

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

June 2001

BUDGET ACTIVITY
4 - DEM/VAL

PE NUMBER AND TITLE
0603774A - Night Vision System Advanced Development

PROJECT
131

COST (In Thousands)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to	Total Cost
	Actual	Estimate	Complete							
131 NIGHT VISION SYS A/DEV	6414	14831	12756	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification:

PLEASE NOTE: This administration has not addressed FY2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

The key objective of this program is to demonstrate and validate improvements to Night Vision Electro-Optic devices/systems for acquisition and engagement of enemy targets at maximum weapon system ranges under degraded battlefield/weather conditions and in countermeasure environments. This project provides the funding necessary to implement advances for product improvement or horizontal technology integration (HTI) to upgrade current capabilities in the future. The efforts are centered around development of improved electro-optic sensors, countermeasures and laser systems capabilities for the individual soldiers and combat vehicles to meet stated Army deficiencies such as fratricide reduction. This project also provides for the Component Advanced Development (CAD) phase of the Division Tactical Unmanned Aerial Vehicle (TUAV) Signals Intelligence (SIGINT) Program (DTSP). DTSP will replace currently deployed divisional assets. This will be the Division and Armored Cavalry Regiment Commanders principal SIGINT and Electronic Warfare (EW) System. It will be designed to support Army Transformation. DTSP will provide the Tactical Commander with enhanced capability for situational awareness, electronic Intelligence Preparation of the Battlefield (IPB), battlespace visualization, target development, and force protection throughout the division's width and depth as defined in Army XXI. The DTSP will interface with the division and armored cavalry Analysis Control Element's (ACE) All Source Analysis System (ASAS) as well as the maneuver brigade Analysis Control Team's (ACT) Common Ground Station (CGS) and/or ASAS-Remote Work Stations (ASAS-RWS) providing near-real-time (NRT) digital inputs to the common operating picture (COP). The DTSP will include an air sensor and a control/processing facility. Key operational (and doctrinal) features will be the remote control of airborne sensors and electronic mapping of the enemy's communications and radar systems in the Division's Area of Operations. The DTSP will also rapidly generate information to identify critical enemy nodes (emitters), and then develop locations that assist in targeting by EW or by division assets. FY02 and FY03 funding supports the CAD phase for the DTSP. The DTSP System Development and Demonstration efforts are covered under PE/Project 64270/L12. This project supports the Legacy to Objective transition path (for Night Vision) and the Objective transition path (for DTSP) of the Transformation Campaign Plan (TCP).

FY 2000 Accomplishments

- 1092 Developed frontside illumination laser protection and advanced capabilities (i.e., local area processing and frame integration) for high performance systems, such as Horizontal Technology Integration Second Generation FLIR (HTI SGF) (five test units).
- 631 Continued development of Automatic Target Recognition/Automatic Target Cueing capabilities on Long Range Advanced Scout Surveillance System (LRAS3) (one test unit).
- 563 Continued HTI Laser activities including design, component solid models, and system fit tests.

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FY 2000 Accomplishments (Continued)

- 78 Continued demonstration of Sensor Risk Reduction Project (SR2P) Testbed with emphasis on user evaluation activities at Fort Hood and Hunter Liggett (two test units).
- 300 Developed a laser rangefinder to be integrated into the TUAV Advanced EO/IR Pod
- 3750 Developed an Integrated fiber-optic laser with visible and infrared lasers and digital compass into a fire control system on the M4 weapon for Land Warrior.

Total 6414

FY 2001 Planned Program

- 985 Development and demonstration of advanced capabilities for 2nd Gen FLIR B-Kit, to include electronic stabilization for the B-Kit, self healing focal plane arrays and multi-level laser hardening
- 453 HTI Laser B Kit and operational functions analysis
- 795 Initiate development of Long Range Advanced Scout Surveillance System (LRAS3) on a telescopic mast
- 439 Analysis and evaluation of the potential for an uncooled FLIR B-Kit for OICW and OCSW
- 313 Initiate the development of head tracked commanders thermal sensor
- 2000 Initiate demonstration and evaluation of Enhanced Night Vision Goggle (ENVG) and enabling technologies
- 2000 Initiate demonstration and evaluation of Aviation Night Vision Goggle (ANVG) (14 test units)
- 910 Cost Benefit Analysis for TUAV Payloads
- 935 Prepare for and Conduct SSEB to award Component Advanced Development (CAD) contract for Division TUAV SIGINT Program (DTSP).
- 5401 Award CAD Contract for DTSP to evaluate SIGINT payload design approaches on a UAV.
- 600 UAV Quieting

Total 14831

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FY 2002 Planned Program

- 434 Complete development and demonstrate LRAS3 on a telescopic mast for LRAS3 P3I and IAV P3I.
- 420 Large format array high performance uncooled thermal sight development
- 522 Completion of analysis and evaluation of the potential for an uncooled FLIR B-Kit for OICW and OCSW
- 702 Completion of development and demonstration of the head tracked commanders thermal sensor
- 2013 Develop laser protection and assess production and performance issues for uncooled detectors.
- 665 Complete development and demonstration of advanced capabilities for 2nd Gen FLIR B-Kit, to include electronic stabilization for the B-Kit, self healing focal plane arrays
- 7000 Continue DTSP CAD to evaluate SIGINT payload design approaches on a UAV
- 1000 Prepare for demonstration of payload and systems integration

Total 12756

<u>B. Program Change Summary</u>	FY 2000	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2001 PB)	3188	10968	12698	0
Appropriated Value	3188	14968	0	0
Adjustments to Appropriated Value	0	0	0	0
a. Congressional General Reductions	0	0	0	0
b. SBIR / STTR	-85	0	0	0
c. Omnibus or Other Above Threshold Reprogramming	3822	0	0	0
d. Below Threshold Reprogramming	-500	0	0	0
e. Rescissions	-11	-137	0	0
Adjustments to Budget Years Since FY2001 PB	0	0	58	0
Current Budget Submit (FY 2002/2003 PB)	6414	14831	12756	0

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Change Summary Explanation:

FY 2000 funds of \$0.5M were reprogrammed from 0603774A D131 to 06054817A D902. FY 2000 funds of \$3.822 were reprogrammed for Army Transformation. FY 2001 Congressional plus up of \$4M for Advanced Aviation NV Goggle and Enhanced Ground NV Goggle

C. Other Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
PE 0602709A/Night Vision and Electro-Optical Technology RDTE	22614	23746	20598	0	0	0	0	0	0	0
PE 0603710A/Night Vision Advanced Development RDTE, A Budget	38470	42746	37081	0	0	0	0	0	0	0
PE 0604710A/Night Vision Devices Engineering Development RDTE	31308	33762	24201	0	0	0	0	0	0	0
PE 0203735A/ Abrams (D330) and Bradley (D371) A-Kit Developm	23047	0	0	0	0	0	0	0	0	0
OPA2 K38300 LRAS3	45037	45733	44535	0	0	0	0	0	0	0
WTCV G80717 M2A3/M3A3 Bradley	45276	59673	58223	0	0	0	0	0	0	0
WTCV GA0750 Abrams Upgrade	65196	49160	53293	0	0	0	0	0	0	0
WTCV GA0730 M1A2 SEP	0	26828	12537	0	0	0	0	0	0	0
RDTE (PE 64270 L12) - (includes Prophet funding in FY 00-03)	16998	4939	1747	0	0	0	0	0	0	0

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D. Acquisition Strategy: The advances and improvements for Second Generation FLIR (SGF) and HTI Laser activities utilize various cost reimbursement development contracts that were and will continue to be competitively awarded using best value source selection procedures. Division TUAV SIGINT Program Component Advanced Development phase will be competitively awarded contracts to multi contractors.

<u>E. Schedule Profile</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
DTSP CAD Decision Review		1Q		0	0	0	0	0
Award DTSP CAD Contract		3Q		0	0	0	0	0
Conduct DTSP Rooftop Demonstrations				0	0	0	0	0
Conduct DTSP Flight Demonstration/s				0	0	0	0	0
DTSP MS B Decision				0	0	0	0	0

ARMY RDT&E COST ANALYSIS(R-3)

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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 . Laser Protection	C/CP, MIPR	DRS, Dallas, TX /SBRC, Santa Barbara, CA; NVESD	1341	985	1-2Q	0		0	0	0	0	0
b . SR2P	MIPR	NVESD	658	0		0		0	0	0	0	0
c . FLIR Develop/Integrate	Various	Various	1938	0		665	1-3Q	0	0	0	0	0
d . HTI Laser Design	C/CP	Raytheon, Dallas, TX	687	219	2Q	0		0	0	0	0	0
e . ATR/ATC Activities	MIPR	Various	462	0		0		0	0	0	0	0
f . TUAV Laser Rangefinder	C/CP	Versitron, Santa Rosa, CA	300	0		0		0	0	0	0	0
g . Large Format Array Uncooled Thermal Sight	C/CP	To Be Selected	0	0		360	1Q	0	0	0	0	Continue
h . LRAS3 Telescopic Mast Demo	MIPR	Various	0	685	1-2Q	434	1-2Q	0	0	0	0	0
i . Uncooled B-Kit Evolution	TBD	Various	0	372	1-2Q	522	1-2Q	0	0	0	0	0
j . Head Tracked Commander's Sight	TBD	Various	0	223	1-2Q	652	1-2Q	0	0	0	0	0
k . Develop SWIR solid state detector	TBD	Various	0	0		0	1-2Q	0	0	0	0	Continue

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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
l . Demo and eval of ENVG technology	Various	Various	0	1678	2-3Q	0		0	0	0	0	0
m . Demo and eval of ANVG	Various	Various	0	1420	2-3Q	0		0	0	0	0	0
n . Cost Benefit Analysis TUAV	TBD	TBS	0	910	2-3Q	0		0	0	0	0	0
o . Laser hardening Uncooled FPA	TBD	TBS	0	0		1750		0	0	0	0	0
p . Award CAD Contract for DTSP	C/CPFF	TBS	0	4736	3Q	6200	1Q	0	0	0	0	0
q . UAV Quieting, Etc. DTSP	TBD	TBS	0	900	3Q	0		0	0	0	0	0
r . Demo of payload & systems integration DTSP	TBD	TBS	0	0		0		0	0	0	0	0
s . Land Warrior			3750	0		0		0	0	0	0	0
Subtotal:			9136	12128		10583		0		0	0	Continue

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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	424	508	1Q	347	1Q	0	0	0	0	Continue
b . Matrix Support	MIPR	HQ, CECOM	0	400	1Q	700	1Q	0	0	0	0	0
c . Engineering Support	FFP	MITRE; McLean, VA	0	500	1Q	500	1Q	0	0	0	0	0
Subtotal:			424	1408		1547		0		0	0	Continue

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 . Multispectral Eval	MIPR	WSMR	308	0		0		0	0	0	0	0
b . FLIR Demos and Evals	MIPR	Various	836	0		0		0	0	0	0	0
c . ENVG Demos and Evals	MIPR	Various	0	105	2-3Q	0		0	0	0	0	0
d . HT Command Site Eval	MIPR	Various	0	90	2Q	0		0	0	0	0	0
e . ANVG Test Plan and Flight Support	MIPR	Various	0	480	2Q	0		0	0	0	0	0
f . ANVG Simulation/Field Eval	MIPR	Various	0	100	2Q	0		0	0	0	0	0

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III. Test and Evaluation (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
g . Operational Assessment of DTSP Rooftop & Flight Demo/s	MIPR	To Be Selected	0	0		0		0	0	0	0	0
Subtotal:			1144	775		0		0		0	0	0

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 . Program Management		PM-NV/RSTA, Ft.Belvoir, VA	102	120	1Q	26	1Q	0	0	0	0	Continue
b . Program Management		PM, Signals Warfare	0	400	1Q	600	1Q	0	0	0	0	0
Subtotal:			102	520		626		0		0	0	Continue

Project Total Cost:			10806	14831		12756		0		0	0	Continue
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