

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2004

BUDGET ACTIVITY

5 - System Development and Demonstration

PE NUMBER AND TITLE

0604710A - Night Vision Systems - Eng Dev

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	31687	38816	24693	33561	34951	34230	10670	0	252674
L67 SOLDIER NIGHT VISION DEVICES	5824	10327	12169	16099	17181	19809	0	0	81409
L69 HTI 2D GEN FLIR ED	5668	1682	0	0	0	0	0	0	15216
L70 NIGHT VISION DEV ED	6143	10338	10333	17462	17770	14421	10670	0	112045
L75 PROFILER	6479	4097	0	0	0	0	0	0	21259
L76 LONG RANGE ADVANCED SCOUT SURVEILLANCE SYSTEM - FS	7573	12372	2191	0	0	0	0	0	22745

A. Mission Description and Budget Item Justification: This program element provides night vision/reconnaissance, surveillance and target acquisition technologies required for U. S. defense forces to engage enemy forces twenty-four hours a day under conditions of degraded visibility due to darkness, adverse weather, battlefield obscurants, foliage and man-made structures. These developments and improvements to high performance night vision electro-optics, radar, laser, and thermal systems and integration of related multi-sensor suites will enable near to long range target acquisition, identification and engagement to include significant fratricide reduction, which will improve battlefield command and control in "around-the-clock" combat operations. Project L67 focuses on night vision electro-optical, laser, and other target identification and location equipment for a variety of Future Combat System of Systems (FCS) Units of Action/Employment and Future Force soldiers. This project includes the enhanced night vision goggle, modular HTI multi-function laser activities, and thermal upgrades to include an uncooled medium thermal weapon sight. Project L69 focuses on inserting key Horizontal Technology Integration Second Generation and beyond Forward Looking Infrared (FLIR) (HTI SGF) thermal sensor technology into combat and support forces. Project L70 focuses on night vision, reconnaissance, surveillance and target acquisition (RSTA) sensors and suites of sensors to provide well-defined surveillance and targeting capabilities for a variety of Future Combat System of Systems (FCS) Units of Action/Employment and Future Force platforms. This project includes night vision sensor acquisition support of FCS core systems, Risk Reduction Demonstration of standard uncooled thermal sensor packages, Sense Through The Wall programs, Unattended Ground Sensor systems and common sensor message set management for FCS and other applications. The project also supports upgrades to existing ground surveillance radars and preparation for production of lightweight countermortar radars. Project L75 focuses on the development of Profiler, an upgrade to the capabilities of the current AN/TMQ-41 Meteorological Measuring Set. Profiler will employ remote and local sensing of the atmosphere, mesoscale modeling and enhanced computing capabilities to provide more accurate meteorological data and for the first time accurate target area meteorological data. These enhancements and new capabilities will increase the lethality of field artillery systems such as Multiple Launched Rocket System (MLRS) and towed and self-propelled cannons. Project DL76 focuses on the addition of a Laser Designation Module (LDM) to the LRAS3 that will increase the operational capability and survivability of Combat Observation Lasing (COLT) and Fire Support (FIST) teams. The resulting target acquisition common sensor will yield greater lethality from precision and area munitions through precise target location and designation. Upgrades developed under this project will be inserted through ongoing production contracts.

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These projects support the Current to Future transition path of the Transformation Campaign Plan (TCP).

<u>B. Program Change Summary</u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	36581	29022	22399
Current Budget (FY 2005 PB)	31687	38816	24693
Total Adjustments	-4894	9794	2294
Congressional program reductions		-393	
Congressional rescissions		-13	
Congressional increases		10200	
Reprogrammings	-4894		
SBIR/STTR Transfer			
Adjustments to Budget Years			2294

Change Summary Explanation:

FY2003: Funds were reprogrammed for higher priority efforts.

FY2004: Congressional increase of \$10.2m

\$1.1M in Project L67 for ENVG.

\$1.7M in Project L69 for Avenger upgrade.

\$7.4M in Project L76 for Multi-Platform Replacement Sight (MRS) (This belongs in DL70)

FY2005: \$2.7m Increase from SSN KA3500 and K31100 to fund PM Soldier Development efforts in Project L67.

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L67

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
L67 SOLDIER NIGHT VISION DEVICES	5824	10327	12169	16099	17181	19809	0	0	81409

A. Mission Description and Budget Item Justification: This project develops, improves and miniaturizes high performance night vision electro-optics, thermal and laser systems. It also provides for systems integration of related multi-sensors suites to enable near to long-range target acquisition and engagement as well as improved battlefield command and control in “around-the-clock” combat operations. It focuses on technology that can bring an immediate improvement to the dismounted Soldiers’ equipment. It develops or enhances equipment that provides the individual Soldier day/night situational awareness and individual targeting capability. Provides development money to integrate improved target location and self-location capability to eliminate friendly fire incidents. The enhanced night vision goggle will be a head/helmet mounted night vision system for the individual Soldier. The system will use both image intensifier and uncooled thermal technology to provide a multi-spectral image to the Soldier. Other efforts include a miniaturized laser designating system for a variety of ground Soldier systems, small Unmanned Aerial Vehicle (UAV), and other air platforms. This project supports the current to future transformation path of the Transformation Campaign Plan (TCP).

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
Continue development of next generation Enhanced Night Vision Goggles (ENVG) to give Soldiers the ability to use both image intensifier and uncooled thermal technologies during day or night operations.	2553	3464	5101
Complete development of the Small Tactical Optical Ranging Module (STORM) micro-Laser Range Finder, which will provide Soldiers the ability to perform target location from individual weapons.	901	2747	1844
Complete Thermal Upgrade activities (prototype test and evaluation), which enhanced the combat effectiveness of Thermal Weapon Sight (TWS) Heavy/Medium/Light systems.	1202	531	0
Continue development of the Dismounted Optics, which will yield a miniature laser designator for the individual Soldier.	1168	2763	4081
Improve target location error and begin development of a non-magnetic compass for the Lightweight Laser Designation Rangefinder (LLDR).	0	522	1143
Small Business Innovative Research/ Small Business Technology Transfer Programs (SBIR/STTR).	0	300	0
Totals	5824	10327	12169

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PROJECT

L67

B. Other Program Funding Summary

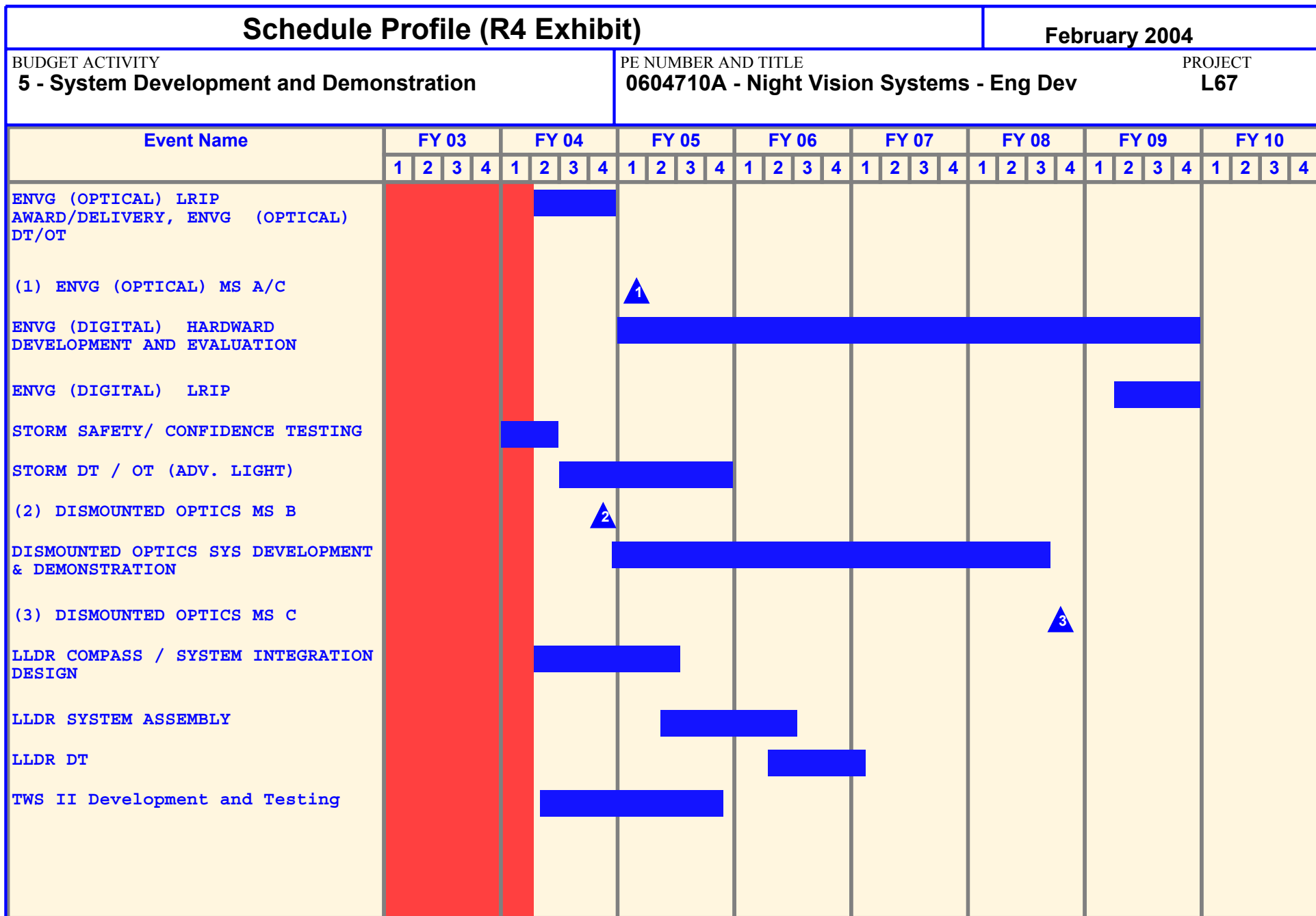
	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
AN/PVS-7 Aid (K36400) OPA2	70648	114715	74577	70174	92215	137600	111878	Continuing	Continuing
Thermal Weapon Sight (TWS) (K22900) OPA2	73862	128529	52078	78156	84553	69686	70878	Continuing	Continuing
Lightweight Laser Designator Rangefinder (LLDR) (K31100) OPA2	9693	12211	12339	12480	19837	19381	19901	Continuing	Continuing
Infrared Aiming Light (K35000) OPA2	11482	12891	9273	14074	14261	9055	4430	Continuing	Continuing

C. Acquisition Strategy: The development programs in this project are currently based on competitive awards.

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev					PROJECT L67		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Enhanced NVG Analysis and Design	C/CP	Various	0	1773	2Q	1267	1-3Q	3663	1-3Q	Continue	6703	0
b . STORM micro-Laser Range Finder Activity	C/CP	Fibertek, Inc. - Herndon, VA	0	200	2Q	1884	2-3Q	926	1-3Q	Continue	3010	0
c . Thermal Upgrades for TWS	C/CP	Nytech - Torrence, CA / BAE - Lexington, MA	0	250	2Q	300	2-3Q	0		0	550	0
d . Light Forward Observers Optics Activity	C/CP	Performance Learning (GSA) Alexandria, VA	0	0	2Q	1469	1-3Q	3596	1-3Q	Continue	5065	0
e . Focal Plane Arrays Activity	C/CP	DRS - Torrence, CA / NVESD - Fort Belvoir, VA	0	1500	3Q	0		0		0	1500	0
f . Target Acquisition Laser Activity	C/CP	NVESD - Fort Belvoir, VA	0	297	4Q	500	1-3Q	1009	1-3Q	Continue	1806	0
g . SBIR/STTR		Various	0	0		300	2Q	0		0	300	0
Subtotal:			0	4020		5720		9194		Continue	18934	0

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev					PROJECT L67		
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	Various	0	230	2Q	291	1-2Q	394	1-2Q	Continue	915	0
b . GSA Support	GSA Contract	GSA - Alexandria, VA	0	0	1Q	200		516	1-2Q	Continue	716	0
Subtotal:			0	230		491		910		Continue	1631	0
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	MIPR	Various	0	1456	2-4Q	3983	2-3Q	1855	1-3Q	Continue	7294	0
Subtotal:			0	1456		3983		1855		Continue	7294	0

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev					PROJECT L67		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Project Management	MIPR	PM Sensors and Lasers	0	118	1-4Q	133	1-4Q	210	1-4Q	Continue	461	0
Subtotal:			0	118		133		210		Continue	461	0
Project Total Cost:			0	5824		10327		12169		Continue	28320	0



Schedule Detail (R4a Exhibit)						February 2004	
BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev			PROJECT L67	
<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Enhanced Night Vision Goggles (ENVG) development	2Q	1-4Q	1-4Q	1-3Q	1-4Q	1-4Q	1-4Q
Development of the Small Tactical Optical Ranging Module (STORM)	2Q	1-4Q	1-3Q				
Thermal Upgrade target location display capability demonstration and TWS II Testing	2Q	2-4Q					
Development of miniature laser designators	2-3Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	
ILWLP development activity		1-4Q	1-4Q				
LLDR target location error and non-magnetic compass activity		2-4Q	1-4Q	1-4Q	1-4Q		

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BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev				PROJECT L70		
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
L70	NIGHT VISION DEV ED	6143	10338	10333	17462	17770	14421	10670	0	112045
<p><u>A. Mission Description and Budget Item Justification:</u> This project performs System Development and Demonstration (SDD) on high performance night vision reconnaissance, surveillance and target acquisition (RSTA) and other related systems that allow forces to locate and track enemy units in day, night, and all battlefield conditions, and through natural and man-made structures and obscurants. It also develops and integrates suites of these sensors to provide well-defined surveillance and targeting capabilities, as well as architectures for these sensors to communicate automatically. The focus is on meeting the requisite night vision RSTA capabilities required for evolving Future Combat System-of-Systems (FCS), and Future Force Unit of Action/Unit of Employment systems. Efforts will continue to refine a standard architecture among sensors with the Sensor Link Protocol (evolving to a joint message set called Sensor Data Link) to allow these sensors to communicate in a plug and play manner for improved force level sensor data fusion, aided target recognition and target hand-off.</p> <p>This project will also demonstrate the producibility of uncooled thermal focal plane arrays, and develop an uncooled infrared imaging B-Kit sensor family that will result in standardized sensor modules for a variety of applications. By eliminating the requirement for cryogenic coolers, uncooled thermal imagers are inherently smaller, lighter, more reliable, use less power, and are less expensive. Uncooled B-Kits can be used for a variety of FCS and Future Force systems such as weapon sights, driver’s viewers/situational awareness aids, missile seeker sensors, unattended ground sensors/security sensors, and unmanned ground and aerial vehicle payloads.</p> <p>This project develops, demonstrates and tests Sense Through the Wall (STTW) technology in support of Future Combat System. This will leverage earlier technology base efforts for an Unmanned and Limited Stand-Off capability of detecting personnel and weapons through a wall.</p> <p>This project continues Unattended Ground Sensors (UGS) hardware development, demonstration and test for a family of UGS systems for Intelligence, Surveillance and Reconnaissance (ISR). This will provide FCS and the Army an Unattended Ground Sensor capability for ISR and physical security.</p> <p>This project was shared between Project Manager, Night Vision/Reconnaissance, Surveillance and Target Acquisition (PM-NV/RSTA) and Product Manager, Multi-Spectrum Sensors (PM-MSS). In FY03 a new project, L67, has been established for the PM-MSS efforts.</p> <p>This Project supports the Current-to-Future Force transition path of the Transformation Campaign Plan (TCP).</p> <p>FY05 funding supports continuation of Unattended Ground Sensors and Uncooled B Kit development, UAV Payload development and repackaging efforts, and Sensor Link Protocol maintenance.</p>										

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Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
Continue multisensor upgrade activities for Dismounted Optics.	1347	0	0
Conduct System Development and Demonstration (SDD) for Digital RSTA RAPT. This program was terminated during FY03.	936	0	0
Continue Sensor Link Protocol (SLP) as part of the DoD Joint Variable Message Format (JVMF) standard while maintaining configuration management and modifying application software tools. Sensor Link Protocol (SLP)/Sensor Architecture – A uniform and standard means of describing and coordinating the collection, preprocessing, communication, and fusion of RSTA functions for the Future Force and FCS. Two man-year effort in FY04/05 will complete initial JVMF acceptance and provide SLP maintenance.	995	340	340
Completed development of advanced capabilities for 2nd GEN FLIR B-kit, to include electronic stabilization and self healing focal plane arrays. Electronic Stabilization/Self Healing Standard Advanced Dewar Assembly (SADA) – SDD for technology that stabilizes images and other visual information, and developing a more robust SADA.	450	0	0
Continue development of the uncooled thermal B-Kit for platform sensors, navigation systems and target acquisition devices. Uncooled B-Kit – Development of a standard uncooled thermal detector B-kit to extend night vision capability across many platforms with interchangeable parts, lower cost, power, weight and volume. This effort is the risk reduction demonstration for B-Kit development on FCS and Future Force Systems.	0	1372	1845
Unattended Ground Sensors (UGS) – Develop ISR, CBRN and Urban UGS for FCS and other Army customers. Funds continuing spiral technology integration efforts.	2415	2495	3501
Cooled IR Integrated Sensor Suites (CIRISS). Provide System Development and Demonstration acquisition and technical support to PM FCS on primary night vision, reconnaissance, surveillance, and target acquisition sensor suites.	0	1600	0
Development of payloads for the Army's Unmanned Air Vehicle (UAV) in accordance with TRADOC priorities and in support of Future Combat System (FCS).	0	1941	4647
Ground Moving Target Indicator (GMTI) Radar - complete productization and testing of improved performance radar. Improvements include reduced size and weight, material updates, and operational mode expansion.	0	2112	0
Lightweight Counter Mortar Radar (LCMR) - support preparation for MS C production decision.	0	212	0
Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR)	0	266	0
Totals	6143	10338	10333

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PROJECT

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B. Other Program Funding Summary

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Night Vision AN/PVS-7 Aid K36400 OPA2	38499	43133	59386	69771	90568	127971	110756	Continuing	Continuing
Night Vision TWS K22900 OPA2	50662	50504	67472	78233	84524	69681	70712	Continuing	Continuing
Night Vision DVE K31300 OPA2	1883	8899	8597	20088	25336	25194	26097	Continuing	Continuing
Night Vision LLDR K31100 OPA2	9693	12302	17431	17495	27233	33145	33839	Continuing	Continuing
Future Combat System, G86100 WTCV	0	0	225289	829206	1638022	3562240	2918987	Continuing	Continuing
Infrared Aiming Light K35000 OPA2	6257	4847	7384	14091	14263	3933	3894	Continuing	Continuing
Digital RSTA K28808 OPA2	0	292	0	0	0	0	0	0	292

C. Acquisition Strategy: The development programs in this project are currently based on competitive awards and under cost reimbursement type contracts.

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BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev					PROJECT L70		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . DVE Development	C/CPIF	Various	21831	0		0		0		0	21831	21831
b . Modular HTI Multifunction Laser Activities	C/CP	Insight Technologies, Londonderry, NH & DRS Technologies, Torrence, CA	3868	0		0		0		0	3868	3868
c . LLDR RAPT	C/CP	Various	4253	0		0		0		0	4253	4253
d . Light Forward Observer Optics	C/CP	Various	300	958	2Q	0		0		0	1258	1258
e . Thermal Upgrades for DVE (Dual wavelength) and competition	C/CP	Kaiser Electric San Diego, CA, Various	3608	0		0		0		0	3608	3608
f . LLDR Advanced Demonstration System	C/CP	Litton Laser, Apopka, FL	2556	0		0		0		0	2556	2556
g . Sensor Architecture/Digital RSTA/SLP	C/CPIF & C/CP	Various	9498	915	2Q	340	1Q	340	1Q	Continue	Continue	Continue
h . Various Prototypes and Studies	C/CPIF	Various	2947	0		0		0		0	2947	2947
i . Thermal Upgrades for TWS (target location)	C/CP	Raytheon, El Segundo, CA, Various	5811	0		0		0		0	5811	5811

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BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev					PROJECT L70		
I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
j . HTI Laser Trade Studies	C/CP	Various	1020	0		0		0		0	1020	1020
k . Enhanced NVG Analysis & Design (TX to DL67)	C/CP	Various	4782	0		0		0		Continue	Continue	Continue
l . HTI Laser MFS3 design and prototype activities	C/CPIF	Raytheon, Dallas,TX	565	0		0		0		0	565	565
m . MANTECH Focal Plane Array and optics	C/CP	Raytheon, Dallas, TX	1500	0		0		0		0	1500	1500
n . Digital MELIOS Design & Fabrication	C/FP	Litton Lasers, Inc.	1000	0		0		0		0	1000	1000
o . SBIR/STTR			0	0		266		0		0	266	266
p . AN/TMQ-41 Trade Studies and related activities	C/CP	Various	1232	0		0		0		0	1232	1232
q . Image Fusion for DVE	C/CP	Raytheon, Dallas, TX	1274	0		0		0		0	1274	1274
r . Digital RSTA SDD	C/CP	Booz-Allen Hamilton, Tysons Conner, VA	1514	676	2Q	0		0		0	2190	2190
s . CIRISS Efforts	C/CP	Various	0	0		1500	1Q	0		0	1500	1500

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I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
t . LLDR Vehicle applications	C/CP	Litton Laser, Apopka, FL Various	3487	0		0		0		0	3487	3487
u . FLIR develop/integrate	Various	Various	1281	450	1-2Q	0		0		0	1731	1731
v . Uncooled B-Kit	C/CP	CACI, Manassas, VA	0	0		1440	2Q	1745	1Q	Continue	Continue	Continue
w . Lightweight Counter Mortar Radar	C/CP	TBS	0	0		212	2Q	0		0	212	0
x . EO/IR/LD UAV Payloads	C/CP	TBS	0	0		1783		3793	1Q	Continue	Continue	Continue
y . LLDR EMD	C/CP	Litton Lasers, Apopka, FL	19873	0		0		0		0	19873	19873
z . GMTI Radar	C/FP & CP	TBS	0	0		1712	2Q	0		0	1712	1712
aa. UGS	CP/FFP	Various	0	708	2-3Q	0		0		0	708	708
bb. FCS UGS	C/CP	FCS Boeing/Textron	0	1456	4Q	1919	2Q	2803	2Q	Continue	Continue	Continue
Subtotal:			92200	5163		9172		8681		Continue	Continue	Continue

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5 - System Development and Demonstration					0604710A - Night Vision Systems - Eng Dev					L70		
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	Various	12940	555	1-2Q	846	1Q	1007	1Q	Continue	Continue	Continue
Subtotal:			12940	555		846		1007		Continue	Continue	Continue
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . DT/IOT&E*	MIPR	ATEC	8769	0		0		0		0	8769	8769
b . Other Test Support*	MIPR	Various	3966	250	2Q	150	2Q	350	2Q	Continue	Continue	Continue
Subtotal:			12735	250		150		350		Continue	Continue	Continue
Remarks: * Includes TWS, DVE, LLDR and other sensor test and evaluation activities												

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5 - System Development and Demonstration					0604710A - Night Vision Systems - Eng Dev					L70		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Project Management	In house support	PM, NV/RSTA, Fort Belvoir, VA & Ft. Monmouth, NJ	4283	175	1Q	170	1Q	295	1Q	Continue	4923	Continue
Subtotal:			4283	175		170		295		Continue	4923	Continue
Project Total Cost:			122158	6143		10338		10333		Continue	Continue	Continue

Schedule Profile (R4 Exhibit)																				February 2004												
BUDGET ACTIVITY 5 - System Development and Demonstration										PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev																		PROJECT L70				
Event Name	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
(1) LCMR MS C																																
(2) SLP Sensor Architecture JVMF Standard																																
(3) STTW Unmanned/Stand- Off MS B																																
(4) FCS UGS/Packaging Block I MS C																																
(5) Uncooled B Kit Phase II MS C																																
(6) STTW Unmanned/Stand-Off MS C																																

Schedule Detail (R4a Exhibit)						February 2004	
BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev			PROJECT L70	
<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Light Forward Observer Optics application	2-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Uncooled B-Kit Risk Reduction Demonstration		2Q					
STTW Unmanned MS B for FCS UA				3Q			
Foliage Penetration (FOPEN) MS B for FCS Block II						2Q	
Close Surveillance Support System MS B				2Q			
3rd Gen FLIR MS B					1Q		
Sense Through the Wall Stand-off (STTW) MS B				4Q			

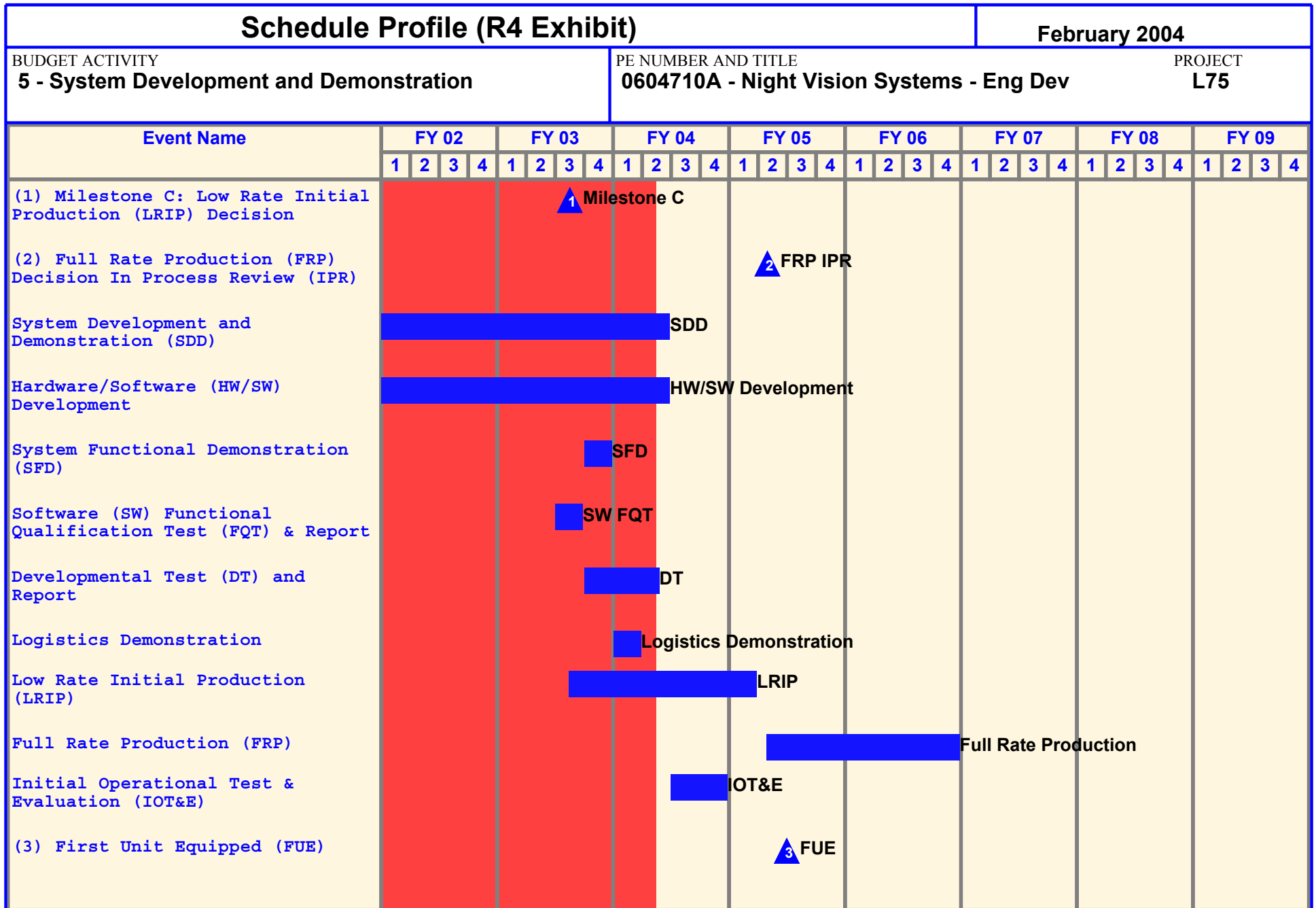
ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							February 2004		
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev				PROJECT L75	
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
L75 PROFILER	6479	4097	0	0	0	0	0	0	21259
<p>A. Mission Description and Budget Item Justification: The AN/TMQ-52 Meteorological Measuring Set-Profiler (MMS-P) is a replacement for the current Meteorological Measuring Set (MMS), AN/TMQ-41. Profiler uses a suite of meteorological (MET) sensors and MET data from communication satellites along with an advanced weather model to provide highly accurate met data out to a range of 500km. Currently, MMS data regardless of its' staleness is considered accurate only to 20km from balloon launch site and cannot provide target area MET data. Profiler provides all weather conditions affecting munitions including information on wind speed, wind direction, temperature, pressure, relative humidity, rate of precipitation, visibility, and cloud ceiling height needed for precision targeting and terminal guidance. By providing more accurate MET messages, Profiler will enable the artillery to have a greater probability of a first round hit with indirect fire systems than is achievable with the current MMS. The new capabilities will increase the lethality of field artillery systems such as Multiple Launch Rocket Systems, towed and self-propelled cannons. This effort will increase the accuracy of a wide range of deep fire weapons and munitions.</p> <p>These system modifications support the Current Force transition path of the Transformation Campaign Plan (TCP).</p> <p>There is no FY05 funding request.</p>									
Accomplishments/Planned Program						FY 2003	FY 2004	FY 2005	
Performed Software Qualification Testing. Conducted successful Milestone C Decision Review. Continue MMS-P SDD development effort, including software and hardware integration, and fabrication of four units for contractor testing.						5889	1955	0	
Completed System Functional Demonstration.						150	0	0	
Conduct Developmental Test (DT) for system meteorological accuracy.						340	570	0	
Conduct Initial Operational Test & Evaluation (IOT&E) activities.						100	1500	0	
Undistributed Congressional Adjustments						0	72	0	
Totals						6479	4097	0	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							February 2004		
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev				PROJECT L75	
<u>B. Other Program Funding Summary</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Profiler K27900 OPA2	4088	12498	4963	4994	0	0	0	0	26543
<p><u>C. Acquisition Strategy:</u> The Profiler program awarded a competitive Cost Plus Incentive Fee (CPIF) contract in Sep 00 to Smiths Detection (formerly ETG) for the development of four System Development and Demonstration (SDD) units. The contract included Firm Fixed Price production options. Milestone C approval for LRIP was granted in May 03. Milestone C approval for LRIP was granted in May 03. An option for four (4) units was awarded in Jan 04 following successful Reliability Testing. A second option will be awarded for the additional six (6) systems in Apr 04 following Developmental Testing (DT).</p>									

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev					PROJECT L75		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SDD Contract	C/CPIF	Smiths Detection, Edgewood, MD	8862	4395	1-2Q	1742	1-2Q	0		0	14999	14950
b . SDD T&M	C/T&M	Smiths Detection, Edgewood, MD	0	103		0		0		0	103	0
c . Studies and Simulations	MIPR	Army Research Lab	239	190	1Q	0		0		0	429	0
d . Government Furnished Equipment	MIPR	HQCP SQ/ZJ, San Antonio, TX	120	0		0		0		0	120	0
Subtotal:			9221	4688		1742		0		0	15651	14950
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	CECOM, Fort Monmouth NJ	1724	207	1Q	132	1Q	0		0	2063	0
b . Sys Engr/Tech Assist	C/T&M	Various	1011	183	2Q	128	1-2Q	0		0	1322	0
c . OGA	MIPR	Various	1089	0		0		0		0	1089	0

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev					PROJECT L75		
II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			3824	390		260		0		0	4474	0
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Planning and Preparation	MIPR	ATEC, Various	65	497	1-2Q	380	1Q	0		0	942	0
b . Developmental Testing	MIPR	ATEC, Various	0	681	2-3Q	368	1Q	0		0	1049	0
c . Initial Operational Test & Evaluation	MIPR	ATEC, Various	0	0		1200	1-3Q	0		0	1200	0
Subtotal:			65	1178		1948		0		0	3191	0

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev					PROJECT L75		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Project Management	In house support	PM Nav Sys/TIMS, Fort Monmouth, NJ	623	223	1-4Q	124	1-4Q	0		0	970	0
b . Undistributed Congressional Adjustments	Adjustments	PM Nav Sys/TIMS, Fort Monmouth, NJ	0	0	2Q	23		0		0	23	0
Subtotal:			623	223		147		0		0	993	0
Project Total Cost:			13733	6479		4097		0		0	24309	14950



Schedule Detail (R4a Exhibit)						February 2004	
BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev			PROJECT L75	
<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Continue SDD HW/SW development phase.	1-4Q	1-2Q					
System Functional Demonstration	3Q						
MS C LRIP Decision	3Q						
SW FQT and Report.	4Q						
Conduct Developmental Test	4Q	1-2Q					
Low Rate Initial Production (LRIP)	3-4Q	1-4Q	2Q				
Full Rate Production			2Q				
First Unit Equipped			2Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							February 2004					
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev			PROJECT L76					
COST (In Thousands)				FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
L76 LONG RANGE ADVANCED SCOUT SURVEILLANCE SYSTEM - FS				7573	12372	2191	0	0	0	0	0	22745
<p>A. Mission Description and Budget Item Justification: The Army's mounted Fire Support and Combat Observation Lasing Teams require a day/night targeting sensor that can detect, observe, and pinpoint the locations of threats for attack. The sensor must be able to determine the precise target location of the target and digitally transfer this information, or laser designate the target for precision engagement by laser-guided munitions.</p> <p>This target acquisition common sensor system will combine the long-range surveillance and targeting capabilities of the Army's Long Range Advanced Scout Surveillance System (LRAS3) with the laser designation capabilities of the Lightweight Laser Designator Rangefinder's Laser Designation Module (LDM). RDT&E funding is required to integrate the physical, electronic and data interfaces of the LRAS3 and LDM, as well as to integrate the system to the physical, electronic and data interfaces of the Stryker Brigade Combat Team (SBCT) Fire Support Vehicle's and Knight's M707 Mission Equipment Package. In addition to the design activities, sufficient prototype systems will be produced to support testing and other pre-production activities. The system significantly increases the observation and target engagement capabilities over that provided by the current first generation equipment, AN/TAS-4 Night Sight and Ground/Vehicular Laser Locator Designator (G/VLLD). Congressional add in FY04 for Multi-Platform Replacement Sight to design and fabricate prototypes as direct replacements to existing combat vehicle sights.</p> <p>The FY05 funds are for qualification validation tests to include a reliability growth test, and resolution of initial corrective actions.</p> <p>This system supports the Current-to-Future Force transition path of the Transformation Campaign Plan (TCP).</p>												
Accomplishments/Planned Program								FY 2003	FY 2004	FY 2005		
Design the modifications necessary to integrate the LDM with the LRAS3.								5379	2116	0		
Fabricate eight prototype sensors, using borrowed GFE.								993	708	0		
Conduct contractor prototype qualifications.								367	274	0		
Conduct system/platform Integration and Test (I&T).								420	1107	0		
Conduct Government Development Test and User Excursion.								200	75	0		
Logistics Support and Logistics Demonstration								214	496	0		

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

February 2004

BUDGET ACTIVITY

5 - System Development and Demonstration

PE NUMBER AND TITLE

0604710A - Night Vision Systems - Eng Dev

PROJECT

L76

Accomplishments/Planned Program (continued)

	FY 2003	FY 2004	FY 2005
Qualification Validation Test and implement corrective actions	0	325	2191
Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR)	0	307	0
Design A-Kit for Multi-Platform Replacement Sight (MRS)	0	2819	0
Fabricate 8 prototypes of A-Kit and B-Kit for MRS	0	1727	0
Integration and Test of MRS prototypes	0	987	0
MRS Vehicle Integration	0	574	0
Government Vehicle Testing for MRS	0	857	0
Totals	7573	12372	2191

B. Other Program Funding Summary

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
LRAS3 K38300 OPA2	46577	50593	49176	42293	1734	0	0	0	190373

C. Acquisition Strategy: The development of the Fire Support Sensor System is being executed through a Cost Plus Fixed Fee (CPFF) modification to the LRAS3 Fixed Price production contract. The development effort will lead to a production implementation through an Engineering Change Proposal (ECP) and Fixed Price adjustments. This ECP will then be applied to the LRAS3, M707 Knight, and Stryker BCT (FSV) programs.

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev					PROJECT L76		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . FS3 Development	T&M	Raytheon Inc., McKinney TX	561	1785	1Q	0		0		0	2346	2346
b . FS3 Development	CPFF	Raytheon Inc., McKinney, TX	0	4391	1Q	2989	1Q	0		0	7380	5478
c . FS3 Development	FFP	Raytheon, Inc., McKinney, TX	0	0		1312	1Q	1866	1Q	0	3178	3198
d . SBIR/STTR			0	0		307		0		0	307	0
e . Multi-Platform Replacement Sight (MRS)	CPFF	Penn State Univ EOC, PA	0	0		6156	3Q	0		0	6156	0
Subtotal:			561	6176		10764		1866		0	19367	11022

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev					PROJECT L76		
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	NVESD, CECOM, Other	13	447	1Q	623	1Q	125	1Q	0	1208	0
Subtotal:			13	447		623		125		0	1208	0
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Planning and Preparation	MIPR	ATEC	0	0		50	1Q	0		0	50	0
b . Government Development and Operational Tests	MIPR	ATEC	0	165	1Q	0		0		0	165	0
Subtotal:			0	165		50		0		0	215	0

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev					PROJECT L76		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Project Management	In House	PM NV/RSTA, Fort Belvoir VA	35	785	1Q	935	1Q	200	1Q	0	1955	0
Subtotal:			35	785		935		200		0	1955	0
Project Total Cost:			609	7573		12372		2191		0	22745	11022

Schedule Profile (R4 Exhibit)																				February 2004												
BUDGET ACTIVITY 5 - System Development and Demonstration										PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev												PROJECT L76										
Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) Critical Design Review								1																								
Government DT																																
(2) ECP Decision																																
(3) ECP Cut In																																
(4) Fielding - Knight																																
(5) Fielding - 4th SBCT																																

Schedule Detail (R4a Exhibit)						February 2004	
BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604710A - Night Vision Systems - Eng Dev			PROJECT L76	
<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Design Activities	1-4Q	1Q					
Critical Design Review	2Q						
Prototype Fabrication Activities	2-4Q	1Q					
Qualification Testing	4Q	1Q					
Conduct DT and UE	4Q	1-2Q					
ECP Decision	4Q						
ECP cut-in		1Q					
Logisitics Demonstration		3Q					
First Fielding - Knight		4Q					
Validation testing and implement corrective actions		4Q	1-4Q				
Fielding - 4th SBCT			3Q				
Design A-Kit for MRS		3-4Q	1Q				
Preliminary Design Review		3Q					
Critical Design Review		4Q					
MRS Prototype Fabrication Activities		4Q	3Q				
Vehicle Integration of MRS			3-4Q				
MRS Government Vehicle Testing			4Q	1Q			