

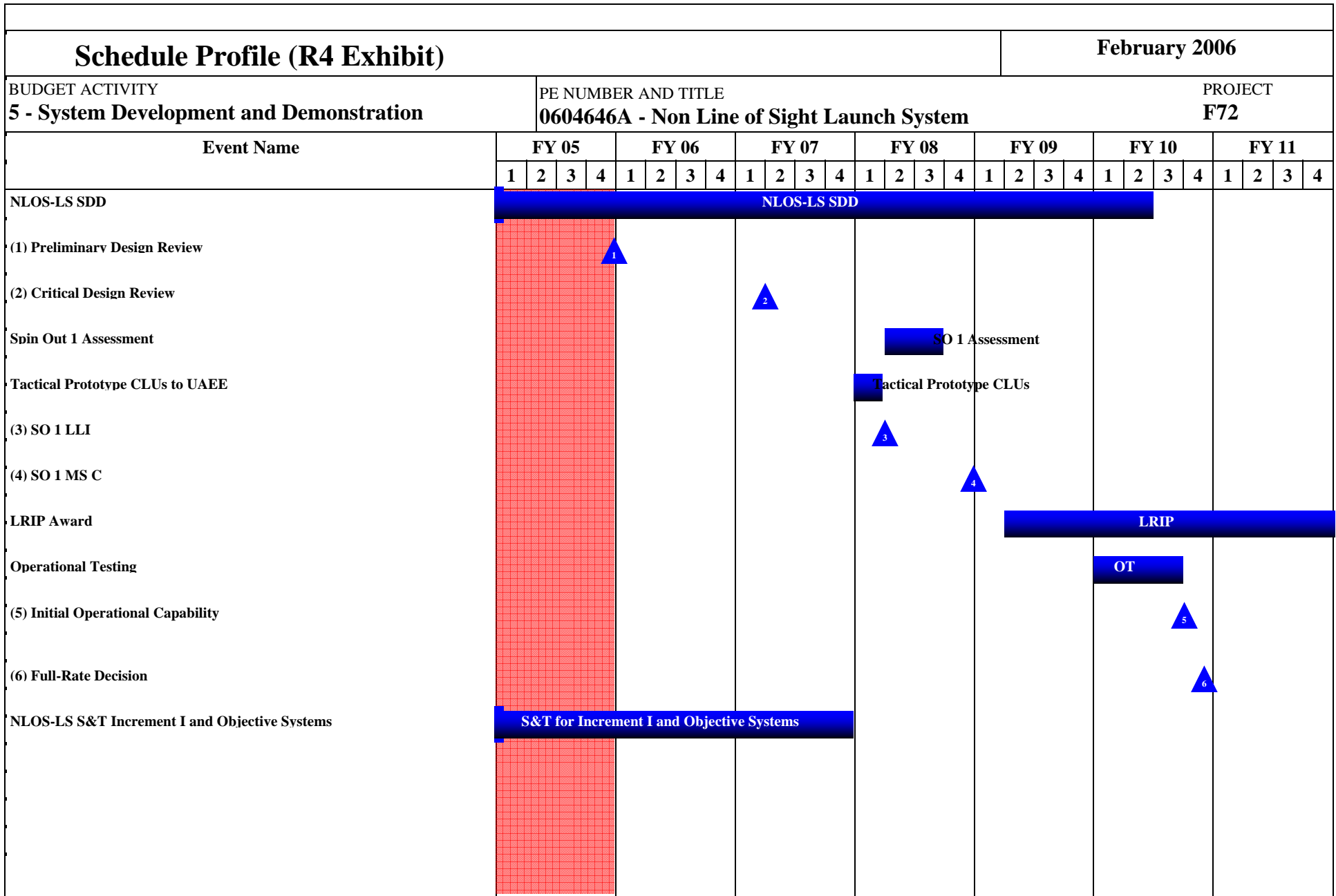
| ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit) | | | | | | | February 2006 | | |
|--|------------------|------------------|--|------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
| BUDGET ACTIVITY 5 - System Development and Demonstration | | | PE NUMBER AND TITLE 0604646A - Non Line of Sight Launch System | | | | | PROJECT F72 | |
| COST (In Thousands) | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | Cost to Complete | Total Cost |
| F72 NON LINE OF SIGHT LAUNCH SYSTEM | 119767 | 231209 | 322880 | 274793 | 256283 | 89143 | 17759 | 0 | 1311834 |
| <p><u>A. Mission Description and Budget Item Justification:</u> This project funds the System Development and Demonstration (SDD) for the Non Line of Sight-Launch System (NLOS-LS), which is a core system of the Army's Future Combat System (FCS).</p> <p>This project focuses on the development of a materiel solution to meet the NLOS-LS operational need as delineated in the FCS Operational Requirements Document (ORD), 31 Jan 05. NLOS-LS provides enabling lethality for the FCS Unit of Action (UA). NLOS-LS consists of a family of missiles and a highly deployable, platform-independent Container Launch Unit (CLU) with self-contained technical fire control, electronics, communications and software for remote, unmanned operations. The NLOS-LS configuration will consist of Precision Attack Missiles (PAMs) focused on defeating hard targets and Loitering Attack Missiles (LAMs) focused on defeating fleeting, high-value targets as well as supporting both targeting information and Battle Damage Assessment. Each of the missiles will be vertically launched directly from the CLU based on fire missions received via the FCS UA network and will be capable of being updated in-flight via on-board radios by the network. The vertical launch capability permits a system that is highly deployable as well as the ability to engage a wide spectrum of targets in diverse environments and terrain. Both missiles will have limited Automatic Target Recognition (ATR) capability which can be upgraded in future versions.</p> <p>The FY 06-07 funding supports the NLOS-LS SDD program. Efforts will focus on allocation of requirements, design activities, component build and test, and conduct of both a Preliminary Design Review (PDR) and Critical Design Review (CDR). In addition, pre-CDR design verification flight testing will be conducted. Beginning in FY 05, the NLOS-LS (CLU and PAM) was realigned to meet the FCS Spin Out 1 requirements and to be evaluated in the Evaluation Brigade Combat Team (EBCT) for insertion in current forces using their communications capability in lieu of the FCS network. Due to affordability, LAM is currently in the Army's Science and Technology (S&T) Base.</p> | | | | | | | | | |
| <u>Accomplishments/Planned Program</u> | | | | | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> | | |
| Completed PAM System Functional Review (SFR) and Preliminary Design Review (PDR), Insensitive Munitions (IM) screening tests on warhead and motor designs, Control Actuation System (CAS) breadboard integration with pintle rocket motor, transitioned S&T EPAM seeker design as PAM baseline design, Electro-Magnetic Interference testing on EPAM seekers and Captive Flight Tests to validate EPAM Seeker and Moving Target Indicator software performances. PAM detailed system design(FY06), software engineering(FY06/07), radio integration(FY07), Integration and Verification (IV0(FY06) and IV1(FY07)) simulations, pre-CDR ballistic and control tests(FY06), prototype manufacturing(FY06/07), component detailed design(FY06), component procurement(FY07), and qualification testing (engines, warheads, Electric Safe Arm Device (ESAD), etc.)(FY07), pilot line setup(FY07), PAM Integrated Flight Simulation(FY06/07), Captive Flight Tests(FY06/07), air drop test(FY07), and wind tunnel tests(FY06/07). | | | | | 56865 | 117702 | 128879 | | |
| LAM completed two Ballistic Test Vehicle (BTV) tests. FY05 - Planned system design, software engineering, prototype manufacturing, and testing to include flight tests involving BTV, Control Test Vehicle (CTV), and Guidance Test Vehicle (GTV). | | | | | 16700 | 0 | 0 | | |
| Container/Launch Unit (CLU) SFR and PDR, developed and received first CLU and battery prototypes, developed and fabricated first full scale CLU structure, CLU/System PDR, procure hardware components and design verification tests (DVT). Planned are detailed system design(FY06), software engineering(FY06/07), radio integration(FY07), current force interoperability(FY07), IV1 emulator(FY07), prototype manufacturing(FY06/07), pilot line setup(FY06/07), procure components/build hardware and deliver EBCT CLUs(FY07), | | | | | 17389 | 54250 | 102931 | | |
| | | | | | | | | | |

| ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit) | | | February 2006 |
|--|---|--------|---------------|
| BUDGET ACTIVITY | PE NUMBER AND TITLE | | PROJECT |
| 5 - System Development and Demonstration | 0604646A - Non Line of Sight Launch System | | F72 |
| health hazard assessment(FY07), safety testing(FY07), establishment of Performance Based Logistics(PBL)(FY07), Support for EBCT hardware, CLU component and CLU CDRs, CLU component level qualification testing(FY07), and subsystem hardware builds(FY07). | | | |
| Development of a NLOS-LS VMF Integrated Database (VID) and VMF Test Tool (VTT) based on the NLOS-LS ICD to support the FCS IVO simulation exercise, finalize Simulation Support Plan(FY07), draft Countermeasures Assessment Plan(FY06/07) and support Experiment 1.1(FY06/07). Planned SOSCOE integration(FY07), develop interfaces for current force integration(FY06/07), support IVO(FY06) and IV1(FY07) simulation exercises, common component detailed design(FY06), pilot line setup(FY06/07), system level engineering and test and evaluation(FY06/07), FMTV modifications for EBCT(FY07), CLU/AFATDS/SOSCOE interoperability testing(FY07), safety/hazard assessment testing(FY07), integration of hardware/software into Hardware in the Loop (HWIL) facility(FY06/07), updated Verification & Validation Plan to include countermeasures hardware in the loop model(FY07), verification/validation of training support package (Operator, I&KP, AFATDS Operator, Staff, and FMTV training)(FY07), System Engineering and Program Management (FY06/07), and Test Support (FY06/07). | 28813 | 59257 | 91070 |
| Total | 119767 | 231209 | 322880 |
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| ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit) | | | | | | | February 2006 | | |
|--|---------|---------|---------|--|---------|---------|----------------------|-----------------------|------------|
| BUDGET ACTIVITY 5 - System Development and Demonstration | | | | PE NUMBER AND TITLE 0604646A - Non Line of Sight Launch System | | | | PROJECT F72 | |
| <u>B. Program Change Summary</u> | | | | FY 2005 | FY 2006 | FY 2007 | | | |
| Previous President's Budget (FY 2006) | | | | 55794 | 231554 | 329412 | | | |
| Current BES/President's Budget (FY 2007) | | | | 119767 | 231209 | 322880 | | | |
| Total Adjustments | | | | 63973 | -345 | -6532 | | | |
| Congressional program reductions | | | | | | -6532 | | | |
| Congressional rescissions | | | | | -3345 | | | | |
| Congressional increases | | | | | 3000 | | | | |
| Reprogrammings | | | | 63973 | | | | | |
| SBIR/STTR Transfer | | | | | | | | | |
| Adjustments to Budget Years | | | | | | | | | |
| Change Summary Explanation: FY 05 funds were reprogrammed from FCS Program Element 0604645A Armored System Modernization Engineering Development, (Project F61) SOS Engineering Program Management, to accelerate NLOS-LS for Spin Out 1. Congressional Plus Up of three million for FY06 for Anti-Tampering and Turbo Jet Engine. Congressional rescission of 1.45% across the board. | | | | | | | | | |
| <u>C. Other Program Funding Summary</u> | | | | | | | | | |
| | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | To Compl | Total Cost |
| PE 0603581N Navy | 5350 | 10200 | 16500 | 37160 | 51910 | 51100 | 92400 | 0 | 264620 |
| PE 0603313 A263 Msl & Rocket Adv Tech | 29641 | 39635 | 14277 | 0 | 0 | 0 | 0 | 0 | 83553 |
| Comment: <u>D. Acquisition Strategy</u> The Army awarded the NLOS-LS SDD contract, on 19 March 2004, to Netfires Limited Liability Company (LLC), consisting of Lockheed Martin Corporation, doing business through its Missiles and Fire control and operating entity in Grand Prairie, TX, and the Raytheon Corporation, doing business through its Missile Systems Business Unit in Tuscon, AZ. The NLOS-LS SDD contract was definitized 20 Aug 04. LAM activities will continue in the Army's Science and Technology (S&T) program to make improvements through technology development and insertion. A series of four Spin Out packages will begin in 2008 and continue every two years through 2014 to insert NLOS-LS capability into Current Force Modular Brigade Combat Teams (M-BCTs) to include Stryker, Heavy, and Infantry. | | | | | | | | | |

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| ARMY RDT&E COST ANALYSIS (R3) | | | | | | | | | | February 2006 | | |
| BUDGET ACTIVITY 5 - System Development and Demonstration | | | PE NUMBER AND TITLE 0604646A - Non Line of Sight Launch System | | | | | | | PROJECT F72 | | |
| I. Product Development | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2005 Cost | FY 2005 Award Date | FY 2006 Cost | FY 2006 Award Date | FY 2007 Cost | FY 2007 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
| PAM | CPIF | Netfires, LLC - Grand Prairie, Texas | 0 | 56865 | 1-3Q | 117702 | 1-3Q | 128879 | | 214086 | 0 | 0 |
| LAM | CPIF | Netfires, LLC - Grand Prairie ,Texas | 0 | 16700 | 1-3Q | 0 | | 0 | | 0 | 0 | 0 |
| CLU | CPIF | Netfires, LLC - Grand Prairie ,Texas | 0 | 17389 | 1-3Q | 54250 | 1-3Q | 102931 | | 158371 | 0 | 0 |
| NLOS-LS System Integration | MULTI | Netfires, LLC - Grand Prairie, Texas and Various Support | 0 | 15782 | 1-3Q | 31238 | 1-3Q | 61085 | | 161076 | 0 | 0 |
| Subtotal: | | | 0 | 106736 | | 203190 | | 292895 | | 533533 | 0 | 0 |
| | | | | | | | | | | | | |
| II. Support Costs | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2005 Cost | FY 2005 Award Date | FY 2006 Cost | FY 2006 Award Date | FY 2007 Cost | FY 2007 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
| Various | Various | Various | 0 | 3141 | | 3478 | | 3479 | | 14994 | 0 | 0 |
| Subtotal: | | | 0 | 3141 | | 3478 | | 3479 | | 14994 | 0 | 0 |
| Remarks: . | | | | | | | | | | | | |
| III. Test And Evaluation | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2005 Cost | FY 2005 Award Date | FY 2006 Cost | FY 2006 Award Date | FY 2007 Cost | FY 2007 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
| Various | Various | Various | 0 | 1275 | | 6611 | | 11968 | | 45436 | 0 | 0 |
| Subtotal: | | | 0 | 1275 | | 6611 | | 11968 | | 45436 | 0 | 0 |
| Remarks: . | | | | | | | | | | | | |
| IV. Management Services | Contract | Performing Activity & | Total | FY 2005 | FY 2005 | FY 2006 | FY 2006 | FY 2007 | FY 2007 | Cost To | Total | Target |
| | | | | | | | | | | | | |

| ARMY RDT&E COST ANALYSIS (R3) | | | | | | | | | February 2006 | | | |
|---|---------------|----------|----------|---|------------|--------|------------|--------|---------------|----------|----------------|-------------------|
| BUDGET ACTIVITY 5 - System Development and Demonstration | | | | PE NUMBER AND TITLE 0604646A - Non Line of Sight Launch System | | | | | | | PROJECT F72 | |
| | Method & Type | Location | PYs Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Complete | Cost | Value of Contract |
| Various | Various | Various | 0 | 8615 | | 17930 | | 14538 | | 44015 | 0 | 0 |
| Subtotal: | | | 0 | 8615 | | 17930 | | 14538 | | 44015 | 0 | 0 |
| Remarks: . | | | | | | | | | | | | |
| Project Total Cost: | | | 0 | 119767 | | 231209 | | 322880 | | 637978 | 0 | 0 |
| | | | | | | | | | | | | |



| Schedule Detail (R4a Exhibit) | | | | | February 2006 | | |
|--|----------------|--|----------------|----------------|----------------|-----------------------|----------------|
| BUDGET ACTIVITY 5 - System Development and Demonstration | | PE NUMBER AND TITLE 0604646A - Non Line of Sight Launch System | | | | PROJECT F72 | |
| <u>Schedule Detail</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> | <u>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> | <u>FY 2011</u> |
| NLOS-LS SDD | 1-4Q | 1-4Q | 1-4Q | 1-4Q | 1-4Q | 1-2Q | |
| Preliminary Design Review | 4Q | | | | | | |
| Critical Design Review | | | 2Q | | | | |
| Spin Out 1 Assessment | | | | 2-3Q | | | |
| Tactical Prototype CLUs to UAEE | | | | 1Q | | | |
| SO 1 LLI | | | | 2Q | | | |
| SO 1 MS C | | | | | 1Q | | |
| LRIP Award | | | | | 2-4Q | 1-4Q | 1-4Q |
| Operational Testing | | | | | | 1-3Q | |
| Initial Operational Capability | | | | | | 3Q | |
| Full-Rate Decision | | | | | | 4Q | |
| NLOS-LS S&T Increment 1 and Objective System | 1-4Q | 1-4Q | 1-4Q | | | | |
| | | | | | | | |

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| Termination Liability Funding For Major Defense Acquisition Programs, RDT&E Funding (R5) | | | | | February 2006 | | | |
| BUDGET ACTIVITY 5 - System Development and Demonstration | | PE NUMBER AND TITLE 0604646A - Non Line of Sight Launch System | | | | PROJECT F72 | | |
| Funding in \$000 | | | | | | | | |
| Program | | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
| | | | | | | | | |
| F72 NLOS Launch System | | | 129614 | 176432 | 154565 | 150639 | 52233 | 13775 |
| | | | | | | | | |
| Total Termination Liability Funding: | | | 129614 | 176432 | 154565 | 150639 | 52233 | 13775 |
| <p>Remarks: The SDD Contract contains FAR 52.232-22, Limitation of Funds, and FAR 52.249-6, Termination (Cost-Reimbursement) clauses to define allowable termination costs. The above costs are estimated to cover contract performance and termination liability incurred.</p> | | | | | | | | |