

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)							DATE February 2000		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603774A Night Vision Systems - Advanced Development				PROJECT D131	
<i>COST (In Thousands)</i>	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D131 Night Vision Systems Advanced Development	2240	3164	10968	12698	11677	5373	5339	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> 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.</p> <p>This project also provides for Program Definition and Risk Reduction (PDRR) of Prophet Unmanned Aerial Vehicle (UAV). Prophet UAV 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 XXI and beyond. Prophet will provide the Tactical Commander with an 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 depths as defined in Army XXI. The Prophet system 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).</p> <p>The Prophet System components will include a ground-sensor, an air sensor and a control 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 Prophet System 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. The Prophet System is needed to counter the communications technology revolution and the current worldwide threat; and to support the current Army mission, doctrine, priorities, and requirements.</p> <p>FY01 funding supports the Program Definition and Risk Reduction (PDRR) phase for Prophet UAV. The Prophet UAV EMD efforts are covered under PE/Project 64270/L12.</p> <p>FY 1999 Accomplishments:</p> <ul style="list-style-type: none"> • 510 Completed development of backside illumination laser protection for HTI SGF ground "B" Kit to be integrated into M2A3, M3A3, M1A2 SEP, and LRAS3. 									
Project D131		<i>Page 1 of 7 Pages</i>			Exhibit R-2 (PE 0603774A)				

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 2000
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603774A Night Vision Systems - Advanced Development	PROJECT D131
•	25 Completed Interface Control Document (ICD) and connectors for	Automatic Target Recognition/Automatic Target Cueing (ATR/ATC) interface capability with SGF "B" kit.
FY 1999 Accomplishments: (continued)		
•	1337	Initiated and completed sight level demonstration of improved FLIR capabilities (one test unit).
•	200	Developed HTI Laser designs.
•	168	Completed development and demonstrated Sensor Risk Reduction Project (SR2P) Testbed for the Future Scout Cavalry System (FSCS) (one test unit).
Total	2240	
FY 2000 Planned Program:		
•	1292	Develop frontside illumination laser protection and advanced capabilities (i.e., local area processing and frame integration) for high performance systems, such as HTI SGF (five test units).
•	893	Demonstrate Automatic Target Recognition/Automatic Target Cueing capabilities on LRAS3 (one test unit).
•	706	Continue HTI Laser activities including design, component solid models, and system fit tests.
•	188	Continue demonstration of Sensor Risk Reduction Project (SR2P) Testbed with emphasis on user evaluation activities at Fort Hood and Hunter Liggett (two test units).
•	85	Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) Program.
Total	3164	
FY 2001 Planned Program:		
•	1456	Develop HTI SGF optical and performance capability improvements.
•	1326	Demonstrate sensor fusion [e.g. I2/thermal and DTV (Day TV)] in a combat vehicle/platform (LRAS3 and/or TUAV) (two test units).
•	1186	Develop advanced processing capability for SGF "B" Kit (improve low contrast).
•	1450	Funds will be used in support of the New Army Transformation and to prepare for and Conduct SSEB to award PDRR contract for Prophet UAV.
•	5550	Funds will be used in support of the New Army Transformation and to award PDRR Contract for Prophet UAV.
Total	10968	
Project D131	Page 2 of 7 Pages	Exhibit R-2 (PE 0603774A)

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE February 2000
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603774A Night Vision Systems - Advanced Development	PROJECT D131

B. Program Change Summary	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Previous President's Budget (FY 2000/2001 PB)	2664	3188	4036
Appropriated Value	2681	3188	
Adjustments to Appropriated Value			
a. Congressional General Reductions	-17		
b. SBIR / STTR	-71		
c. Omnibus or Other Above Threshold Reduction		-13	
d. Below Threshold Reprogramming	-343		
e. Rescissions	-10	-11	
Adjustments to Budget Years Since <u>FY 2000/2001 PB</u>			
New Army Transformation Adjustment		TBD	+6932
Current Budget Submit (FY 2001 PB)	2240	3164	10968

Changes Summary Explanation: Funding - FY2001: Funding in FY01 project D131 was adjusted to reflect the New Army Transformation.

C. Other Program Funding Summary	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Compl</u>	Total <u>Cost</u>
PE 0602709A/Night Vision and Electro-Optical Technology RDTE, A Budget Activity 2	18341	20021	20465	20574	20341	21503	22887	Continue	Continue
PE 0603710A/Night Vision Advanced Development RDTE, A Budget Activity 3	25402	42262	33341	37741	37026	32905	32340	Continue	Continue
PE 0604710A/Night Vision Devices Engineering Development RDTE, A Budget Activity 5	19490	38266	32574	33948	24179	19355	18879	Continue	Continue
PE 0203735A/ Abrams (D330) and Bradley (D371) A-Kit Development RDTE, A Budget Activity 7	57787	24777	0	0	0	9419	24503	Continue	Continue
OPA2 K38300 LRAS3 "A" & "B" Kit	0	42030	46156	44361	49809	51140	51085	Continue	Continue
WTCV G80717 M2A3/M3A3 Bradley "B" Kit	39617	45276	59904	61679	49850	52914	55887	Continue	Continue
WTCV GA0750 Abrams Upgrade "A" & "B" Kit	91631	65196	54210	52122	33590	7648	0	0	388697
WTCV GA0730 M1A2 SEP "A" & "B" Kit	0	0	16652	28895	40518	41109	41105	Continue	Continue

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE February 2000	
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603774A Night Vision Systems - Advanced Development				PROJECT D131	
C. <u>Other Program Funding Summary</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Compl</u>	Total <u>Cost</u>
RDTE (PE 64270 L12) – (includes Prophet Ground funding in FY99 thru FY03)	11668	21775	4985	1997	29764	19822	44575	Continue	Continue
RDTE Budget Activity 7 DCP PE 030885G, Prophet (Ground and UAV)	13523	11804	11578	14381	11475	10184	10572	Continue	Continue
<p>D. <u>Acquisition Strategy:</u> 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.</p> <p>Prophet UAV PDRR phase will be a Single Development Effort and is expected to be a competitive award.</p>									
E. <u>Schedule Profile</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>		
Developed laser protection for vehicles	1-4Q								
Designed ATR/ATC capability/interface with Aviation and Ground B Kit	2-4Q								
Initiated/Demonstrated improved FLIR Capabilities (Test)	1-4Q								
Developed HTI Laser design	1-4Q								
Develop and test fit for HTI Laser components		1-4Q							
Develop and Demo Laser Protection for high performance systems		1-4Q							
Integrate and Demonstrate improved FLIR ATR/ATC Capabilities		1-4Q							
Develop & demonstrate SR2P Testbed for FSCS	1-4Q	1-4Q							
Develop advanced system level optical and performance improvements			1-4Q	1-4Q					
Demonstrate Sensor Fusion			1-3Q						
Develop Advanced processing capability			1-4Q	1-4Q					
Develop & Demonstrate Advanced capabilities for Staring Arrays (e.g. HTI SGF)					1-4Q	1-4Q	1-4Q		
<p>Project D131 Page 4 of 7 Pages Exhibit R-2 (PE 0603774A)</p>									

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)							DATE February 2000	
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603774A Night Vision Systems - Advanced Development			PROJECT D131	
E. Schedule Profile	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	
Develop & Demonstrate Laser Protection for Advanced Staring Arrays (e.g. HTI SGF)					1-4Q	1-4Q	1-4Q	
Begin Prophet UAV PDRR			1Q					
Prophet UAV Demo					3Q			
Milestone II Decision for Prophet UAV					4Q			
Begin EMD of Prophet UAV						1Q		

UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)	DATE February 2000
---	------------------------------

BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603774A Night Vision Systems - Advanced Development	PROJECT D131
---	---	-------------------------------

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Laser Protection	C/CP, MIPR	DRS, Dallas TX SBRC, Santa Barbara, CA; NVESD	405			1040	2Q	1326	1-2Q	Continue	Continue	Continue
b. SR2P	MIPR	NVESD	450	168	1Q	143	2Q				761	761
c. FLIR Develop/Integrate	Various	Various	541	1397	1Q						1938	
d. HTI Laser Design	C/CP	Raytheon, Dallas, TX		200	4Q	598	2Q				798	798
e. ATR/ATC Activities	MIPR	Various	0			756	2Q				756	756
f. Sensor Fusion Activities	C/CP	To Be Selected	0					734	1Q	Continue	Continue	Continue
g. Advanced Processing Activities for SGF 'B' Kit	C/CP	To Be Selected	0					1047	2Q	Continue	Continue	Continue
h. Award PDRR Contract for Prophet UAV	TBD	TBD	0					5550	1Q	Continue	Continue	Continue
i. SBIR/STTR						85					85	
Subtotal Product Development:			1396	1765		2622		8657		Continue	Continue	Continue

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Matrix Support	MIPR	Various	139	174	1Q	232	1Q-4Q	301	1Q	Continue	Continue	
b. Matrix Support	MIPR	HQ, CECOM						700	1Q	Continue	Continue	
c. Engineering Support	FFP	CACI, Falls Church VA						300	1Q	Continue	Continue	
Subtotal Support Costs:			139	174		232		1301		Continue	Continue	

UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)	DATE February 2000
---	------------------------------

BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603774A Night Vision Systems - Advanced Development	PROJECT D131
---	---	-------------------------------

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Multispectral Eval	MIPR	WSMR	308	0							308	
b. FLIR Demos and Evals	MIPR	Various	275	277	1Q	284	2Q				836	
c. Sensor Fusion Evals	MIPR	To Be Selected						533	1Q	Continue	Continue	
Subtotal Test and Evaluation:			583	277		284		533		Continue	Continue	

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Program Management		PM-NV/RSTA, Ft. Belvoir, VA	34	24	1Q	26	1Q	27	1Q	Continue	Continue	
b. Program Management		PM, Signals Warfare						450	1Q	Continue	Continue	
Subtotal Management Services:			34	24		26		477		Continue	Continue	

Project Total Cost:			2152	2240		3164		10968		Continue	Continue	
---------------------	--	--	------	------	--	------	--	-------	--	----------	----------	--