block IIB to the Technology Development Phase.

Patrick J. O'Reilly

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

Attachments:

1. SM-3 IIB MSA Schedule Plan. (U) This document is "~~FOUO~~."
2. SM-3 IIB MSA Technical Objectives. (U) This document is "~~SECRET.~~"
3. SM-3 IIB MSA Resources Plan. (U) This document is "~~FOUO.~~"
4. SM-3 IIB MSA Contracts Plan. (U) This document is "~~FOUO.~~"
5. SM-3 IIB MSA Exit Criteria. (U) This document is "~~FOUO.~~"

cc:
MDA/AB
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS

# SM-3 IIB Schedule Plan (U)

~~FOUO~~

| | FY10 | FY11 | FY12 | FY13 | FY14 | FY15 | FY16 | FY17 | FY18 | FY19 | FY20 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Milestones** | | | | | | | | | | | |
| **Trade Studies and Analysis** | | | | | | | | | | | |
| **Technology Risk Reduction** | | | | | | | | | | | |
| **Concept Definition (Primes)** | | | | | | | | | | | |
| **Product Development** | | | | | | | | | | | |
| LDACS Static Tests | | | | | | | | | | | |
| SSRM Static Tests | | | | | | | | | | | |
| TSRM Static Tests | | | | | | | | | | | |
| IM Tests (2 ea. FCO, SCO, BI, FI, SD | | | | | | | | | | | |
| HC Tests (environ, drop, shock, E3) | | | | | | | | | | | |
| Launcher Integration Tests | | | | | | | | | | | |
| Flight Tests | | | | | | | | | | | |
| **Production** | | | | | | | | | | | |

(b)(2),(b)(3):10 USC §2305(g),(b)(5)

**Time now**

IM = Insensitive Munitions, HC = Hazard Classification, FCO = Fast Cook-Off, SCO = Slow Cook-Off, BI = Bullet Impact, FI = Fragment Impact, SD = Sympathetic Detonation

△ System Engineering or Test Milestone ▲ Acquisition Milestone

~~FOUO~~

Attachment 1



(b)(6)

# SM-3 IIB - Materiel Solutions Analysis
# Technical Objectives (U)

## FOUO Prioritized Capabilities List (PCL) 2009

| Combatant Command Needs | Enduring Capabilities |
|---|---|
| (b)(2),(b)(5) | (b)(2),(b)(5) |

~~FOUO~~

## Future Capabilities

| Key Functions | Capabilities (Approximate) |
|---|---|
| (b)(2),(b)(5) | (b)(2),(b)(5) |

~~FOUO~~

| Interdependencies |
|---|
| (b)(2),(b)(5) |

~~FOUO~~

~~FOUO~~

## Knowledge Points (U)

| KP # | MSA Phase Description | Demonstrated by | Complete |
|---|---|---|---|
| 1 | (b)(2),(b)(5) | System Concept Review (SCR) | ✓ |
| 2 | | SCR | ✓ |
| 3 | | SCR | |
| 4 | | SCR | |

| KP # | Tech Dev Phase Description | Demonstrated by | Complete |
|---|---|---|---|
| 1 | (b)(2),(b)(5) | Systems Readiness Review (SRR) | |
| 2 | | SRR | |
| 3 | | SRR | |

~~FOUO~~

Approved (b)(6)

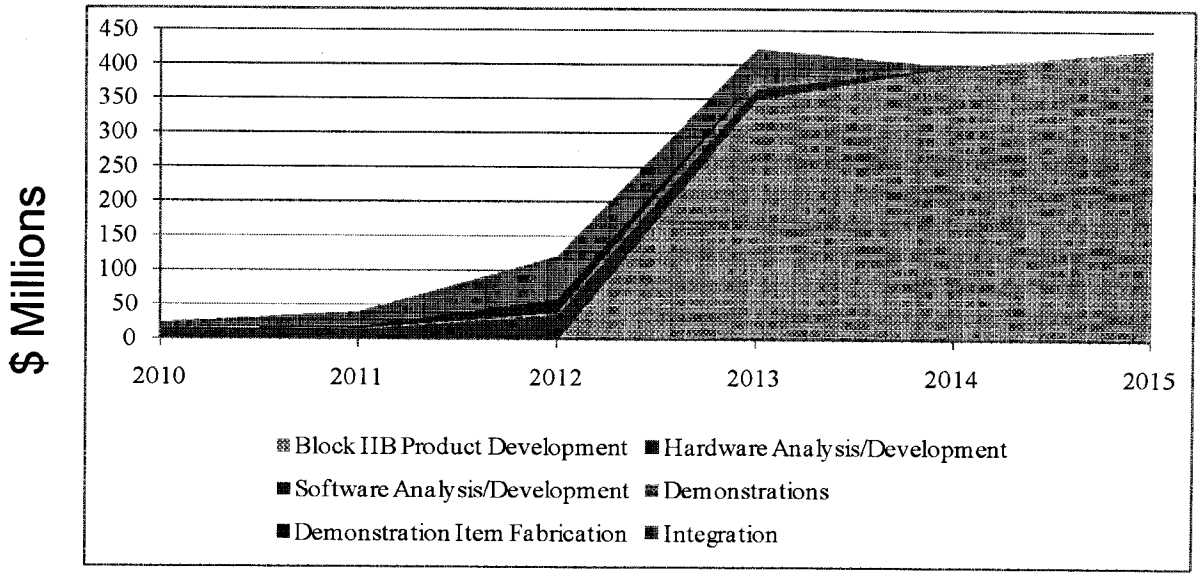
Resource Plan

# SM-3 Block IIB – BMDS Accountability Report (U)

~~FOUO~~

| Time Phased Estimate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Costs TY $M** | **Sunk** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **FYDP Total** |
| Hardware Analysis/Development | 10 | 18 | 16 | 37 | 16 | | | 88 |
| Software Analysis/Development | | | | | | | | |
| Demonstrations | 4 | 2 | | 3 | 17 | | | 22 |
| Demonstration Item Fabrication | 38 | 0 | 3 | 20 | | | | 23 |
| Integration | | 5 | 22 | 62 | 42 | | | 131 |
| Block IIB Product Development | | | | | 350 | 400 | 425 | 1175 |
| **Cost Estimate** | **51** | **25** | **41** | **122** | **425** | **400** | **425** | **1438** |

Time Phased Estimate Chart

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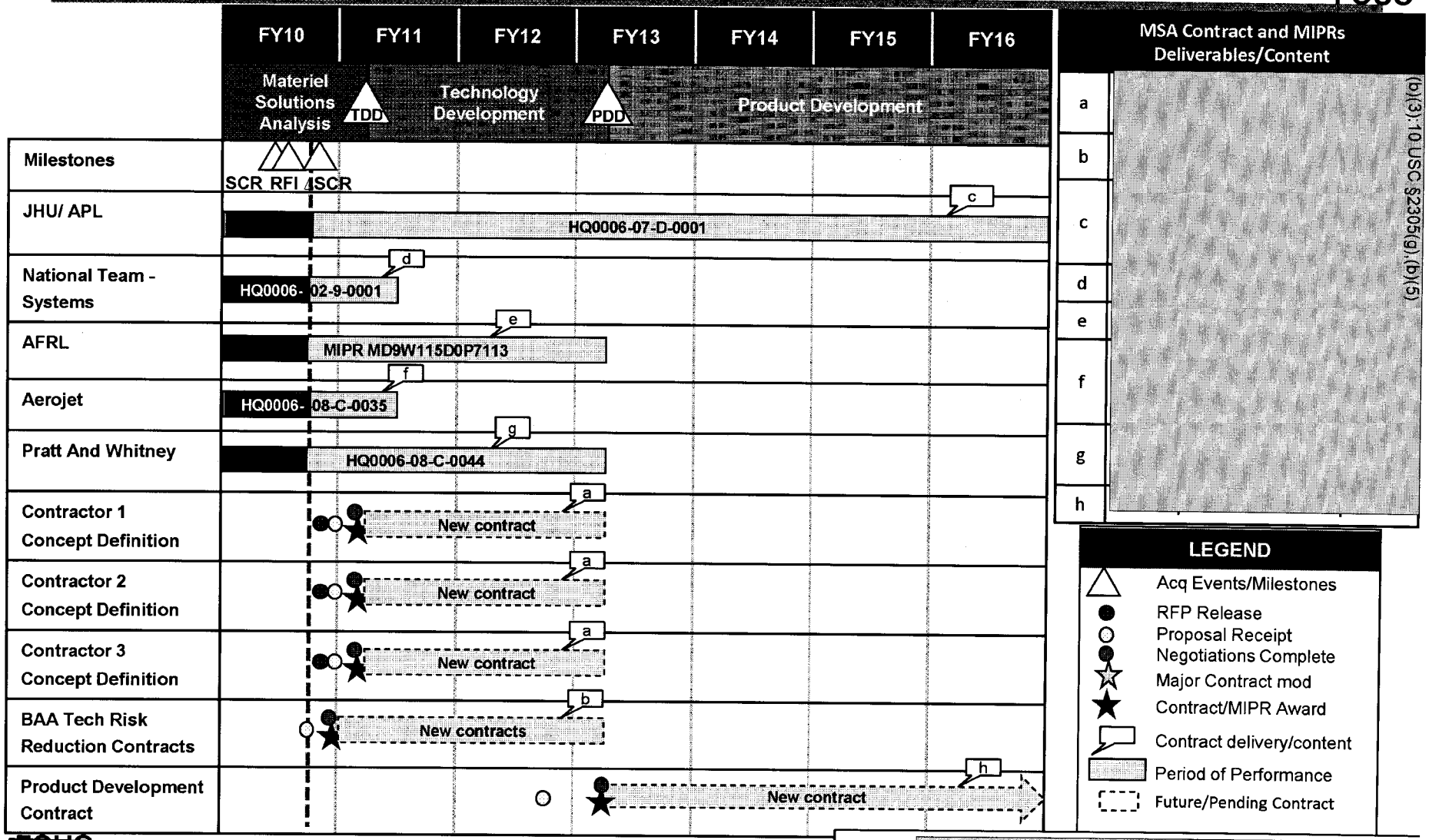
Approved (b)(6)

# SM-3 IIB – Materiel Solutions Analysis Contracts Plan (U)

~~FOUO~~




~~FOUO~~

Attachment 4



Approved (b)(6)

# SM-3 IIB Exit Criteria from Materiel Solution Analysis Phase (U)

~~FOUO~~

| Exit Criteria | Baseline Component | Required For Technology Development Decision |
|---|---|---|
| **1) Define an operational concept** | | |
| 1 a) Capability Needs Document developed | Operational | G |
| **2) Identify competitive alternative materiel solutions** | | |
| 2 a) Alternatives available at System Concept Review | Technical | G |
| **3) Establish current critical technology maturity** | | |
| 3 a) Results of Request For Information from Industry and experts across the field available at System Concept Review | Technical | G |
| **4) Adequate funding for technology developments** | | |
| 4 a) Approved PB11 budget | Resource | G |

~~FOUO~~

**Risk to Execution**
Low
Medium
High