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

February 2002

BUDGET ACTIVITY
5 - Engineering and manufacturing development

PE NUMBER AND TITLE
0604710A - Night Vision Systems - Eng Dev

COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost		28722	27376	32328	21625	18904	18013	18336	Continuing	Continuing
L69	HTI 2D GEN FLIR ED	11839	3377	0	0	0	0	0	0	25800
L70	NIGHT VISION DEV ED	10674	16242	19637	18226	17671	18013	18336	Continuing	Continuing
L74	LRAS3	1434	790	0	0	0	0	0	0	38106
L75	PROFILER	4775	6107	6759	2213	0	0	0	0	22904
L76	LIGHTWEIGHT LASER DESIGNATOR RANGEFINDER UPGRADES	0	860	5932	1186	1233	0	0	0	9211

A. Mission Description and Budget Item Justification: This program element provides night vision technologies required for U. S. defense forces to engage enemy forces twenty-four hours a day under conditions with degraded visibility due to darkness, adverse weather and battlefield obscurants. Not only will these devices have immediate impact on the Interim Brigade Combat Team (IBCT) and the Containment and Counter Attack forces, they are also candidates for use in the Objective Force. These projects are focused on improving the lethality, survivability, agility and sustainability of these forces over current equipment. 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 L69 focuses on inserting key Horizontal Technology Integration Second Generation and beyond Forward Looking Infrared (FLIR) (HTI SGF) thermal sensor technology into common battle groups. Project L70 focuses on night vision electro-optical, laser, and other target identification and location equipment for use by individual soldiers and a variety of platforms. In addition to the Lightweight Laser Designator Rangefinder (LLDR) (a Rapid Acquisition for Transformation Program), this project includes both mounted and dismounted HTI Laser evaluation and assessment, and integrates individual sensors into a common architecture for the infantry (including Long Range Surveillance) field artillery and other units. It also funds development and qualification of critical upgrades (e.g., dual wavelength target acquisition capabilities) for Thermal Weapon Sight and Driver's Vision Enhancer production programs and funds activities associated with image and sensor fusion capabilities (e.g., image intensification and thermal). Project L74 focuses on a long-range multi-sensor system utilizing HTI SGF thermal sensor and other technologies, for use by U. S. Army scouts at extended ranges beyond the Abrams and Bradley capabilities. The Long Range Advanced Scout Surveillance System (LRAS3) will provide the scouts with their first reconnaissance and surveillance system with a twenty-four hour, all weather capability that is mounted or man-portable. The current P3I effort supports the development and implementation of an LRAS3 interface with FBCB2 (Force XXI Battle Command Brigade and Below), enabling automated handoff of the digital target grid location. Project L75 focuses on development of the Profiler, an upgrade of 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 target area and more accurate 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 LLDR Upgrades that will increase the operational capability and survivability of Combat Observation Lasing (COLT) and Fire Support (FIST) teams, thereby yielding greater lethality for precision and area munitions through precise target location and designation. Upgrades developed under this project will be inserted either through ongoing production contracts or a Mod-in-Service line. These projects support the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

B. Program Change Summary	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY02PB)	33764	33984	24179
Appropriated Value	34074	27601	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-225	0
b. SBIR / STTR	-631	0	0
a. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	-4409	0	0
e. Rescissions	-312	0	0
Adjustments to Budget Years Since FY2002 PB	0		8149
Current Budget Submit (FY 2003 PB)	28722	27376	32328

Change Summary Explanation:
FY 2001: Congressional mark of $1.5M in L70 for Eyesafe Laser, reprogrammed to 0602709A H95. $2.909M reprogrammed from 0604710A L70; $0.5M to PE 06033238 177; $1.55M to PE 06054817 482; $0.859M to PE 03057204 114
FY 2002: L69 $13.674M was moved to 0203774A 508 to align with Apache FLIR program; L75 $3.785M was moved from OPA2 K27900 to provide for continuation of the RDT&E program leading to FY 2003 production decision. Congress added $3.4M to L69 for Avenger upgrade of first generation FLIR (belongs in L70). FY 2003: L69 $6.633M was moved to 0203774A 508 to align with Apache FLIR program; L75 $2.6M was moved from OPA2 K27900 to provide for continuation of the RDT&E program leading to FY 2003 production decision. $5.0M was added to the L76 LLDR upgrades line from the FS BOS. $4.001M was added to L75 from the FS BOS. $2.942M was reprogrammed to L70 for Digital RSTA efforts.

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

February 2002

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and manufacturing development	**0604710A - Night Vision Systems - Eng Dev**	**L70**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
L70 NIGHT VISION DEV ED	10674	16242	19637	18226	17671	18013	18336	Continuing	Continuing

A. Mission Description and Budget Item Justification: This project develops and improves high performance night vision electro-optics, thermal and laser systems, and systems integration of related multi-sensor suites to enable near to long range target acquisition and engagement as well as improve battlefield command and control in "around-the-clock" combat operations. This project is focusing on immediately improving the capability of the Counter Attack, Containment Forces, and Interim Brigade Combat Teams (IBCT), to systems supporting transitioning from the Objective Force. All of the devices are candidates, as sub systems, for the Objective Force. The NVG programs will develop enhancements and improvements to be incorporated into ground. 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 user. The Lightweight Laser Designator Rangefinder (LLDR) is a day/night man portable modular target location and laser designator system. The target location system combines a thermal imager, a day camera, eye-safe laser rangefinder, compass, global positioning system, and digital data/image export capability. The laser designator provides pinpoint targeting for laser-guided munitions. LLDR gives the artillery forces the capability to observe, locate and designate targets for direct and indirect fire missions. The LLDR will also be used on the STRIKER vehicle. The Thermal Weapons Sight (TWS) development establishes competition for an uncooled medium TWS for the Thermal Omnibus II procurement. Driver's Vision Enhancer (DVE) improvements focus on achieving a dual wavelength capability, leading to image fusion. The development of image fusion will significantly improve the soldier's ability to either navigate or acquire potential targets by merging the signal from two sensors into one image. The initial incorporation of this capability will be focused on DVE but will also be incorporated into unmanned and unattended ground sensors. To reduce life cycle cost, a common uncooled thermal engine will be developed for applications in weapon sights, drivers viewers, unmanned ground sensors, unmanned ground and air vehicles. The common thermal engine will be horizontally integrated into a multitude of platforms. This initiative will significantly improve performance and reliability while reducing cost. This project also provides for the systems demonstration and development of See Thru The Wall (STTW) sensors that will allow soldiers to detect personnel and large objects thru walls. This capability will significantly improve the force effectiveness and survivability of soldiers during Military Operations in Urban Terrain (MOUT). The Sensor Link Protocol is the architecture developed for interoperability of sensors on the digital battlefield. This will facilitate the transmission of existing sensor data for digital distribution within the Joint Technical Architecture-Army. Sensor link protocol data distribution activities include the development and promulgation of a common device architecture, and a computer-based system which will verify and validate the flow of data from the sensor, through a variety of computing devices and then out over the communications network. The Digital RSTA (Reconnaissance, Surveillance and Target Acquisition) effort digitizes Long Range Surveillance activities from the most forward deployed elements into ASAS (All Source Analysis System). MELIOS improvement efforts are digital connectivity to battlefield computers for precise and rapid fire support missions, an upgraded display that allows the operator to view self and target location grid coordinates, and interface with an Image Intensification device for 24-hour mission capability. Other efforts include evaluation of the suitability and technology supporting a common HTI laser system that could be used in a variety of ground and air platforms. This project supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

FY 2001 Accomplishments:

- 4276 Continued Thermal Upgrade activities (prototype test and evaluation) to enhance combat effectiveness of TWS and DVE. (Includes head tracking system, Modular Ballistic Solution and TWS Heavy)
- 1249 Continued integration and technical tests of the sensor link protocol architecture, including implementing Digital RSTA results from the JCF AWE
- 2567 Completed LLDR EMD program and transition to production
- 397 Continued LLDR detail design of range enhancements for vehicle mounted requirements
- 2185 Initiated Image Fusion of Image Intensification and Thermal technologies to enhance the effectiveness of combat and combat service support platforms such as the individual soldier and vehicles using the DVE (Bradley, Smoke Generators, etc)

Total 10674

FY 2002 Planned Program

- 9370 Initiate development of next generation Image Intensifier systems (Enhanced Night Vision Goggles (ENVG) and Multi Function Laser)
- 3902 Complete Thermal Upgrade activities (prototype test and evaluation) to enhance combat effectiveness of TWS Medium
- 1693 Develop advanced capabilities for 2nd GEN FLIR B-kit, to include electronic stabilization for the B-kit, self healing focal plane arrays
- 1147 Continue multisensor upgrade activities, to include LRAS3, LLDR and Light Forward Observer Optics
- 130 Continue integration and technical tests of the sensor interface architecture into the Army C4I operating system

Total 16242

FY 2003 Planned Program

- 5138 Initiate development of "See Thru The Wall" sensor program.
- 4121 Initiate development of uncooled thermal B kit for unmanned platform sensors, navigation systems and target acquisition devices.
- 2714 Initiate development of image fusion sensors for navigation, surveillance and target acquisition.
- 3542 Conduct System Development and Demonstration (SDD) for Digital RSTA
- 3824 Complete multisensor upgrade activities, to include LRAS3, LLDR and Light Forward Observer Optics

FY 2003 Planned Program (Continued)

- 298 Establishment of Sensor Link Protocol (SLP) as an Army Standard under Variable Message Format (VMF) standards while maintaining configuration management and modifying application software tools.

Total 19637

B. Other Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
Night Vision AN/PVS-7 Aid K36400 OPA2	57839	35092	42866	48399	105075	125091	161612	Continuing	Continuing
Night Vision TWS K22900 OPA2	36015	36055	52071	51582	68985	80075	86568	Continuing	Continuing
Night Vision DVE K31300 OPA2	11458	1999	1935	8910	16100	40696	23564	Continuing	Continuing
Night Vision LLDR K31100 OPA2	7028	7005	8962	13558	9564	9751	37891	Continuing	Continuing
Night Vision LVRS K30800 OPA2	1188	1329	14318	14365	29629	29910	30406	Continuing	Continuing

C. Acquisition Strategy: The development programs in this project are currently all based on competitive awards and under cost reimbursement type contract. A dual source/approach will be pursued for the DVE image fusion effort scheduled for FY 2001.

D. Schedule Profile	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Develop Prototype Multifunction Eyesafe Tactical HTI Laser for Dismounted Application	1-4Q	2-4Q					
HTI Laser Demo on Dismounted Platform	2-3Q						
LLDR Technical Test	1Q						
LLDR IOT&E	3Q						
LLDR MS III Decision	4Q						
LLDR Vehicle Variant	1-4Q						
Enhanced NVG	1-4Q	1-4Q					
Sensor Architecture; digital RSTA development and test based on AWE results	1-4Q	1-4Q	1-4Q				

D. Schedule Profile (continued)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Thermal Upgrade target location and display capability demonstration and evaluation for TWS	1-4Q	1-4Q					
Thermal Upgrade dual wavelength capability demonstration and evaluation and competition for DVE	1-4Q	1-4Q	1-4Q				
Field Artillery Sensor Upgrade Activities		1-4Q	1-4Q				
Conduct Digital RSTA SDD			1-4Q				
Uncooled Thermal Engine development		2-4Q	1-4Q	1-4Q			
Cost Effective Targeting System					1-4Q	1-4Q	1-4Q
Head Tracked Commanders' Sight					1-4Q	1-4Q	1-4Q
Warrior Extended Battle Space Sensors						1-4Q	1-4Q

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
5 - Engineering and manufacturing development

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 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 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 . Various Prototypes and Studies	C/CPIF	Various	2947	0		0		0		0	2947	2947
c . LLDR Advanced Demonstration System	C/CP	Litton Laser, Apopka, FL	2556	0		0		0		0	2556	2556
d . LLDR RAPT	C/CP	Various	4253	0		0		0		0	4253	4253
e . LLDR EMD	C/CP	Litton Lasers, Apopka FL	18958	915		0		0		0	19873	19873
f . Sensor Architecture/Digital RSTA	C/CPIF & C/CP	Various	8012	1047	1Q	0		109	1-4Q	0	9168	9168
g . HTI Laser Trade Studies	C/CP	Various	1020	0		0		0		0	1020	1020
h . HTI Laser MFS3 design and prototype activities	C/CPIF	Raytheon, Dallas,TX	565	0		0		0		0	565	565
i . Modular HTI Multifunction Laser Activities	C/CP	Various	178	0		4463	2-4Q	0		0	4641	4641
j . AN/TMQ-41 Trade Studies and related activities	C/CP	Various	1232	0		0		0		0	1232	1232

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
5 - Engineering and manufacturing development

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 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
k . MANTECH Focal Plane Array and optics	C/CP	Raytheon, Dallas, TX	1500	0		0		0		0	1500	1500
l . Thermal Upgrades for TWS (target location)	C/CP, MIPR	Raytheon, El Segundo, CA, Various	705	3036	1Q	3309	1-2Q	0		0	7050	7050
m . Thermal Upgrades for DVE (Dual wavelength) and competition	C/CP	Kaiser Electric San Diego, CA, Various	1644	1964	1Q	0		2203	1-4Q	0	5811	5811
n . Image Fusion for DVE	C/CP	To Be Selected	0	1274	2Q	0		0		0	1274	1274
o . LLDR Vehicle applications	C/CP	Litton Laser, Apopka, FL Various	3000	362	1Q	0		0		0	3362	3362
p . Digital MELIOS Design & Fabrication	C/FP	Litton Lasers, Inc.	1000	0		0		0		0	1000	1000
q . Enhanced NVG Analysis & Design	C/CP	To Be Selected	1700	0		4321	2Q	0		Continue	Continue	Continue
r . Uncooled Thermal Engine	C/CP	To Be Selected	0	0		0		4040	1Q	Continue	Continue	Continue
s . FLIR develop / integrate	Various	To Be Selected	0	0		1769	2-4Q	0		0	1769	1769
t . Digital RSTA SDD	C/CP	To Be Selected	0	0		0		3182	1Q	0	3182	3182

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BUDGET ACTIVITY
5 - Engineering and manufacturing development

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 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
u . Sensor Thru The Wall development	C/CP	To Be Selected	0	0		0		4566	1-4Q	Continue	Continue	Continue
v . Multi Sensor Upgrades	Various	To Be Selected	0	0		560	2Q	3719	1Q	0	4279	4279
Subtotal:			71101	8598		14422		17819		Continue	Continue	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	Various	11888	477	1Q	886	1Q	876	1Q	Continue	Continue	Continue
Subtotal:			11888	477		886		876		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)

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BUDGET ACTIVITY
5 - Engineering and manufacturing development

PE NUMBER AND TITLE
0604710A - Night Vision Systems - Eng Dev

PROJECT
L70

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . DT/IOT&E*	MIPR	ATEC	7724	1045	2Q	0		0		0	8769	8769
b . Other Test Support*	MIPR	Various	2882	256	2Q	500	2Q	500	2Q	Continue	Continue	Continue
Subtotal:			10606	1301		500		500		Continue	Continue	Continue

Remarks: * Includes TWS, DVE, LLDR and other sensor test and evaluation activities

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Project Management		PM,NV/RSTA	3655	298	1Q	434	1Q	442	1Q	Continue	Continue	Continue
Subtotal:			3655	298		434		442		Continue	Continue	Continue
Project Total Cost:			97250	10674		16242		19637		Continue	Continue	Continue

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

February 2002

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and manufacturing development	**0604710A - Night Vision Systems - Eng Dev**	**L75**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
L75 PROFILER	4775	6107	6759	2213	0	0	0	0	22904

A. Mission Description and Budget Item Justification: Profiler is an enhancement of the capabilities of the current AN/TMQ-41 Meteorological Measuring Set (MMS). Profiler will employ remote and local sensing of the atmosphere, mesoscale modeling and enhanced computing capabilities to provide target area and more timely meteorological data. By providing more accurate meteorological data messages, Profiler will enable supported cannon and rocket systems to decrease miss distances, which will increase predicted fire effectiveness. These enhancements and new capabilities will increase the lethality of field artillery systems such as Multiple Launch Rocket Systems, towed and self-propelled cannons. This System Development and Demonstration (SDD) effort will increase the accuracy of a wide range of deep fire weapons and munitions and ultimately reduce total cost of ownership to the Army. Four SDD systems will be delivered and tested. Profiler will replace the legacy force MMS systems in order to transition to the objective force. This system supports the Legacy-to-Objective transition path of the Transformation Campaign Plan (TCP).

FY 2001 Accomplishments:

- 4704 Continued MMS-P SDD development effort, provided Government Furnished Equipment (GFE) - 4 KG-144s, and conducted Preliminary Design Review.
- 6 Conducted meteorology data gathering to support accuracy requirements.
- 65 Prepared for developmental testing and operational testing.

Total 4775

FY 2002 Planned Program

- 3340 Continue MMS-P SDD development effort, including Critical Design Review, fabrication and 4 units for contractor testing and Development Test (DT).
- 1947 Program Management/Engineering Support.
- 640 Conduct independent Government DT for system meteorological accuracy.
- 180 Conduct ballistics and meteorology simulations to support accuracy requirements.

Total 6107

FY 2003 Planned Program

- 1058 Complete MMS-P SDD effort, including refurbishment/acceptance of 4 SDD Systems.
- 3225 Evaluate alternative technologies to reduce reliance on balloon-borne radiosondes, improve accuracy, provide better/more data input to the Mesoscale Model, and provide broadband datalink capabilities.
- 1000 Conduct Operational Testing (OT) activities.
- 1476 Program Management/Engineering Support.

Total 6759

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

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and manufacturing development	**0604710A - Night Vision Systems - Eng Dev**	**L75**

B. Other Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
6.4 RDTE, Night Vision Devices Engineering Development 0604710A DL70 *	10674	16242	19637	18226	17671	18013	18336	Continuing	Continuing
Profiler K27900 OPA2	0	0	4875	14695	17610	17963	18410	Continuing	Continuing

* DL70 of the same PE as Profiler is identified, since prior years' efforts were funded in that project line.

C. Acquisition Strategy: The MMS Profiler development and production Indefinite Delivery, Indefinite Quantity (IDIQ) contract was awarded competitively. The SDD phase contract type is Cost Plus Incentive Fee (CPIF) and the production option will be Firm Fixed Price (FFP). The formal solicitation included requirements for oral presentations and cost as an independent variable (CAIV).

D. Schedule Profile	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
System Design & Fabrication	1-4Q	1-2Q					
Conduct Development Test / Customer Test		4Q	1Q				
MS C LRIP Decision			2Q				
Exercise Production Option			2Q				
Conduct Operational Test			3Q				
Full Rate Production (FRP) Decision			4Q				
Exercise Remaining Production Options				1Q			
First Unit Equipped (FUE)				3Q			

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
5 - Engineering and manufacturing development

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 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . EMD Contract	C/CPIF	ETG, Inc., Baltimore, MD	2090	3706	1Q	3340	1-3Q	1058	1Q	0	10194	10194
b . Studies and Simulations	MIPR	ARL	162	6	3Q	180	2-3Q	3225	1Q	1340	4913	4913
c . GFE	MIPR	HQCPSQ/ZJ, San Antonio, TX	0	120	3Q	0		0		0	120	120
Subtotal:			2252	3832		3520		4283		1340	15227	15227

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	CECOM I2WD, Other	760	395	1-4Q	614	1-3Q	566	1Q	288	2623	2623
b . Support Contractors	PWD	Various	0	360	2-4Q	547	1-3Q	363	1-3Q	0	1270	1270
c . OGA	MIPR	Various	0	84	1-4Q	571	1-3Q	332	1-3Q	0	987	987
Subtotal:			760	839		1732		1261		288	4880	4880

ARMY RDT&E COST ANALYSIS(R-3)

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BUDGET ACTIVITY
5 - Engineering and manufacturing development

PE NUMBER AND TITLE
0604710A - Night Vision Systems - Eng Dev

PROJECT
L75

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Planning and Preparation	MIPR	ATEC, Various	0	65	2Q	50	2Q	0		0	115	115
b . Developmental Testing	MIPR	ATEC, Various	0	0		590	2-4Q	0		0	590	590
c . Operational Testing	MIPR	ATEC, Various	0	0		0		1000	3Q	500	1500	1500
Subtotal:			0	65		640		1000		500	2205	2205

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Project Management		PM, NV/RSTA	38	37	1-4Q	215	1-4Q	215	1-4Q	85	590	590
b . GBL	MEMO	TACOM, Rock Island, IL	0	2	3Q	0		0		0	2	2
Subtotal:			38	39		215		215		85	592	592
Project Total Cost:			3050	4775		6107		6759		2213	22904	22904

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

February 2002

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and manufacturing development	**0604710A - Night Vision Systems - Eng Dev**	**L76**

COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
L76	LIGHTWEIGHT LASER DESIGNATOR RANGEFINDER UPGRADES	0	860	5932	1186	1233	0	0	0	9211

A. Mission Description and Budget Item Justification: The original Lightweight Laser Designator Rangefinder (LLDR) system was specifically designed to meet requirements which emphasized a lightweight system for man portable operations. The LLDR system is also being used in a mounted role on the Army's Striker vehicle, as well as being mounted on the Fire Support Vehicle deployed with the Brigade Combat Team. The vehicle-mounted applications have range requirements which exceed the capabilities of the current LLDR system.

The system will also be used as an Objective Force sensor. The LLDR Upgrade effort is a Block Upgrade that will increase recognition ranges to meet the 5 kilometer requirement with a minimal impact on overall system size, weight and production cost. Upgrade activities will focus on a redesign of the thermal and day optics assembly to extend range recognition, a redesign of the system controller to improve image quality, improve performance in degraded visibility environments (e.g., battlefield smokes), redesign the housing to accomodate larger optics, replace the current Global Positioning System chip with a more robust chip, and replace obsolete components. Many of these upgrades are required for both dismounted and mounted LLDR systems. This system supports the Objective transition path of the Transformation Campaign Plan (TCP).

FY 2002 Planned Program

•	787	Initiate upgrade effort design to extend target recognition range
•	28	Conduct modeling to support system upgrades
•	45	Prepare and conduct design reviews
Total	860	

FY 2003 Planned Program

- 525 Complete design to extend target recognition range
- 5252 Fabricate prototypes to include upgrades to optics, electronics, and housing (four test set units)
- 155 Planning and preparation for qualification and government tests

Total 5932

B. Other Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
LLDR K31100 OPA2	7028	7005	8962	13558	9564	9751	37891	Continuing	Continuing

C. Acquisition Strategy: The LLDR upgrade development contract will be awarded to Northrop Grumman Litton Laser Systems on a sole source basis. This contractor was competitively selected for the system's development effort. The Upgrade development effort contract type is Cost Plus Incentive Fee (CPIF). This effort is not considered a new start, as it expands the required performance of an existing, previously developed system.

D. Schedule Profile	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Prepare Contract Documentation/Issue RFP		3Q					
Award Upgrade Contract		3-4Q					
Upgrade Design Activities		3-4Q	1-2Q				
Upgrade Prototype Fabrication Activities			2-4Q				
Upgrade Qualification Testing				1-2Q			
Limited User Test				3Q			
Production cut-in					1Q		

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
5 - Engineering and manufacturing development

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 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SDD Contract	CPIF	Northrup Grumman Litton Lasers, Apopka, FL	0	0		812	3Q	5532	1Q	1238	7582	7603
b . Modeling	MIPR	NVESD, CECOM	0	0		13	1Q	0		0	13	13
Subtotal:			0	0		825		5532		1238	7595	7616

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	NVESD, CECOM, Other	0	0		0		250	1Q	375	625	625
Subtotal:			0	0		0		250		375	625	625

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
5 - Engineering and manufacturing development

PE NUMBER AND TITLE
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PROJECT
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III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Planning and Preparation	MIPR	ATEC	0	0		0		75	3Q	75	150	150
b . Government User Test	MIPR	ATEC	0	0		0		0		675	675	675
Subtotal:			0	0		0		75		750	825	825

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Project Management	PM, NV/RSTA		0	0		35	1Q	75	1Q	73	183	183
Subtotal:			0	0		35		75		73	183	183
Project Total Cost:			0	0		860		5932		2436	9228	9249