BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

DATE **February 1999**

BUDGET ACTIVITY
4 - Demonstration and Validation

PE NUMBER AND TITLE
0603871C NMD - DEM/VAL

PROJECT
2400

COST *(In Thousands)*	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
2400 National Missile Defense (NMD)	935737	1533532	836555	866680	754204	651170	636848	489817	Continuing	Continuing

A. Mission Description and Budget Item Justification

The National Missile Defense (NMD) Program was designated a Major Defense Acquisition Program (MDAP) in April 1996. The goal of the NMD program is to develop, demonstrate and maintain an option to deploy a national missile defense system to defend the United States against a limited strategic ballistic missile threat by a rouge nation. The technological maturity, threat, cost, and treaty implications of the system will be assessed at a Deployment Readiness Review (DRR) in 3Q/00. Following this review a decision may be made to implement the FY2005 deployment option, which is supported by programmed funds in the FYDP. However, if the threat warrants and the technology has sufficiently matured, and the threat , cost, and treaty implications have been addressed, a decision may be made to deploy sooner than FY2005. In that event, funds programmed for FY2003-2005 would have to be accelerated.

The NMD system consists of a ground based interceptor, ground based sensors, and a Battle Management Command, Control, and Communication (BM/C3) system. The interceptor consists of an Exoatmospheric Kill Vehicle (EKV) atop a Commercial Off-The-Shelf (COTS) booster stack. The ground-based sensors include the development of an X-band radar and the upgrade of existing early warning radars. The BM/C3 system includes integration with existing national command and control systems, a ground communication network, and a communication system to transmit data to and from the interceptor while in flight. In the future the NMD system will also use space-based assets for threat launch detection and tracking**.** The Air Force Space Based Infrared System (SBIRS) is an integral part of enhancing future NMD capabilities.

These NMD elements, the Ground Based Interceptor (GBI), the Ground Based Radar (GBR), Upgraded Early Warning Radars (UEWR), the BM/C3 system, and the supporting system development functions are described herein as individual projects. In prior years, these projects have been executed with separate contracts managed by Army, Air Force, Navy, and BMDO organizations. With the selection of a Lead System Integrator (LSI) contractor in FY98 and government approval of transition plans, the individual element contracts will be transitioned to the LSI resulting in the NMD program being executed primarily through the single LSI contract. However, the same elements will still exist under the LSI contract. The funding allocations in this document reflect this transition of contract responsibility.

NMD INTEGRATION addresses the activities of a single contractor (Boeing North America) to develop and integrate the individual NMD elements into a cohesive NMD system. The LSI contractor will assist the government in: 1) evolving from individual element technology development to an open, integrated system development ready for deployment; 2) moving from total government managed integration to contractor responsibility for integration; 3) planning, designing, and developing an open NMD system that will meet system user requirements; 4) conducting a successful FY 2000 Integrated System Test (IST) followed by a Deployment Readiness Review (DRR). With government approval, the LSI contractor will have the latitude to modify current development programs (e.g., GBI, GBR, BM/C3, UEWR, etc.). As such, the details of these programs as described in the project narratives below may change, pending program modifications recommended by the LSI contractor.

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 1999
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603871C NMD - DEM/VAL	PROJECT 2400

SENSOR TECHNOLOGY includes research and development efforts for critical sensor components which support infrared surveillance, acquisition, tracking, and discrimination functions to be used in the SBIRS Low. Projects in radiation hardened electronics and spacecraft computers, focal plane arrays (FPAs), long-life cryogenic coolers, signal/data processing and optics are developing state-of-the-art technologies essential to operating in a space environment and viewing targets against the earth limb and space backgrounds. Cryocoolers are being developed to support the Focal Plane Array (FPA) technologies. Optical and electronic components are developed for SBIRS Low applications and tested for performance, reliability, and for any degradation due to environmental effects of space, such as radiation and contamination.

The GROUND BASED INTERCEPTOR (GBI) will demonstrate an intercept capability with successful completion of the NMD integrated system test in FY00. Until booster development is complete, Exoatmospheric Kill Vehicle (EKV) flight tests will be flown on the Payload Launch Vehicle (PLV), which is a booster, comprised of a Minuteman II second and third stages. EKV sensor flight tests were successfully accomplished in 3Q/97 and 2Q/98. The LSI contractor selected an EKV contractor in 1Q/99. A backup EKV will be maintained for risk mitigation until the primary EKV is sufficiently proven. Commercial Off-the-Shelf (COTS) booster development began in FY 98 with expected completion late in FY00. The COTS Booster consists of a Gemini-40 first stage and Orbus-1A second and third stages. The booster will be tested during three verification flights in FY00 prior to incorporation into Integrated Flight Tests in FY01.

The BATTLE MANAGEMENT, COMMAND, CONTROL AND COMMUNICATIONS (BM/C3) element incrementally prototypes the BM/C3 functionality required for the NMD mission, and integrates and demonstrates an NMD system in step with evolving sensors and interceptor element capabilities. BM/C3 incremental prototypes will be integrated and demonstrated in a distributed fashion at multiple locations, and assessed with user participation to refine and focus the BM/C3 development and system behavior. NMD BM/C3 supports the NMD command and control process required to provide human-in-control; develops, assesses, and nominates situation-applicable missile defense strategies and tactics; fuses and correlates available sensor information; integrates and plans the complementary coordination of sensors and interceptors for optimum system performance; supports kill assessment; provides interface with existing Command, Control and Communication (C3) systems; and provides intra-NMD communications and prototypes an In-flight Interceptor Communications System (IFICS) for BM/C3-GBI. The IFICS will be installed at the U.S. Army Kwajalein Atoll (USAKA).

GROUND BASED RADAR (GBR) is the primary sensor providing surveillance, acquisition, tracking, discrimination, fire control support, and kill assessment for the NMD system. The GBR development leverages off of the Theater Missile Defense Ground Based Radar (TMD-GBR) program. A GBR prototype, designated as GBR-P, installed at USAKA, Kwajalein Missile Range (KMR), will participate in the FY00 NMD integrated system test (IST-5), and be maintained for future upgrades and flight tests. The GBR contract will continue to be managed by the GBR Project Office until the contract expires in FY00. At that time, the GBR will be managed by the LSI contractor.

UPGRADED EARLY WARNING RADARS (UEWR) develops, tests, and demonstrates prototype software upgrades and hardware changes to existing Early Warning Radars required to support the NMD mission. The UEWRs will detect, count and track the individual objects in a ballistic missile attack early in their trajectory. The UEWR data will be used for interceptor commit and other X-band radar cueing.

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 1999
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603871C NMD - DEM/VAL	PROJECT 2400

SYSTEM ENGINEERING develops the NMD system-level performance and integration requirements as prescribed in the Capstone Requirements Document (CRD), and Operational Requirements Document (ORD), and then flows them down to the individual NMD elements. In addition, the Systems Engineer plans and directs Command and Control Simulations (C2Sims) in which analyses, simulations, and tests are performed. C2Sims address both system effectiveness and proposed NMD system architectures and concept of operations against near and far-term ballistic missile threats. The Systems Engineer develops functional definitions for the candidate deployment options needed to meet user requirements, and in this capacity, manages all interactions with the user in areas relating to requirements. As element development matures under the LSI, the focus of the Systems Engineer will remain on system-level balancing, verification, and validation of the integrated NMD system. At the request of Ballistic Missile Defense Organization (BMDO), as well as OSD and other external agencies, the NMD System Engineer conducts ad hoc studies in support of treaty analysis, policy guidance, and other NMD derived missions.

DEPLOYMENT PLANNING activities focus on the planning and logistics requirements of fielding an NMD system. This includes identifying critical actions and time-lines for fielding an NMD system in order to reduce further the time-line and risks inherent in such a deployment. Additionally, this effort includes development of environmental analyses and documentation, siting analyses, facilities assessments and designs, and meeting other beneficial occupancy issues.

TEST AND EVALUATION activities involve managing and overseeing the NMD test and evaluation program, including execution of the lethality ground and flight test programs, and development of program test documentation such as the Test and Evaluation Master Plan (TEMP). Managerial oversight and execution responsibilities ensure the following are available when needed: 1) test infrastructure (including test ranges and instrumentation; 2) test beds for Hardware-in-the-Loop (HWIL) and modeling and simulation activities; 3) Integrated System Test Capability (ISTC) development to conduct integrated ground tests and pre-flight mission check-outs for integrated flight tests; and 4) target development for sensor and intercept tests. SBIRS targets will be supported as required. Management activities include development of the NMD TEMP, approval of the Integrated Test and Evaluation Plan (ITEP) and Detailed Test Plans, and Post-Test Analysis Plans for each ground and flight test. Post-test evaluation, analysis, review and reporting are also provided for under this project.

DISCRIMINATION provides the U.S. with the capability to generate high confidence target signatures for ballistic missile defenses. This is a critical adjunct to the design and evaluation of NMD system performance across the full spectrum of threats and engagement scenarios. This program provides signature collection sensors for live-fire missions and storage of the resulting test data. Additionally, predictive models of target signatures are developed as well as algorithms for the critical functions of discrimination, target handover and aimpoint selection.

SYSTEMS ARCHITECTURE AND ENGINEERING supports an initiative to ensure that joint systems architecture/engineering requirements are addressed in a coordinated and synergistic manner across all NMD and Theater Missile Defense (TMD) efforts. Systems analysis work is done to determine the expected operational effectiveness and life cycle cost impacts of the NMD system based on changing threats, mission requirements, acquisition reform initiatives and advances in technology. Implementation within BMDO of DoD initiatives in architectures, systems engineering, and open systems are included.

THREAT AND COUNTERMEASURES defines potential adversary missile forces, which might be confronted by the NMD system. Threat definitions are provided by annual NMD System Threat Assessment Reports (NMD STAR). Threat scenarios are generated by integrating countermeasures (CM) technology into NMD elements.

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 1999
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603871C NMD - DEM/VAL	PROJECT 2400

MODELING AND SIMULATION (M&S) ensures timely availability of reliable, cooperative, and cost-effective BMDO and Service-provided Modeling, Simulation, & Networks (MS&N) tools and capabilities responsive to BMDO requirements. This project provides for the planning, coordination, program management, and technical oversight of system level M&S for NMD and Theater and Missile Defense (TAMD) Programs. MS&N programs funded by this NMD project include: Wargame 2000, M&S Roadmap, Mission Oriented Information Technology Resources (ITR), BMDO Data Centers, BMD Virtual Data Center (VDC), the BMD Simulation Support Center (SSC), and the infrastructure portion of the Advanced Research Center/Simulation Center (ARC/SC) and the Joint Missile Defense Network (JMDN) that supports the capability to interoperate in a distributed integrated simulation (DIS) environment.

TEST RESOURCES provides the infrastructure to support the NMD test and evaluation program. Test infrastructure includes common test ranges and instrumentation, and common test beds for NMD HWIL testing and simulation activities. Common ground test facilities include: National Hover Test Facility (NHTF) at Edwards AFB, CA; Center for Research Support (CERES) at Schreiver AFB, CO; 7V and 10V chambers at Arnold Engineering Development Center (AEDC) in Tullahoma, TN; Portable Optical Sensor Tester (POST) and Characterization of Low Background Mosiacs (CALM) at Rockwell International in Anaheim, CA. Common range facilities include Kwajalein Missile Range (KMR) in the Marshall Islands; Western Range (WR) at Vandenberg AFB, CA; and the Pacific Missile Range Facility (PMRF) at Kauai, HI. Typical range instrumentation includes special test equipment, data collection assets and range instrumentation upgrades including: Integrated System Test Capability (ISTC) at the Advanced Research Center/Simulation Center (ARC/SC) in Huntsville, AL; improvements and modernization of both the Joint National Test Facility (JNTF), Schreiver, AFB, CO., and the Kwajalein Mobile Range Safety System (KMRSS).

MANAGEMENT AND OPERATIONAL SUPPORT provides personnel and related support costs common to all NMD projects including support to the Office of the Director, BMDO and his staff located in Washington, DC, as well as BMDO's Executing Agents within the U.S. Army Space and Missile Defense Command, U.S. Army PEO Missile Defense, U.S. Navy PEO for Theater Defense, U.S. Air Force PEO office and the Joint National Test Facility. This project supports funding for overhead/indirect personnel costs, benefits and infrastructure costs such as rents, utilities and supplies. Additionally, this project maintains NMD Joint Program Office (JPO) operations. NMD JPO scientific, engineering and technical assistance activities are funded to provide required contractor support to the JPO. Additionally, government salaries for NMD JPO personnel as well as Army NMD personnel in Huntsville are funded. Other Internal Operating Budget (IOB) costs such as travel, office expenditures, etc., are also provided through this project. The NMD JPO incorporates service headquarter type functions that are normally located in other appropriations (i.e., O & M accounts), however, the NMD JPO has to pay personnel and support costs out of RDT&E program elements.

This project is assigned to the Budget Activity and Program Element codes as identified in this descriptive summary in accordance with existing Department of Defense policy.

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 1999
BUDGET ACTIVITY **4 - Demonstration and Validation**	PE NUMBER AND TITLE **0603871C NMD - DEM/VAL**	PROJECT **2400**

FY 1998 Accomplishments:

- 199815 NMD Integration: Completed parallel system integrator concept definition studies. Selected an LSI contractor. Awarded LSI contract. Conducted System Functional Review (SFR) for the NMD system. Completed transition of BM/C3 contract to LSI contract. Initiated development of tactical GBI booster to support FY01 flights and began development of the interceptor canister and weapon support system.

- 18040 Sensor Technology: Delivered initial samples of advanced optical coatings for testing. Initiated/continued endurance testing of the 35/60K, 60K, and 150K coolers. Initiated 100K cooler for fore-optics. Extended cutoff wavelength of Long Wavelength Infrared (LWIR) HgCdTe FPAs from current technology. Initiated optics development in contamination control technology. Continued development, fabrication, and test of advanced, radiation-hardened electronic components and packaging technologies for processors, memory, and analog-digital converters. Continued rad-hard visible star tracker development.

- 266546 GBI: Conducted one EKV seeker flight experiment IFT-2. Reduced flight test data and incorporated results into HWIL simulations to prepare for subsequent IFTs. Upgraded mission and launch control hardware/software to replace old and unreliable equipment/software. Completed fabrication of EKV and PLV hardware to support FY99 flight testing. Initiated fabrication of EKV and PLV components for FY00 flight testing. Continued PET program to develop producible and hardened HgCdTe FPA's. Continued SHIELD program for the development of 256x256 Silicon FPA's.

- 60892 BM/C3: Conducted BM/C3 engineering and integration activities to support BM/C3 Prototype development, BM/C3 communications component prototype development and NMD system integration activities. Completed development of the third increment of the BM/C3 Prototype, integrated with current increments of other BM/C3 components and with applicable external systems. Completed contract transition to LSI. Started dual-path BMC3 development to address risks associated with Integrated System Test in 1Q/00 and JTA-compliant, deployable BM/C3 Build Increments for DRR in 3Q FY00. Supported NMD tests by providing integrated BM/C3 products as test articles. Supported IFT-2 and IGT-1A. Delivered brassboard IFICS and prototype IFICS. Conducted international BMC3/UEWR technology for experiments that will demonstrate algorithms capable of improving target detection and sensitivity, identification, and tracking. Conducted oversight management of the BM/C3 portion of the LSI contract.

- 58430 GBR: Conducted readiness testing of GBR-P to support FY99 NMD flight tests. Facility constructed and occupied in 1Q/98. Completed integration and installation of the GBR-P at USAKA. Delivered Software Blocks 2.1 and 2.2. Conducted on-line system verification test in 3Q/98. Shadowed targets of opportunity for radar calibration in Sep 98. Completed safety testing at KMR and received authorization to radiate at high power in 3Q/98. Provided management of the X–Band Radar (XBR) portion of the LSI contract.

- 10405 UEWR: Continued the conduct of real-time missile tracking experiments using EWR and other applicable existing sensors. Provided UEWR Demonstrator for participation in NMD integrated system tests. Continued system development and program risk definition and risk reduction. Transitioning UEWR contract to LSI. Conducted oversight management of the UEWR portion of the LSI contract.

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 1999
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603871C NMD - DEM/VAL	PROJECT 2400

- 26173 System Engineering: Conducted NMD System Interim Preliminary Design Review (IPDR). Assessed and refined user requirements based upon updated CRD, ORD, and CONOPs. Planned and directed C2 Sims. Developed System Evaluation Plan (SEP), and delivered low fidelity version of the High Fidelity System Simulation (HFSS). Conducted NMD System SFR. Finalized interface and configuration control requirements in support of development options. Initiated Configuration Control Board (CCB) and Risk Management Board (RMB). Developed C3 requirements. Developed an NMD Systems Engineering IV & V Master Plan. Assessed NMD threat and develop C3 scenarios. Updated NMD Cost and Analysis Requirements Description (CARD) to reflect C1/C2 requirement to support the updated Program Life Cycle Cost Estimate (PLCCE), and an OSD Independent Cost Estimate (ICE). Analyzed and validated results of NMD flight and ground tests.

- 14400 Deployment Planning: Developed the acquisition logistics strategy and analysis process which enabled the Government to properly assess the LSI's acquisition logistics program. Updated the NMD Integrated Deployment Plan (IDP) and the NMD Capstone Site Activation Plan (CSAP) to reflect programmatic changes and refinements to the NMD architecture. Developed a System Deployment Status Tracking Database for Deployment Readiness activities. Continued environmental analyses of candidate deployment sites and required documentation. Managed funding required for design and construction of NMD program related test and deployment facilities to meet 100% design prior to DRR. Completed 35% standard site designs and adapted on a number of facilities. Provided FY99 Human System Integration (HSI) domain assessment criteria to Service Components for review identifying cost, schedule, and performance concerns, issues, and recommended risk mitigation. Supported development of the NMD System Training Plan and System Safety Program Plan. Reviewed Manpower Personnel and Training (MPT) issues and ensured MPT was on track and ready for Initial Operating Capability (IOC). Evaluated the Industrial Base for C1 Deployment. Identified the Long Lead Item Requirements for C1 deployment. Continued Metrology projects for development of standards for the Infrared Sensors, which was initiated in FY97.

- 130006 Test and Evaluation: Supported IGT-1A at ISTC, and integration of the following into the ISTC: BM/C3 Capability Increment 3; GBI HWIL upgrade, and real-time simulations. Maintained currency of TEMP and Test Strategy with the support of the NMD System T&E Program Integrated Product Team (PIPT). Completed program documentation, pre-launch preparations and oversaw execution of IFT-2. Evaluated post-test results. Completed VV&A of IFT-3 target and implemented accreditation plan for ISTC. Completed lethality and live fire testing plan. Coordinated test range infrastructure and upgrades to support EKV flight tests from KMR. Coordinated range instrumentation upgrades and provided data collection and analysis for NMD testing. Conducted two Risk Reduction Flights in conjunction with Air Force Operational Evaluations (RRF 3 and 4). Conducted target launch for IFT-2. Implemented rolling spare target for IFT-2 and beyond. Conducted Light Gas Gun tests of sub-scale models for lethality hydrocode development.

- 17932 Discrimination: Provided AST core operating costs for IFT-2 and Op Evals to collect optical data to support NMD. Continued optical and radar data analysis for NMD system design and test. Provided discrimination algorithms to GBR, SBIRS, and GBI programs to counter advanced threats and penaids. Updated modeling capabilities in the NMD scenario.

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 1999
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603871C NMD - DEM/VAL	PROJECT 2400

- 4690 Systems Architecture and Engineering: Continued systems analysis work on NMD issues. Provided system-level capability to address emerging BM/C3 architectures and requirements in a synergistic manner across all NMD/TMD efforts and facilitated the translation of operational requirements to interoperable, affordable, evolvable, and supportable systems.

- 6674 Threat and Countermeasures: Provided NMD System Threat Assessment (STA) and operational threat environment intelligence estimates, continued development of threat system scenario descriptions, and upgraded threat modeling capability and digital media threat products.

- 8732 Modeling and Simulations: Continued the development of Wargame 2000 simulation, provided supercomputing resources at the Advanced Research Center/Simulation Center (ARC/SC), continued development of the Modeling and Simulations Roadmap and continued to fund modernization and upgrades of Mission Oriented Information Technology Resources (ITR). The Ballistic Missile Defense Simulation Support Center (BMD SSC) continued to develop processes for testing and improving models, data and algorithms and updated the NMD M&S and data catalogs/repositories. The BMDO Data Centers continued to archive, manage, develop data products, distribute and provide remote access to all relevant BMD test, experiment, M&S and wargame data.

- 8814 Joint National Test Facility: Provided core funding for the JNTF for the BMDO's joint missile defense modeling, simulation, and test center whose focus is the joint inter-service, interoperability, and integration aspects of missile defense system acquisition. The JNTF conducts human-in-the-loop missile defense wargaming for Concept of Operations (CONOPS) exploration and development; provides simulation, communication connectivity and other JNTF assets in support of BMDO and CINC sponsored theater missile defense exercises; provides development, test and user interaction support environments for the NMD BM/C3 Project and NMD Lead System Integrator at the BM/C3 Element Support Center (BESC) and BM/C3 Element Lab (BEL). The JNTF also performed studies and analysis in support of joint missile defense and provides inter-service computational capabilities and wide area network communication networks with Service facilities.

- 328 System Test & Evaluation: Provided support for the BMDO Lethality program. Participated in Service, DoD, and multi-national lethality panels. Supported the conduct of Lethality Quarterly Review's, and Transport Model Upgrades to PEGEM.

- 13312 Test Resources: Provided ground test facility infrastructure and upgrades for NMD testing including: command/control technology evaluation at Center for Research Support (CERES), lethality tests at the AEDC Range G, sensor testing at POST, CALM and 7V/10V. Provide test range infrastructure and upgrades to support EKV testing. Provided range instrumentation, upgrades, data collection, and analysis for BMDO testing.

- 90548 Management and Operational Support: Continued providing management and support for BMDO and NMD JPO overhead/indirect fixed costs, and continued to provide management and analysis support to the NMD program in areas such as cost/schedule/performance assessment, cost estimating and analysis, budget analysis and formulation, program planning and control, contract management.

Total 935737

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 1999
BUDGET ACTIVITY **4 - Demonstration and Validation**	PE NUMBER AND TITLE **0603871C NMD - DEM/VAL**	PROJECT **2400**

FY 1999 Planned Program:

- 1109423 NMD Integration: $600M from the Emergency Supplemental Appropriation has been allocated to the NMD program. These funds will be applied to the LSI contractor to continue development and integration of the NMD system in FY99 and FY00. Approximately $150M will be applied in FY99 and $450M in FY00. Complete transition of UEWR and EKV contracts to LSI contract. Conduct element level Preliminary Design Reviews (PDR). Conduct NMD System Preliminary Design Review (SPDR). Conduct IFT-3, IFT-4, IGT-3, IGT-4, and IGT-5. Execute activities required to conduct NMD integrated system test in FY00.

- 2153 Sensor Technology: Deliver samples of advanced optical coatings for testing. Continue testing of LWIR HgCdTe FPA's with extended wavelength cutoff. Continue endurance testing on 100K, 60K, and 35/60K PSC cryocoolers. Continue development of prototype contamination control device. Continue development, fabrication, and testing of advanced, radiation-hardened electronic components and packaging technologies for processors, memory and analog-digital converters. Continue rad-hard visible star tracker effort.

- 147224 GBI: Continue EKV and PLV fabrication and integration for IFT-3 and IFT-4 until the transition of both programs to the LSI contract. Provide data packages for, and participate in, data reviews related to EKV selection. Continue mission and launch control upgrades at the USAKA EKV/PLV integration facility. Provide GFP boosters for PLV and sensor calibration facilities. Fabricate EKV for fourth intercept flight (IFT-6), incorporating technology improvements and lessons learned from IFTs 1 through 4. Support weapon PDR. Continue COTs booster development/preparations for three FY00 booster verification tests. Conduct silo modification at KMR. Deliver readout electronics, and flight ready SHIELD and PET Focal Plane Arrays. Deliver 20/44GHz transceiver hardware to support IFT-5 2Q/00. Funding for this line supports Government LSI oversight.

- 17505 BM/C3: Conduct BM/C3 engineering and integration activities to support BM/C3 development, BM/C3 communications component prototype development and NMD system integration activities. Support LSI development of capability increment 3A in preparation for support of the IST (2Q/00). Continue development of Build Increment-1 to support the DRR in 3Q FY00. Support NMD tests by providing integrated BM/C3 products as test articles. Support IGT's 3 and 4, IFT-3 and IFT-4 (if required). Integrate prototype IFICS at Kwajalein Missile Range (KMR). Continue international BMC3/UEWR technology experiments that will demonstrate algorithms capable of improving target detection and sensitivity, identification and tracking. Funding for this line supports Government LSI oversight.

- 32718 GBR: Participate in RCT-1 and IFT-3 on-line and IFT-4-in line. Complete development of GBR-P flight test software. Deliver software block 2.3. Validate GBR-P hardware and continue repression testing software. The GBR contract will continue to be managed by the GBR Program Office until that contract expires in FY00. At that time the LSI will continue development of the objective XBR. Conduct XBR Preliminary Design Review (PDR). Funding for this line supports Government LSI oversight.

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 1999
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603871C NMD - DEM/VAL	PROJECT 2400

- 5236 UEWR: Complete transition of legacy technical effort to LSI contract. UEWR element support to key acquisition planning, Systems Engineering, Deployment Planning and Test & Evaluation activities. Manage the UEWR portion of the LSI contract (CPR analysis, CDRL review/comment, etc.). Support LSI UEWR development efforts such as algorithm downselect and integration into the UEWR Test Article (UTA), assessment of DII-COE implementation strategy, and program definition/risk reduction. Deliver Test Representations and Advanced Algorithms. Evaluate Real Time Defense Information Infrastructure – Common Operating Environment (DII-COE) applicability to UEWR development. Complete prototype of UEWR graphics displays and transition to LSI. Support system flight and ground test planning, execution and limited post-test independent analysis. Support and evaluate flowdown of requirements to UEWR. Support CAIV and trade studies as required. Funding for this line supports Government LSI oversight.
.
- 27205 System Engineering: Continue JPO level system engineering and integration activities. Assess and Refine User Requirements (CRD, ORD, and CONOPs). Continue C1/C2/C3 requirements refinement (NMD SRD). Update NMD Cost Analysis Requirements Description (CARD) to support Program Life Cycle Cost Estimate reflecting LSI proposed architecture. Conduct NMD SPDR in 3Q/99. Update the NMD System Threat Assessment Report (STAR). Develop/update detailed threat “design-to” and “analyze-to” parameters and scenarios. Conduct C2Sim exercises and tabletops (C2Sim98 in 1Q/99). Continue integration with the SBIRS Program Office in support of the NMD program requirements. Perform nuclear environments calculations/requirements verification. Conduct data fusion/system discrimination development. Perform system verification, validation and accreditation (VV&A). Maintain independent validation and verification (IV&V) capability to perform system VV&A. Funding for this line supports Government LSI oversight.

- 25902 Deployment Planning: Implement the acquisition logistics strategy and analysis process which enables the Government to properly assess the LSI’s acquisition logistics program. Initiate initial NMD System sustainment program planning. Refined the NMD IDP and the NMD CSAP to reflect programmatic changes and refinements in the NMD architecture. Prepare the Operational Suitability (OS) Assessment Report. Update the System Deployment Status Tracking Database for Deployment Readiness activities. Conduct NMD Site Evaluation. Develop an integrated Facilities Siting and Environmental (FS&E) Acquisition Management Plan and schedule. Complete the 35% facilities design for tactical and tactical support facilities for GBI & XBR. Continue to define facility requirements and master construction schedule. Support and provide comments for the 60% and 90% Design Review. Continue to manage funding required for design and construction of NMD program related test and deployment facilities to meet 100% design prior to DRR. Publish the Notice of Intent (NOI) for public notification. Scoping process will be conducted to identify environmental concerns and issues to be addressed in the Environmental Impact Statement (EIS). Support Site Specific Environment Analysis (EIS/EA). Finalize system and site specific Facility Requirements Documents (FRDs). Analyze element Reliability Analysis and Maintenance (RAM) and supportability testability data and issue analysis reports. Continue to evaluate the Industrial Base for C1 Deployment. Evaluate the Industrial Base for C2 deployment. Determine the Long Lead Item Requirements for C1 deployment. Continue the Metrology projects for development of standards for the Infrared Sensors. Implement a System Safety Program Plan to reflect User’s safety program to achieve overall safety objectives. Provide FY00 HSI domain assessment criteria to Service Components for review. Elevate Independent HSI Domain Assessment Reports to JPO risk management IPT, identifying cost, schedule, and performance concerns, issues, and recommended risk mitigation. Update and release HSI Program Plan. Develop the NMD System Training Plan. Continue to review MPT issues & ensure MPT is on track and ready for IOC. Funding for this line supports Government LSI oversight.

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 1999
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603871C NMD - DEM/VAL	PROJECT 2400

- 83313 Test and Evaluation: Support System Integration Test and IGTs 3 and 4 at the ISTC. Update TEMP with support of the NMD System T&E Program Integrated Product Team (PIPT). Complete program documentation, pre-mission flight tests 3 & 4, pre-launch preparations and oversee execution of IFTs 3 and 4, as well as Risk Reduction Flights (RRF) 5 through 7. Evaluate post-test results. Complete VV&A of IFT-4 and 5 targets. Implement lethality and live fire-testing plan. Coordinate test range infrastructure and upgrades to support EKV flight tests from KMR. Coordinate test range instrumentation upgrades and provides data collection and analysis for NMD testing. Conduct target launches for IFT 3 and 4 from Vandenberg AFB. Oversee LSI test program. Continue development and validation of Parametric Endo-Exoatmospheric Lethality Simulation (PEELS) model for system performance verification. Develop and procure backup target system. SBIRS targets will be supported as required. Funding for this line supports Government LSI oversight.

- 0 Discrimination: This project funding is moved to PE 0603874C starting in FY99.

- 0 Systems Architecture and Engineering: This project funding is moved to PE 0603874C starting in FY99.

- 3000 Threat and Countermeasures: Continue development of threat system scenario descriptions.

- 700 Modeling and Simulations: Continue the development of Wargame 2000 simulation. The BMDO Data Centers continued to archive, manage, develop data products, distribute and provide remote access to all relevant BMDO test, experiment, M&S and wargame data.

- 0 Joint National Test Facility: This project funding is moved to PE 0603874C starting in FY99.

- 1744 Test Resources: Provide ground test facility infrastructure and upgrades for NMD testing including: Integrated System Test Capability and the GBR HWIL at the Advanced Research Center; command/control technology evaluation at CERES and the JNTF in Colorado; lethality testing at the Hypersonic Ballistic Range G, Arnold Engineering Development Center (AEDC); and IR sensor testing at the 7V/10V Chamber at AEDC, and the Portable Optical Sensor Tester (POST) in El Segundo, CA. Provide test range infrastructure and upgrades to support integrated system testing including: Kwajalein Missile Range instrumentation, launch control and silo upgrades ND data collection and analysis. Provide target launch support at Vandenberg AFB CA of Multi-Service Launch System boosters with a suite of target objects provided by Sandia National Laboratory.

- 77409 Management and Operational Support: Continue providing management and support for overhead/indirect fixed costs, and continue to provide management and analysis support to the NMD program in areas such as cost/schedule/performance assessment, cost estimating and analysis, budget analysis and formulation, program planning and control, contract management.

Total 1533532

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 1999
BUDGET ACTIVITY **4 - Demonstration and Validation**	PE NUMBER AND TITLE **0603871C NMD - DEM/VAL**	PROJECT **2400**

FY 2000 Planned Program:

- 489328 NMD Integration: Transition GBR-P and PLV contracts to LSI. Conduct NMD Integrated System Test IFT-5. Support the NMD Deployment Readiness Review (DRR). Conduct Boost Vehicle tests, BV-1, BV-2, BV-3 and conduct IFT-6. Conduct IGT's 6 and 7.

- 9715 Sensor Technology: Continue testing of LWIR HgCdTe FPA's with extended wavelength cut-off; initiate a focal plane producibility effort to support fabrication of flight units and reduce manufacturing costs; initiate Silicon very long wave length) FPA program for SBIRS Low surveillance mission; continue visible array rad hard star tracker program; continue FPA performance testing. Complete the 35 Kelvin/60 Kelvin cryocooler effort through life and performance testing. Initiate development of 100 Kelvin cryocooler; continue development of cryogenic integration technologies in cooperation with SBIRS Low contractual designs; continue performance and life testing of cryocoolers; initiate development of 10k cryocooler prototype. Continue development of rad hard electronics components and packaging technologies for processors, memory and analog-digital converters.

- 96967 GBI: Conduct weapon Critical Design Review (CDR). Transition PLV contract to LSI. Perform three booster verification tests to prepare for transition from PLV to COTS booster. Integrate 20/44 GHZ transceiver hardware to enable in-flight BMC3-GBI communications. Participate in IFT-5, the NMD integrated system test. Participate in IFT-6, IGT 5, 6 and 7. Integrate advanced FPA's into flight test hardware for post FY00 IFTs. Funding for this line supports Government LSI oversight.

- 17490 BM/C3: Conduct BMC3 engineering and integration activities to support BM/C3 development. Provide capability Increment-3A to support IFT-5 in 1Q/00 and Build Increment-1 to support the NMD DRR in 3Q FY00. Support IGT's 5, 6 and 7, and IFT-5 and IFT-6. Continue international BM/C3 and UEWR technology initiatives that will improve the target detection, sensitivity, identification, accuracy and cueing of multiple sensor platform. Funding for this line supports Government LSI oversight.

- 19427 GBR: Participate in the Radar Credible Target-2 mission and the NMD integrated system test IFT-5 and IFT-6 with GBR-P in-line. Develop and deliver software block 3.0 with additional algorithms. Complete system segment specification test and evaluation for government acceptance of GBR-P from Raytheon. Complete necessary requirements to provide GBR-P as Government Furnished Property to LSI. Transition GBR Contract management from the GBR Program Office to the LSI. Provide management of the XBR portion of the LSI contract. Conduct CDR for GBR. Funding for this line supports Government LSI oversight.

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 1999
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603871C NMD - DEM/VAL	PROJECT 2400

- 3330 UEWR: Continue to support acquisition planning, review/comment on programmatic documents and participation in System Engineering, Deployment Planning, and Test & Evaluation forums. Provide oversight of the UEWR portion of the LSI contract (CPR analysis, CDRL review/comments, etc.). Continue to support LSI's UEWR development activities and preparation for the critical NMD milestones: Integrated System Test (IST) and Deployment Readiness Review (DRR). Continue to participate in and support the Real Time DII-COE TWG/IPT. Support system flight and ground test planning, execution and limited post-test independent analysis. . Support and evaluate flowdown of requirements to UEWR. Support CAIV and trade studies as required. Support evaluation of algorithms and integration into the deployable prototype. Funding for this line supports Government LSI oversight.

- 29006 System Engineering: Continue JPO level system engineering and integration activities. Assess and Refine User Requirements (CRD, ORD, and CONOPs). Continue C1/C2/C3 requirements refinement (NMD SRD). Update NMD CARDs against technical requirements. Conduct NMD System Engineering Interim Design Review in 2/3Q/00 and support the Deployment Readiness Review in 3Q/00. Update the NMD STAR. Develop/update detailed threat "design-to" and "analyze-to" parameters and scenarios. Conduct C2Sim exercises and tabletops (C2Sim99 in 1Q/00). Continue integration with the SBIRS Program Office in support of the NMD program requirements. Perform nuclear environments calculations/requirements verification. Conduct data fusion/system discrimination development. Perform system VV&A. Continue to maintain IV&V capability to perform system VV&A. Funding for this line supports Government LSI oversight.

- 6655 Deployment Planning: Implement the acquisition logistics strategy and analysis process which enables the Government to properly assess the LSI's acquisition logistics program. Continue development of the initial NMD System sustainment program planning. Publish the NMD IDP and the NMD CSAP. Issue the OS Assessment Report. Update the System Deployment Status Tracking Database for Deployment Readiness activities. Complete facility design. Prepare advance planning/pre-award documentation for future award of NMD System deployment construction contracts. Complete NEPA environmental compliance process. Update ESH plans. Analyze element RAM and supportability testability data and issue analysis reports. Evaluate the Industrial Base for C1 and C2 Deployment. Continue the Metrology projects for development of standards for the Infrared Sensors. Develop and issue System Producibility and Manufacturing (P&M) Plans. Implement a System Safety Program Plan. Provide FY01 HSI domain assessment criteria to Service Components for review. Elevate Independent HSI Domain Assessment Reports to JPO risk management IPT, identifying cost, schedule, and performance concerns, issues, and recommended risk mitigation. Update and release HSI Program Plan. Finalize the NMD System Training Plan. Review MPT issues and ensure MPT is on track and ready for IOC. Funding for this line supports Government LSI oversight.

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 1999
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603871C NMD - DEM/VAL	PROJECT 2400

- 93848 Test and Evaluation: Support IGTs 5, 6 and 7 at the ISTC. Update TEMP with support of the NMD System T&E PIPT. Complete program documentation, pre-mission flight tests for IFT-5 and IFT-6, pre-launch preparations and oversee execution of IFTs 5 and 6, and RRFs 8 & 9. Evaluate post-test results to support DRR data gathering. Complete VV&A of IFT 6 and 7 targets and accredit the ISTC. Implement lethality and live fire testing plan. Coordinate test range infrastructure and upgrades to support EKV flight test from KMR. Coordinate Test range instrumentation upgrades and provide data collection and analysis for NMD testing. Conduct target launches for IFT 5 and 6 from Vandenberg AFB (VAFB). Oversee LSI test program. Support three Booster Verification Tests at VAFB. Conduct demonstration flight of new targets launch program. Develop and procure backup target Multi Service Launch System (MSLS). Funding for this line supports Government LSI oversight.

- 499 Test Resources: Provide ground facility infrastructure and upgrades for NMD testing including: Integrated System Test Capability and the GBR HWIL at the ARC; command/control technology evaluation at CERES and the JNTF in Colorado; lethality testing at the AEDC Range G; and IR sensor testing at the 7V/10V Chamber at AEDC, and POST in El Segundo CA. Provide test range infrastructure and upgrades to support integrated system testing including: KMR instrumentation, launch control and silo upgrades, and data collection and analysis. Target launch support at Vandenberg AFB CA of MSLS and Orbital/Suborbital Program (OSP) boosters with a suite of target objects provided by Sandia National Laboratory.

- 70290 Management and Operational Support: Continue providing management and support for overhead/indirect fixed costs, and continue to provide management and analysis support to the NMD program in areas such as cost/schedule/performance assessment, cost estimating and analysis, budget analysis and formulation, program planning and control, contract management.

Total 836555

FY 2001 Planned Program:

- 582603 NMD Integration: Conduct NMD Integrated System Test IFT-7, the first flight which consists of the NMD tactical booster. Conduct IFT 7 and 8. Conduct IGT-8. Conduct System Critical Design Review (S/CDR) 2Q/01. $230M is part of the FY2000 request for an FY2001 Advanced Appropriation request.

- 9779 Sensor Technology: Deliver Lot 3(final) FPAs of David MCT focal plane program and complete all tests on hybrid arrays for Lots 1&2; initiate a focal plane producibility effort to support fabrication of flight units and reduce manufacturing costs; continue Silicon (very long wave length) FPA program for SBIRS Low surveillance mission; continue visible array rad hard star tracker program; continue FPA performance testing. Complete the 35 Kelvin/60 Kelvin cryocooler effort through life and performance testing. Continue development of 100 kelvin cryocooler; continue development of cryogenic integration technologies in cooperation with SBIRS Low contractual designs; continue performance and life testing of cryocoolers; continue development of 10k cryocooler prototype. Continue development of rad hard electronics components/devices and a rad hard spaceborne computer (70-150 MIP minimum). Flight test a space optics cleaner prototype and finalize the design; complete all tests on optical rad hand filters and test rad hard anti-laser filters.

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 1999
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603871C NMD - DEM/VAL	PROJECT 2400

- 48672 GBI: Monitor EKV flight unit integration for IFTs 8-9. Oversee completion of COTS booster-EKV integration for IFTs 7-9. Support IFTs 7-9 conduct and post test data reduction. Management and oversight of LSI weapon system efforts. Funding for this line supports Government LSI oversight.

- 17504 BM/C3: Conduct BM/C3 engineering activities to support BM/C3 development. Provide BI-1 to support Integrated System Performance Verification (ISPV) during IFT-7, and support IFT's 8 and 9. Support IFT-7. Funding for this line supports Government LSI oversight.

- 19548 GBR: Participate in the NMD integrated system test IFT-7 and IFT-8 with GBR-P in-line. Continue algorithm development to meet C2/C3 requirements. Develop P3I program. Validate hardware and software. Complete GBR contract transition to LSI. Begin execution of the GBR-P P3I plan. Funding for this line supports Government LSI oversight.

- 3350 UEWR: Continue to support acquisition planning, review/comment on programmatic documents and participation in System Engineering, Deployment Planning, and Test & Evaluation forums. Provide oversight of the UEWR portion of the LSI contract (CPR analysis, CDRL review/comments, etc.). Continue to provide oversight of the LSI's UEWR development and test activities and support award of the LSI contract options beyond the 3-year base period of the contract. Continue Real Time DII-COE evaluation for UEWR. Support system flight and ground test planning, execution and limited post-test independent analysis. Support CAIV and trade studies as required. Support evaluation of algorithms and integration into the deployable prototype. Funding for this line supports Government LSI oversight.

- 19870 System Engineering: Continue JPO level system engineering and integration activities. Assess and Refine User Requirements (CRD, ORD, and CONOPs). Continue requirements refinement for NMD SRD. Update NMD CARDs against technical requirements. Analyze results of the Deployment Readiness Review. Conduct System CDR in 2Q/01. Update the NMD STAR. Develop/update detailed threat "design-to" and "analyze-to" parameters and scenarios. Conduct C2Sim exercises and tabletops (C2Sim00 in 1Q/01). Continue integration with the SBIRS Program Office in support of the NMD program requirements. Perform nuclear environments calculations/requirements verification. Conduct data fusion/system discrimination development. Perform system VV&A. Maintain IV&V capability to perform system VV&A. Funding for this line supports Government LSI oversight.

- 6317 Deployment Planning: Continue the development of NMD System sustainment program planning. If a decision is made to deploy the NMD System, start facility construction. Complete element RAM and supportability testability data and issue analysis reports. Provide FY02 HSI domain assessment criteria to Service Components for review. Elevate Independent HSI Domain Assessment Reports to JPO risk management IPT, identifying cost, schedule, and performance concerns, issues, and recommended risk mitigation. Review MPT Issues & ensure MPT is on track and ready for IOC. Continue the Metrology projects for development of standards for the Infrared Sensors. Develop and issue System P&M Plans. Funding for this line supports Government LSI oversight.

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

DATE **February 1999**

BUDGET ACTIVITY **4 - Demonstration and Validation**

PE NUMBER AND TITLE **0603871C NMD - DEM/VAL**

PROJECT **2400**

- 87950 Test and Evaluation: Test and Evaluation: Support IGT 8, and 9 at the ISTC. Update TEMP with support of the NMD System T&E PIPT. Complete program documentation, pre-mission flights for IFT-7, 8 & 9, pre-launch preparations and oversee execution of IFTs 7, 8 and 9. Evaluate post-test results. Oversee Risk Reduction Flights. Complete VV&A of IFT 8 and 9 targets and re-accredit the ISTC. Continue lethality and live fire testing plan. Coordinate test range infrastructure and upgrades to support EKV flight test from Kwajalein Missile Range (KMR). Coordinate Test range instrumentation upgrades and provide data collection and analysis for NMD testing. Conduct target launches for IFT 7, 8 and 9 from Vandenberg AFB. Oversee LSI test program. Funding for this line supports Government LSI oversight.

- 477 Test Resources: Provide ground facility infrastructure and upgrades for NMD testing including: Integrated System Test Capability at the ARC; command/control technology evaluation at CERES and the JNTF in Colorado; lethality testing at the AEDC Range G; and IR sensor testing at the 7V/10V Chamber at AEDC, and POST in El Segundo CA. Provide test range infrastructure and upgrades to support integrated system testing including: KMR instrumentation, launch control and silo upgrades, and data collection and analysis. Target launch support at Vandenberg AFB CA Orbital/Suborbital Program (OSP) boosters with a suite of target objects provided by Sandia National Laboratory.

- 70610 Management and Operational Support: Continue providing management and support for overhead/indirect fixed costs, and continue to provide management and analysis support to the NMD program in areas such as cost/schedule/performance assessment, cost estimating and analysis, budget analysis and formulation, program planning and control, contract management.

Total 866680

B. Program Change Summary	FY 1998	FY 1999	FY 2000	FY 2001
Previous President's Budget (FY 1999 PB)	941142	950473	864435	664930
Congressional Adjustments				
Appropriated Value		950473		
Adjustments to Appropriated Value				
a. Congressional Reductions		-12344		
b. OSD Reductions		-4597		
c. Emergency Supplemental		600000*		
Adjustments to Budget Years Since FY 1999 PB				
Current Budget Submit (FY 2000 / 2001 PB)	935737	1533532	836555	866680

* Of this amount, $150 million will be executed in FY1999 and $450 million in FY2000

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

DATE **February 1999**

BUDGET ACTIVITY
4 - Demonstration and Validation

PE NUMBER AND TITLE
0603871C NMD - DEM/VAL

PROJECT
2400

Change Summary Explanation:

Funding: FY98: Adjustments to appropriated value, SBIR/STTR and reprogramming.

Schedule: EKV software challenges and damage to an EKV electronics unit caused a delay in intercept flight testing to FY 99. IFT-3, 4 and 5 were rescheduled to permit software and hardware troubleshooting.

Technical: N/A

C. Other Program Funding Summary	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	To Compl	Total Cost
PE 0603871C NMD MILCON Design	540	9,669	0						0	10209
PE 0603871C NMD MILCON Construction				69700	161800	200700	106300	5800		544300
PE 0208871C NMD Procurement				781372	972760	861509	957825	607515		4180981

D. Acquisition Strategy: A central feature of the NMD Program strategy was the award of a contract for an NMD Lead Systems Integrator (LSI). The objective of this approach is to have a single contractor, executing under government direction, who is charged with the contractor accountability to design, develop, test, integrate, and potentially deploy an NMD system. In FY98, the government selected a single contractor to perform in the LSI execution phase. The LSI contract was awarded to Boeing North America in April 98. The LSI will integrate all existing NMD element development activities and initiate development of other elements as necessary. A key aspect of the execution phase of the LSI contract will be the successful completion of an NMD integrated system test, which is intended to demonstrate an initial NMD capability for DRR in FY00.

E. Schedule Profile	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Engineering Milestones								
a. NMD S/PDR		3Q						
b. NMD DRR			3Q					
c. Treaty/HNA			3Q					
d. NMD DAB				2Q				
e. NMD S/CDR				2Q				
f. Weapon PDR		1Q						
g. Weapon CDR			1Q					
h. Weapon ATP						2Q		
i. XBR PDR		3Q						
j. XBR CDR			1Q					
k. XBR ATP				3Q				
l. UEWR PDR		3Q						

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

DATE **February 1999**

BUDGET ACTIVITY **4 - Demonstration and Validation**

PE NUMBER AND TITLE **0603871C NMD - DEM/VAL**

PROJECT **2400**

	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
m. UEWR CDR			1Q					
n. BMC3 PDR		3Q						
o. BMC3 ATP			4Q					
p. Site NOI		1Q						
q. Site Environmental Impact Study Complete			3Q					
r. Site Design Complete					2Q			
s. Site Construction Complete							4Q	
Test and Evaluation Milestones								
t. C2 Sim 97B	1Q							
u. C2Sim 98		1Q						
v. C2Sim 99			1Q					
w. C2Sim 00				1Q				
x. C2Sim 01					1Q			
y. IFT-2	2Q							
z. BM/C3 Capability Increment 3	2Q							
aa. IGT-1A	3Q							
bb. IGT-2		2Q						
cc. IFT-3		3Q						
dd. IFT-4		4Q						
ee. BM/C3 Capability Increment 3A		2Q						
ff. IGT-3		2Q						
gg. IGT-4		3Q						
hh. IGT-5			1Q					
ii. IGT-6			2Q					
jj. IFT-5			2Q					
kk. BV-1			2Q					
ll. BV-2			3Q					
mm. BV-3			4Q					
nn. IGT-7			4Q					
oo. IFT-6			3Q					
pp. BM/C3 Build Increment 1			2Q					
qq. BM/C3 Build Increment 2				1Q				

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

DATE **February 1999**

BUDGET ACTIVITY
4 - Demonstration and Validation

PE NUMBER AND TITLE
0603871C NMD - DEM/VAL

PROJECT
2400

	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
rr. IFT-7				2Q				
ss. IFT-8				3Q				
tt. IFT-9				4Q				
uu. IFT-10					1Q			
vv. IGT-8				1Q				
ww. IGT-9				3Q				
xx. IGT-10					1Q			
Contract Milestones								
yy. BMC3 Contract Transition	4Q							
zz. PLV Contract Transition			1Q					
aaa. EKV Downselect		1Q						
bbb. NMD Lead System Integrator Contract Award	3Q							
ccc. EKV Contract Transition		2Q						
ddd. GBR-P Contract Transition			4Q					
eee. SEI Contract Transition	3Q							
fff. UEWR Contract Transition		2Q						

BMDO RDT&E COST ANALYSIS (R-3)

DATE **February 1999**

BUDGET ACTIVITY
4 - Demonstration and Validation

PE NUMBER AND TITLE
0603871C NMD - DEM/VAL

PROJECT
2400

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
NMD INTEGRATION												
	FP	Boeing	10000		N/A	N/A	N/A	0	N/A	0	10000	10000
	FP	UMDC	10000		N/A	N/A	N/A	0	N/A	0	10000	10000
	CPAF	Boeing	199815	1109423	N/A	489328	N/A	582603	N/A	CONT	2381169	2381169
		Misc	100	0	N/A	0	N/A	0	N/A	0	100	100
GBI												
	CPFF	Raytheon	246315	35600	N/A	0	N/A	0	N/A	0	281915	281915
	CPFF	Boeing	255394	53200	N/A	37346	N/A	21755	N/A	CONT	367695	367695
	CPIF	Lockheed	193944	34000	N/A	17000	N/A	0	N/A	0	244944	244944
	CPAF	NRC	9867	0	N/A	0	N/A	0	N/A	0	9867	9867
	TM	NRC (New SETA)	6269	2757	N/A	4857	N/A	3997	N/A	CONT	17880	17880
	CPFF	Sparta	5642	1324	N/A	2072	N/A	1656	N/A	CONT	10694	10694
	CPFF	ASGI	1307	0	N/A	0	N/A	0	N/A	0	1307	1307
	CPFF	Mevatec	1045	0	N/A	0	N/A	0	N/A	0	1045	1045
	TM	Mevatec (New SETA)	583	623	N/A	695	N/A	461	N/A	CONT	2362	2362
	TCPFF	SY Technology	4375	2063	N/A	3184	N/A	3277	N/A	CONT	12899	12899
	CPFF	Hughes (PET)	5238	0	N/A	0	N/A	0	N/A	0	5238	5238
	CPFF	Liris (PET)	5236	0	N/A	0	N/A	0	N/A	0	5236	5236
	CPFF	BNA (SHLD)	4228	0	N/A	0	N/A	0	N/A	0	4228	4228
	CPFF	TRW	1457	0	N/A	0	N/A	0	N/A	0	1457	1457
	CPFF	Harris	1061	0	N/A	0	N/A	0	N/A	0	1061	1061
	N/A	SFAE-MD	13478	0	N/A	0	N/A	0	N/A	0	13478	13478
	CPAF	TBE	527	0	N/A	0	N/A	0	N/A	0	527	527
	TM	TBE (New SETA)	13202	5675	N/A	9322	N/A	8592	N/A	CONT	36791	36791
	CPFF	Stone Engineer	730	1397	N/A	1757	N/A	1518	N/A	CONT	5402	5402
	CPFF	CST	172	0	N/A	0	N/A	0	N/A	0	172	172
	CPFF	Dynetics	80	0	N/A	0	N/A	0	N/A	0	80	80
	CPFF	BNA	480	0	N/A	0	N/A	0	N/A	0	480	480

BMDO RDT&E COST ANALYSIS (R-3)

DATE **February 1999**

BUDGET ACTIVITY **4 - Demonstration and Validation**

PE NUMBER AND TITLE **0603871C NMD - DEM/VAL**

PROJECT **2400**

	CPFF	Kaman	95	0	N/A	0	N/A	0	N/A	0	95	95
		OGA's	9444	9904	N/A	8910	N/A	5804	N/A	CONT	34062	34062
	TBD	Misc	19244	681	N/A	1824	N/A	1612	N/A	CONT	23361	23361
	Prime Ktr	Term Cost FY00	0	0	N/A	10000	N/A	0	N.A	0	10000	10000
BM/C3												
	CPFF	TRW	94947	0	N/A	0	N/A	0	N/A	0	94947	94947
	CPAF/CPFF	BDM/CSC	10150	0	N/A	0	N/A	0	N/A	0	10150	10150
	CPAF	LSI (BMC3 Dev & Integration)Boeing	5429	0	N/A	0	N/A	0	N/A	0	5429	5429
	MIPR	National Labs	2200	0	N/A	0	N/A	0	N/A	0	2200	2200
	CPFF	Nichols Research	2013	0	N/A	0	N/A	0	N/A	0	2013	2013
	N/A	NSWC	4630	4251	N/A	1851	N/A	1850	N/A	CONT	12582	12582
	MIPR	MITRE (FFRRDC)	7382	1700	N/A	2600	N/A	2600	N/A	CONT	14282	14282
	CPFF	SENCOM	4628	0	N/A	0	N/A	0	N/A	CONT	4628	4628
	N/A	PEO-AMD	4828	0	N/A	0	N/A	0	N/A	0	4828	4828
	MIPR	COE	1060	0	N/A	0	N/A	0	N/A	0	1060	1060
	CPFF	SPARTA	2717	1670	N/A	2160	N/A	1510	N/A	CONT	8057	8057
	CPAF	TBE	3257	0	N/A	0	N/A	0	N/A	0	3257	3257
	CPAF	Nichols	3656	795	N/A	1029	N/A	1027	N/A	CONT	6507	6507
	CPAF	TRW	5901	3700	N/A	3700	N/A	3700	N/A	CONT	17001	17001
	CPAF	Loral	5742	0	N/A	0	N/A	0	N/A	CONT	5742	5742
	CPAF	VRI	2239	0	N/A	0	N/A	0	N/A	CONT	2239	2239
	N/A	Misc	20871	3091	N/A	2769	N/A	2816	N/A	CONT	29547	29547
	NN/A	ESC	1828	1050	N/A	1300	N/A	1300	N/A	CONT	5478	5478
	N/A	UK MOD	0	0	11/99	1232	N/A	1160	N/A	CONT	2392	2392
	TBD	QTRA	0	592	N/A	0	N/A	0	N/A	0	592	592
	TBD	QRI	0	656	N/A	849	N/A	1541	N/A	CONT	3046	3046
GBR												
	CPFF	Raytheon	141530	14041	N/A	7000	N/A	0	N/A	CONT	162571	162571
	CPAF	TBE	7941	2900	N/A	2900	N/A	4056	N/A	CONT	17797	17797
	CPAF	Colsa	13215	2024	N/A	2024	N/A	4929	N/A	CONT	22192	22192
	CPAF	NRC	2810	1925	N/A	1925	N/A	3127	N/A	0	9787	9787
	N/A	SFAE-MD	20437	0	N/A	0	N/A	0	N/A	0	20437	20437

BMDO RDT&E COST ANALYSIS (R-3)

DATE **February 1999**

BUDGET ACTIVITY **4 - Demonstration and Validation**

PE NUMBER AND TITLE **0603871C NMD - DEM/VAL**

PROJECT **2400**

	MIPR	MITRE (Lincoln Labs)	9500	2150	N/A	2150	N/A	3200	N/A	CONT	17000	17000
	CPAF	Raytheon	5605	2905	N/A	0	N/A	0	N/A	CONT	8510	8510
	N/A	Misc	10521	2099	N/A	1428	N/A	1862	N/A	CONT	15910	15910
	N/A	Misc/OGA	0	4674	N/A	2000	N/A	2374		CONT	9048	9048
UEWR												
	T&M	Xontech	7000	1000	N/A	0	N/A	0	N/A	0	8000	8000
	T&M	SENCOM	2924	1500	N/A	1230	N/A	1250	N/A	CONT	6904	6904
	CPAF	Alphatech	2314	0	N/A	0	N/A	0	N/A	0	2314	2314
	FFRDC	Mitre	6775	2500	N/A	2100	N/A	2100	N/A	CONT	13475	13475
	Various	X-band Radar	4208	0	N/A	0	N/A	0	N/A	0	4208	4208
	Various	LSI	1339	0	N/A	0	N/A	0	N/A	0	1339	1339
	N/A	Misc	6457	236	N/A	0	N/A	0	N/A	0	6693	6693
SENSOR TECH												
	CPFF	Raytheon	3473	0	N/A	0	N/A	0	N/A	0	3473	3473
	CPFF	Analog Devices	3788	0	N/A	0	N/A	0	N/A	0	3788	3788
	CPIF	Raytheon	300	120	N/A	200	N/A	200	N/A	CONT	820	820
	CPIF	TBD	3820	0	N/A	0	N/A	0	N/A	0	3820	3820
	CPFF	TBD	350	120	N/A	200	N/A	200	N/A	CONT	870	870
	CPFF	Raytheon	2450	120	N/A	500	N/A	500	N/A	CONT	3570	3570
	CPFF	MRC	3392	0	N/A	0	N/A	0	N/A	0	3392	3392
	N/A	Phillips Lab	2900	120	N/A	500	N/A	500	N/A	CONT	4020	4020
	CPAF	AFRL	4135	120	N/A	500	N/A	500	N/A	CONT	5255	5255
	CPAF	Ball Aero	691	0	N/A	0	N/A	0	N/A	0	691	691
	CPAF	Lockheed Martin	600	0	N/A	0	N/A	0	N/A	0	600	600
	CPAF	Creare	2329	0	N/A	0	N/A	0	N/A	0	2329	2329
	CPFF	Raytheon	242	0	N/A	0	N/A	0	N/A	0	242	242
	CPFF	Swales	750	120	N/A	400	N/A	400	N/A	CONT	1670	1670
	CP	Aerospace	1480	0	N/A	0	N/A	0	N/A	0	1480	1480
	CPAF	Ball	3345	120	N/A	800	N/A	800	N/A	CONT	5065	5065
	N/A	AFRL	231	0	N/A	0	N/A	0	N/A	0	231	231
	CPAF	Logicon	125	0	N/A	0	N/A	0	N/A	0	125	125
	CPAF	S Systems Corp	270	0	N/A	0	N/A	0	N/A	0	270	270
	CPFF	Raytheon	874	120	N/A	850	N/A	850	N/A	CONT	2694	2694

BMDO RDT&E COST ANALYSIS (R-3)

DATE **February 1999**

BUDGET ACTIVITY **4 - Demonstration and Validation**

PE NUMBER AND TITLE **0603871C NMD - DEM/VAL**

PROJECT **2400**

	CPAF	Crane	1290	0	N/A	0	N/A	0	N/A	0	1290	1290
	CPAF	Lockheed Martin	1582	0	N/A	0	N/A	0	N/A	0	1582	1582
	CPAF	TRW	3935	0	N/A	0	N/A	0	N/A	0	3935	3935
	CPAF	Honeywell	2845	0	N/A	0	N/A	0	N/A	0	2845	2845
	CPAF	Raytheon	1470	0	N/A	0	N/A	0	N/A	0	1470	1470
	CPAF	Rockwell	2030	120	N/A	1500	N/A	1500	N/A	CONT	5150	5150
	N/A	Xontech	1400	0	N/A	0	N/A	0	N/A	0	1400	1400
	N/A	WPAFB	1600	0	N/A	0	N/A	0	N/A	0	1600	1600
	CPFF	JHU/APL	11644	0	N/A	0	N/A	0	N/A	0	11644	11644
	CPFF	JHU/APL(B)	16938	0	N/A	0	N/A	0	N/A	0	16938	16938
	CPFF	MDA	1350	0	N/A	0	N/A	0	N/A	0	1350	1350
	CPFF	USU(SP)	8487	0	N/A	0	N/A	0	N/A	0	8487	8487
	CPFF	USU(DPC)	7999	0	N/A	0	N/A	0	N/A	0	7999	7999
	CPFF	NRC	6884	0	N/A	0	N/A	0	N/A	0	6884	6884
	MIPR	Misc NASA	831	0	N/A	0	N/A	0	N/A	0	831	831
	N/A	USASMDC	4821	0	N/A	0	N/A	0	N/A	0	4821	4821
	N/A	AFSMC	19340	0	N/A	0	N/A	0	N/A	0	19340	19340
	N/A	NRL	4609	0	N/A	0	N/A	0	N/A	0	4609	4609
	N/A	USASMDC	3276	675	N/A	0	N/A	0	N/A	0	3951	3951
	CPAF	JHU/APL	6180	0	N/A	0	N/A	0	N/A	0	6180	6180
	CPFF	Honeywell	0	120	11/99	1000	N/A	1000	N/A	CONT	2120	2120
		TBD	0	120	11/99	500	N/A	500	N/A	CONT	1120	1120
		MRC	404	120	N/A	1426	N/A	1426	N/A	CONT	3376	3376
		Misc Contracts	14951	38	N/A	1339	N/A	1403	N/A	CONT	17731	17731
OTHER NMD INITIATIVES												
	CPIF	TRW	350	0	N/A	0	N/A	0	N/A	0	350	350
		NRC	721	0	N/A	0	N/A	0	N/A	0	721	721
		SAIC	1107	0	N/A	0	N/A	0	N/A	0	1107	1107
		Aerospace	500	0	N/A	0	N/A	0	N/A	0	500	500
		APL	384	0	N/A	0	N/A	0	N/A	0	384	384
		OO-ALC-REA	4200	0	N/A	0	N/A	0	N/A	0	4200	4200
		OO-ALC-M&S	775	0	N/A	0	N/A	0	N/A	0	775	775
		ESC/XRS	1960	0	N/A	0	N/A	0	N/A	0	1960	1960

BMDO RDT&E COST ANALYSIS (R-3)

DATE **February 1999**

BUDGET ACTIVITY **4 - Demonstration and Validation**

PE NUMBER AND TITLE **0603871C NMD - DEM/VAL**

PROJECT **2400**

		BESC	400	0	N/A	0	N/A	0	N/A	0	400	400
		NRC (SHIELD)	2210	0	N/A	0	N/A	0	N/A	0	2210	2210
		AST	600	0	N/A	0	N/A	0	N/A	0	600	600
		SNL/IFTU/TSPN	900	0	N/A	0	N/A	0	N/A	0	900	900
		Phillips Lab	882	0	N/A	0	N/A	0	N/A	0	882	882
		AFSPC	1910	0	N/A	0	N/A	0	N/A	0	1910	1910
		SMC/TEB	60	0	N/A	0	N/A	0	N/A	0	60	60
		SMC/ADE	358	0	N/A	0	N/A	0	N/A	0	358	358
		Misc Contracts	43	0	N/A	0	N/A	0	N/A	0	43	43
SPECIAL INTEREST PROGRAMS												
		SMC/TEB*	18000	0	N/A		N/A		N/A	0	18000	18000
Subtotal Product Development:			1640153	1314259		636257		681456			4272125	4272125

Remark: *NMD Test Site Initiatives, Congressionally directed Kodiak Island site work.

BMDO RDT&E COST ANALYSIS (R-3)

DATE **February 1999**

BUDGET ACTIVITY
4 - Demonstration and Validation

PE NUMBER AND TITLE
0603871C NMD - DEM/VAL

PROJECT
2400

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
SYSTEM ENGINEERING												
	CPFF	BMD/CSC	79824	14041	N/A	13680	N/A	13493	N/A	CONT	121038	121038
	CPAF/CPFF	BDM	12580	0	N/A	0	N/A	0	N/A	0	12580	12580
	N/A	USSPACECOM	4859	2565	N/A	1458	N/A	1467	N/A	CONT	10349	10349
	N/A	JNTF	11774	1093	N/A	5707	N/A	951	N/A	CONT	19525	19525
	MIPR	DSWA	4965	1450	N/A	1458	N/A	1467	N/A	CONT	9340	9340
	N/A	ARSPACE	2519	0	N/A	487	N/A	489	N/A	CONT	3495	3495
	N/A	AFSPACE	1599	0	N/A	487	N/A	489	N/A	CONT	2575	2575
	N/A	USAF/SMC/SE	3899	0	N/A	87	N/A	489	N/A	0	4475	4475
	N/A	USAF/SMC/ SBIRS	1000	740	N/A	972	N/A	978	N/A	CONT	3690	3690
	N/A	NAVSPACE	1047	0	N/A	47	N/A	47	N/A	CONT	1141	1141
	N/A	NSWC	1017	0	N/A	0	N/A	0	N/A	0	1017	1017
	N/A	Threat and CM	3515	0	N/A	0	N/A	0	N/A	0	3515	3515
	MIPR	POET	48	0	N/A	0	N/A	0	N/A	0	48	48
	MIPR	EADTB	250	0	N/A	0	N/A	0	N/A	0	250	250
	N/A	SMDC	48	0	N/A	0	N/A	0	N/A	0	48	48
	N/A	Misc	0	7316	N/A	4623	N/A	0	N/A	0	11939	11939
DEPLOYMENT PLANNING												
	CPFF	TRW	15413	0	N/A	0	N/A	0	N/A	0	15413	15413
	MIPR	NIST	1939	1500	N/A	1000	N/A	1000	N/A	CONT	5439	5439
	N/A	SFAE-MD	4573	0	N/A	0	N/A	0	N/A	0	4573	4573
	N/A	USAF/SMC	1215	817	N/A	500	N/A	500	N/A	CONT	3032	3032
	N/A	USSPACECOM	3690	1704	N/A	600	N/A	600	N/A	CONT	6594	6594
	CPFF	TBD	2610	10000	N/A	2000	N/A	2000	N/A	CONT	16610	16610
	N/A	USA Corp of Eng	1100	10000	N/A	2000	N/A	2000	N/A	CONT	15100	15100
	CPFF	TBD	1000	0	N/A	0	N/A	0	N/A	0	1000	1000
	N/A	Misc contracts	8873	0	N/A	0	N/A	0	N/A	0	8873	8873
	TBD	Misc	0	1881	11/99	555	11/99	217	11/99	CONT	2653	2653

BMDO RDT&E COST ANALYSIS (R-3)

DATE **February 1999**

BUDGET ACTIVITY
4 - Demonstration and Validation

PE NUMBER AND TITLE
0603871C NMD - DEM/VAL

PROJECT
2400

MANAGEMENT AND OPERATIONAL SUPPORT												
	CPAF/CPFF	CSC	69387	23115	N/A	21576	N/A	20635	N/A	CONT	134713	134713
	N/A	SFAE-MD	32069	19541	N/A	18711	N/A	18765	N/A	CONT	89086	89086
	N/A	USASMDC	5715	3260	N/A	3222	N/A	3211	N/A	CONT	15408	15408
	N/A	Misc (SBIR)/RES.	9331	432	N/A	0	N/A	0	N/A	0	9763	9763
	N/A	USSPACECOM	0	4939	N/A	0	N/A	0	N/A	0	4939	4939
	N/A	Operational accounts	69057	26122	N/A	26781	N/A	27999	N/A	CONT	149959	149959
DISCRIMINATION												
	CPFF	Boeing	9693	0	N/A	0	N/A	0	N/A	0	9693	9693
	FFRDC	MIT/LL	12755	0	N/A	0	N/A	0	N/A	0	12755	12755
	CPFF	Xontech	3333	0	N/A	0	N/A	0	N/A	0	3333	3333
	N/A	USASMDC	1758	0	N/A	0	N/A	0	N/A	0	1758	1758
		TBD	9204	0	N/A	0	N/A	0	N/A	0	9204	9204
	N/A	Misc contracts	19517	0	N/A	0	N/A	0	N/A	0	19517	19517
SYSTEM ARCH AND ENGINEERING												
		SPARTA	3449	0	N/A	0	N/A	0	N/A	0	3449	3449
	CPAF/CPFF	CSC	2679	0	N/A	0	N/A	0	N/A	0	2679	2679
		JNTF	867	0	N/A	0	N/A	0	N/A	0	867	867
		USASMDC	991	0	N/A	0	N/A	0	N/A	0	991	991
		Misc contracts	1744	0	N/A	0	N/A	0	N/A	0	1744	1744
THREAT AND COUNTERMEASURE												
a.	N/A	Sandia	2500	0	N/A	0	N/A	0	N/A	0	2500	2500
b.	FFRDC	MIT/LL	3800	0	N/A	0	N/A	0	N/A	0	3800	3800
c.	N/A	OGAs	2385	0	N/A	0	N/A	0	N/A	0	2385	2385
d.		TBD	2600	0	N/A	0	N/A	0	N/A	0	2600	2600
e.	N/A	Misc contracts	10269	3000	N/A	0	N/A	0	N/A	0	13269	13269
Subtotal Support Costs:			442460	133516		105951		96797			778724	778724

Remark:

BMDO RDT&E COST ANALYSIS (R-3)

DATE **February 1999**

BUDGET ACTIVITY
4 - Demonstration and Validation

PE NUMBER AND TITLE
0603871C NMD - DEM/VAL

PROJECT
2400

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
TEST AND EVALUATION												
a.	CPAF	TBE	29090	8949	N/A	10076	N/A	9443	N/A	0	57558	57558
b.	CPFF	Colsa	10965	2820	N/A	3175	N/A	2976	N/A	0	19936	19936
c.	CPFF	Boeing	7400	690	N/A	777	N/A	728	N/A	0	9595	9595
d.	CPFF	Raytheon	5900	2107	N/A	2373	N/A	2223	N/A	0	12603	12603
e.	CPAF	TRW	246	0	N/A	0	N/A	0	N/A	0	246	246
f.	CPFF	TRW	4254	0	N/A	0	N/A	0	N/A	CONT	4254	4254
g.	CPFF	Raytheon	2900	2107	N/A	2372	N/A	2223	N/A	0	9602	9602
h.	CPAF	SAIC	1616	700	N/A	788	N/A	738	N/A	CONT	3842	3842
i.	CPAF	Nichols	3447	0	N/A	0	N/A	0	N/A	0	3447	3447
j.	CPFF	SRS	2282	1462	N/A	1646	N/A	1543	N/A	0	6933	6933
k.	N/A	USAKA	15866	11099	N/A	12497	N/A	11711	N/A	CONT	51173	51173
l.	N/A	SPAWAR	900	900	N/A	900	N/A	900	N/A	0	3600	3600
m.	N/A	Sandia	4147	1200	N/A	1351	N/A	1266	N/A	CONT	7964	7964
n.	N/A	USASMDC	2910	2900	N/A	3265	N/A	3060	N/A	CONT	12135	12135
o.	N/A	JNTF	1110	1000	N/A	1126	N/A	1055	N/A	CONT	4291	4291
p.	N/A	NRL	200	0	N/A	0	N/A	0	N/A	0	200	200
q.	TBD	Misc contracts	71851	14065	N/A	6044	N/A	7200	N/A	CONT	99160	99160
GBI TARGETS												
r.	N/A	USASMDC	1754	4023	N/A	4530	N/A	4245	N/A	CONT	14552	14552
s.	N/A	Sandia	43734	4285	N/A	4825	N/A	4521	N/A	CONT	57365	57365
t.	N/A	SMC	11483	1972	N/A	2221	N/A	2081	N/A	CONT	17757	17757
u.	N/A	Lockheed	42214	14388	N/A	16201	N/A	15182	N/A	CONT	87985	87985
v.	CPFF	Sy Technology	991	500	N/A	563	N/A	528	N/A	CONT	2582	2582
w.	CPAF	TBE	1645	450	N/A	450	N/A	450	N/A	CONT	2995	2995
x.	CPFF	TRW	2785	0	N/A	0	N/A	0	N/A	CONT	2785	2785
y.	CPFF	Boeing	40	0	N/A	0	N/A	0	N/A	0	40	40
z.	CPFF	Raytheon	40	0	N/A	0	N/A	0	N/A	0	40	40
aa.	CPFF	Vista	170	0	N/A	0	N/A	0	N/A	0	170	170
bb.	CPFF	Colsa	10	0	N/A	0	N/A	0	N/A	0	10	10
cc.	CPFF	Stone Engineer	0	25	11/99	25	N/A	25	N/A	CONT	75	75

BMDO RDT&E COST ANALYSIS (R-3)

DATE **February 1999**

BUDGET ACTIVITY **4 - Demonstration and Validation**

PE NUMBER AND TITLE **0603871C NMD - DEM/VAL**

PROJECT **2400**

dd.	TBD	OSC	1815	6932	N/A	7805	N/A	7315	N/A	CONT	23867	23867
ee.	TBD	Misc contracts	7058	739	N/A	10838	N/A	8537	N/A	0	27172	27172
MSX TARGETS												
ff.	N/A	USASMDC	7075	0	N/A	0	N/A	0	N/A	0	7075	7075
gg.	N/A	Sandia	11664	0	N/A	0	N/A	0	N/A	0	11664	11664
hh.	CPAF	TBE	1950	0	N/A	0	N/A	0	N/A	0	1950	1950
ii.	N/A	MICOM	1272	0	N/A	0	N/A	0	N/A	0	1272	1272
jj.	CPFF	Stone Engineer	150	0	N/A	0	N/A	0	N/A	0	150	150
kk.	N/A	NASA-LBJ	200	0	N/A	0	N/A	0	N/A	0	200	200
ll.	N/A	Tooele Depot	73	0	N/A	0	N/A	0	N/A	0	73	73
mm.	N/A	Sierra Depot	100	0	N/A	0	N/A	0	N/A	0	100	100
nn.	N/A	PMR	100	0	N/A	0	N/A	0	N/A	0	100	100
oo.	N/A	Rock Island ARS	100	0	N/A	0	N/A	0	N/A	0	100	100
pp.	TBD	Misc contracts	1791	0	N/A	0	N/A	0	N/A	0	1791	1791
MODELLING AND SIMULATION												
qq.	N/A	AMSC	469	0	N/A	0	N/A	0	N/A	0	469	469
rr.	N/A	BCOE	349	0	N/A	0	N/A	0	N/A	0	349	349
ss.	N/A	MDDC	879	0	N/A	0	N/A	0	N/A	0	879	879
tt.	SS/CPFF	Colsa (ARC)	7062	0	N/A	0	N/A	0	N/A	0	7062	7062
uu.	Comp/CPFF	MRC (SC)	2354	0	N/A	0	N/A	0	N/A	0	2354	2354
vv.	N/A	USASMDC	3190	700	N/A	0	N/A	0	N/A	0	3890	3890
ww.	N/A	NRL	1027	0	N/A	0	N/A	0	N/A	0	1027	1027
xx.	N/A	AFSPACE	413	0	N/A	0	N/A	0	N/A	0	413	413
yy.	C/CPAF	TRW (JNTF)	15364	0	N/A	0	N/A	0	N/A	0	15364	15364
zz.	C/CPAF	Lockheed Martin (JNTF)	23045	0	N/A	0	N/A	0	N/A	0	23045	23045
aaa.	N/A	BMDO	1506	0	N/A	0	N/A	0	N/A	0	1506	1506
bbb.	N/A	Mission Oriented ITR	2086	0	N/A	0	N/A	0	N/A	0	2086	2086
ccc.	N/A	JNTF GOV	1832	0	N/A	0	N/A	0	N/A	0	1832	1832
JOINT NATIONAL FACILITY												
ddd.	C/CPAF	TRW	1808	0	N/A	0	N/A	0	N/A	0	1808	1808
eee.	C/CPAF	Lockheed Martin	4525	0	N/A	0	N/A	0	N/A	0	4525	4525

BMDO RDT&E COST ANALYSIS (R-3)

DATE **February 1999**

BUDGET ACTIVITY **4 - Demonstration and Validation**

PE NUMBER AND TITLE **0603871C NMD - DEM/VAL**

PROJECT **2400**

fff.	C/CPAF	Vanguard	1055	0	N/A	0	N/A	0	N/A	0	1055	1055
ggg.	N/A	Government	1426	0	N/A	0	N/A	0	N/A	0	1426	1426
SYSTEM TEST AND EVALUATION		TBD	328	0	N/A	0	N/A	0	N/A	0	328	328
TEST RESOURCES												
hhh.	N/A	USASMDC	8338	0	N/A	0	N/A	0	N/A	0	8338	8338
iii.	N/A	Phillips Lab	2649	0	N/A	0	N/A	0	N/A	0	2649	2649
jjj.	N/A	Wright Lab	3090	0	N/A	0	N/A	0	N/A	0	3090	3090
kkk.	N/A	Det2-SMC	900	0	N/A	0	N/A	0	N/A	0	900	900
lll.	N/A	NIST	300	0	N/A	0	N/A	0	N/A	0	300	300
mmm.	N/A	Arnold Engin.	3875	0	N/A	0	N/A	0	N/A	0	3875	3875
nnn.	N/A	NSWC	2187	0	N/A	0	N/A	0	N/A	0	2187	2187
ooo.	N/A	SPAWAR	1210	0	N/A	0	N/A	0	N/A	0	1210	1210
ppp.	N/A	Misc contracts	13300	1744	N/A	499	N/A	477	N/A	CONT	16020	16020
Subtotal Test and Evaluation:			407865	85757		94347		88427			676396	676396

Remark:

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a.												
b.												
c.												
d.												
e.												
f.												
Subtotal Management Services:												

Remark:

Project Total Cost:			2490478	1533532		836555		866680			5727245	5727245

Remark: