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Exhibit R-2, PB 2011 Army RDT&E Budget Item Justification									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603710A: NIGHT VISION ADVANCED TECHNOLOGY							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	69.778	72.250	39.912	0.000	39.912	37.378	42.550	47.350	52.084	0	401.214
K70: NIGHT VISION ADV TECH	22.974	24.542	24.491	0.000	24.491	20.731	25.599	28.105	30.570	Continuing	Continuing
K73: NIGHT VISION SENSOR DEMONSTRATIONS (CA)	30.898	32.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
K86: NIGHT VISION, ABN SYS	15.906	15.576	15.421	0.000	15.421	16.647	16.951	19.245	21.514	Continuing	Continuing
A. Mission Description and Budget Item Justification											
Efforts in this program element (PE) mature and demonstrate sensor technology that increase Warfighter survivability and lethality by providing sensor capabilities to acquire and engage targets at longer ranges in complex environments and conditions (e.g. day/night, obscured, smoke, adverse weather). This PE pursues technologies that improve the Soldier's ability to see at night, and provide rapid wide area search, multispectral aided target detection (AiTD), and passive long range target identification (ID beyond threat detection) in both an air and ground test-beds (project K70). This PE also matures and evaluates sensors and algorithms designed to detect targets (vehicles, personnel) in camouflage, concealment and deception from airborne platforms, and provides pilotage and situational awareness imagery to multiple pilots/crew members independently for enhanced crew/aircraft operations in day/night/adverse weather conditions (project K86). Project K73 funds congressional special interest items.The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. Work in this PE is related to and fully coordinated with efforts in PE 0602709A (Night Vision and Electro-Optics Technology), PE 0602270A (Electronic Warfare Technology), PE 0603774A (Night Vision Systems Advanced Development), PE 0604710A (Night Vision Systems Engineering Development), and PE 0603005A (Combat Vehicle and Automotive Advanced Technology). Work in this PE is performed by the Army Research, Development, and Engineering Command (RDECOM)/Communications-Electronics Research, Development, and Engineering Center (CERDEC) /Night Vision and Electronic Sensors Directorate (NVESD), Fort Belvoir, VA.											

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B. Program Change Summary (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	70.682	40.329	43.478	0.000	43.478
Current President's Budget	69.778	72.250	39.912	0.000	39.912
Total Adjustments	-0.904	31.921	-3.566	0.000	-3.566
• Congressional General Reductions		-0.379			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		32.300			
• Congressional Directed Transfers					
• Reprogrammings	0.866	0.000			
• SBIR/STTR Transfer	-1.770	0.000			
• Adjustments to Budget Years	0.000	0.000	-3.566	0.000	-3.566
Change Summary Explanation					
FY10 Congressionally directed increases.					

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<b>Exhibit R-2A, PB 2011 Army RDT&amp;E Project Justification</b>								<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 3: <i>Advanced Technology Development (ATD)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603710A: <i>NIGHT VISION ADVANCED TECHNOLOGY</i>				<b>PROJECT</b> K70: <i>NIGHT VISION ADV TECH</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>Base FY 2011 Estimate</b>	<b>OCO FY 2011 Estimate</b>	<b>Total FY 2011 Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
K70: <i>NIGHT VISION ADV TECH</i>	22.974	24.542	24.491	0.000	24.491	20.731	25.599	28.105	30.570	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Efforts in this project mature and demonstrate high-performance integrated sensor/multi-sensor technologies to increase target detection range, extend target identification range, and reduce target acquisition (TA) timelines for dismounted Soldiers and tactical vehicles against threats that are beyond today's detection ranges or are partially obscured by terrain, weather or other features. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. Work in this project is performed by the Army Research, Development, and Engineering Command (RDECOM)/Communications-Electronics Research, Development, and Engineering Center (CERDEC) /Night Vision and Electronic Sensors Directorate (NVESD), Fort Belvoir, VA.

**B. Accomplishments/Planned Program (\$ in Millions)**

	<b>FY 2009</b>	<b>FY 2010</b>	<b>Base FY 2011</b>	<b>OCO FY 2011</b>	<b>Total FY 2011</b>
<b>Program #1</b>  Soldier Mobility Vision System: This effort matures and demonstrates a low power prototype visible/near infrared (IR) helmet-mounted vision system with full field-of-view (40 degree minimum), digitally-fused uncooled long wave infrared (IR), and image intensified (I2) visible/near IR helmet-mounted vision system to provide mobility, target detection, and situational awareness in complex terrain. In FY09, completed the integration of Soldier vision technologies; conducted technical performance testing, and user evaluations; and transitioned technologies to the PEO Soldier Digital Enhanced Night Vision Goggle program.  <i>FY 2009 Accomplishments:</i> FY 2009  <i>FY 2010 Plans:</i> FY 2010	5.054	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #2		1.456	1.473	0.000	0.000	0.000
Sensor and Information Fusion for Improved Hostile Fire Situational Awareness: This effort builds on existing distributed aperture system (DAS) architecture and demonstration hardware to demonstrate mature and evaluate automated pop up target detection algorithms and a 360 degree by 90 degree digital video recording capability with enabling gunfire detection and audible sensing on a vehicle platform. In FY09, conducted trade off analyses of sensor and system design approaches; completed modeling and simulation of human factors and operator cognitive loading of information; demonstrated system architecture and planned interfaces; and began hardware development efforts to provide improved situational awareness, reconnaissance, surveillance, and targeting information for the vehicle commander and crew in the urban fight. In FY10, complete hardware development efforts; mature and demonstrate driving and situational awareness (SA) indirect vision / drive-by-wire / driver assist design concepts and guidelines, with a local SA display for dismounted Soldiers.						
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #3  Miniature Target Acquisition, Far Target Locator System: This effort matures and demonstrates a miniature light weight, low- powered, hand held far target locator system, to include real-time adaptive Visible Near Infrared/ Short Wave Infrared/Long Wave Infrared (VNIR/ SWIR/LWIR) sensor fusion, a laser range-finder/marker/ illuminator, embedded gaps, target position determination, image and video transmission/reception/display, and electronic zoom with super-resolution capabilities. In FY09, conducted series of field tests/data collections to demonstrate the required SWIR and laser phenomenology necessary for target detection capability of hard to find targets; and developed and demonstrated an interface with existing/developmental dismounted Soldier communication systems for real time video/image transmission.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  Base FY 2011 Plans: FY 2011 Base  OCO FY 2011 Plans: FY 2011 OCO	1.686	0.000	0.000	0.000	0.000
Program #4  Laser Designator Technology: This effort leverages US Army investments in low power laser designation technology to provide advanced lightweight target detection and call for fire capability. In FY09, conducted	8.117	6.706	4.344	0.000	4.344

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
trade-off analyses on the range and size, weight and power requirement for Target Location Designation System (TLDS) of small pixel (12m) large format (1280x 720) cooled midwave infrared (MWIR) versus small pixel (17m) medium format (640X480) uncooled longwave infrared (LWIR) thermal sensors; began fabrication of the thermal sensors; conducted testing in an operational field environment, the small pixel, large format cooled MWIR thermal sensor; began fabrication of lightweight, clip-on common designator module (CDM) to provide improvement in North finding and azimuth accuracy; began far target location improvement program development effort to reduce target location error. In FY10, complete fabrication and demonstrate small pixel medium format cooled MWIR and uncooled LWIR thermal sensors for target performance; demonstrate prototype of lightweight clip-on CDM; continue the development of the far target location effort, and assess far target location performance efforts. In FY11, will demonstrate reduced size, weight and power of the TLDS Azimuth & Vertical Angle Module (AVAM) that matures a far target location (FTL) technology; will demonstrate all the TLDS technology capabilities simultaneously in the medium brass-board system; and will evaluate the small pixel, large format uncooled MWIR thermal sensor target acquisition.						
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #5		6.661	9.784	10.677	0.000	10.677

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Urban Sensor Suite: This effort develops and integrates 360 degree closed hatch vision capability with real time acoustic and non -real time on-the-move (OTM) moving target indicator (MTI) threat detection and cueing sensors and algorithms, high resolution interrogation sensors (for slew to cue identification), improved resolution driving sensors, and high bandwidth video capture capabilities in urban operations for improved survivability, lethality. In FY09, completed trade off analyses of sensor and system design approaches; defined system architecture and interfaces; completed modeling and simulation of human factors and operator cognitive work loading; conducted analysis for threat detection sensors, algorithms, high resolution interrogation sensors, and video architectures and capture technologies; began system design/integration and mature hardware concepts. In FY10, evaluate threat detection sensors and baseline acoustic cueing, non -real time OTM MTI and slew to cue algorithm performance; integrate baseline detection sensors and acoustic cueing algorithms into vehicle demonstration platform; conduct demonstration of integrated detection and slew capabilities; demonstrate baseline 360 degrees video capture approach for improved situational awareness while OTM; maturate and integrate the acoustic cueing sensor system. In FY11, will complete development of system architecture, hardware, and software for integrated processing of video and multiple threat detection alerts (acoustic/ MTI); will complete integration of improved resolution driving cameras, high resolution slew to cue camera, and weapons fire detection sensors; will complete maturation of software for graphical user interface with camera and sensors to assess threat detection and discrimination of imagery analysis; and will complete integration, maturation, and demonstration of detection systems on vehicle platform.						
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #6  Weapon Sight Technology: This effort develops, integrates, and demonstrates critical components for the next generation of weapon sight systems for mounted and dismounted Soldier use. In FY10, develop and mature optical augmentation (OA) sensor and hardware; begin Phase I weapon sight (WS) as defined in design studies and configuration definition; conduct technical evaluation of included technologies; and evaluate and select the optimum technology demonstrator for system integration. In FY11, will continue OA hardware prototype integration for demonstration and user evaluation; will begin phase II weapon sight prototype hardware integration of down-selected configurations for dismounted and crew served applications; will mature and demonstrate enhancement in Soldier situational awareness through increased target detection and engagement technologies; and will conduct laboratory tests and assess the weapon sight system.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  Base FY 2011 Plans: FY 2011 Base  OCO FY 2011 Plans: FY 2011 OCO	0.000	6.015	9.470	0.000	9.470
Program #7  Small Business Innovative Research/Small Business Technology Transfer Programs	0.000	0.564	0.000	0.000	0.000

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<b>B. Accomplishments/Planned Program (\$ in Millions)</b>					
	<b>FY 2009</b>	<b>FY 2010</b>	<b>Base FY 2011</b>	<b>OCO FY 2011</b>	<b>Total FY 2011</b>
<i>FY 2009 Accomplishments:</i> FY 2009					
<i>FY 2010 Plans:</i> FY 2010					
<i>Base FY 2011 Plans:</i> FY 2011 Base					
<i>OCO FY 2011 Plans:</i> FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	22.974	24.542	24.491	0.000	24.491
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A					
<b>D. Acquisition Strategy</b> N/A					
<b>E. Performance Metrics</b> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.					

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<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>Base FY 2011 Estimate</b>	<b>OCO FY 2011 Estimate</b>	<b>Total FY 2011 Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
K73: <i>NIGHT VISION SENSOR DEMONSTRATIONS (CA)</i>	30.898	32.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
<b><u>A. Mission Description and Budget Item Justification</u></b> Congressional Interest Item funding for Night Vision advanced technology development.											
<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>											
							<b>FY 2009</b>	<b>FY 2010</b>	<b>Base FY 2011</b>	<b>OCO FY 2011</b>	<b>Total FY 2011</b>
Program #1  Enhanced Digital Electronic Night-Vision (EDEN): In FY09, this Congressional Interest Item developed, integrated, and fabricated a brass-board sensor platform consisting of frequency-agile, visible near infrared/short wave infrared (VNIR/SWIR) hyperspectral imaging fused with traditional broadband imagery for lightweight ground vehicle applications.  <i>FY 2009 Accomplishments:</i> FY 2009  <i>FY 2010 Plans:</i> FY 2010  <i>Base FY 2011 Plans:</i> FY 2011 Base  <i>OCO FY 2011 Plans:</i> FY 2011 OCO							1.595	0.000	0.000	0.000	0.000
Program #2							1.595	1.591	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Hyperspectral Sensors for Improved Force Protection (Hyper-IFP): In FY09, this Congressional Interest Item developed the SWIR hyperspectral sensor package that detects changes in human skin, integrated into the CERBERUS (tower mounted force protection system) architecture to investigate the processing of signatures from existing force protection sensors in new and unique ways to pull more/different targets out of the clutter.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  Base FY 2011 Plans: FY 2011 Base  OCO FY 2011 Plans: FY 2011 OCO					
Program #3  FCS Short Range Electro Optic (SREO) Sensor for Stryker: In FY09, this Congressional Interest Item demonstrated Future Combat Systems Short Range Electro-Optic (FCS SREO) development and integration of 3rd Generation Forward Looking infrared technology on FCS and Current Force vehicle platforms.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010	1.595	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #4  Personal Miniature Thermal Viewer (PMTV): In FY09, this Congressional Interest Item built medical imager systems based on PMTV technology and delivered to Deployed Combat Casualty Research Team, 332d EMDG, Joint Base Balad, Iraq for use in a triage screening application.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  Base FY 2011 Plans: FY 2011 Base  OCO FY 2011 Plans: FY 2011 OCO		1.595	0.000	0.000	0.000	0.000
Program #5  Smart Data Project: Real-Time Geospatial Video Sensor Intelligence: In FY09, this Congressional Interest Item conducted testing, evaluation, and demonstration of the secure transmission, storage, retrieval, and battlefield exploitation of real-time digital video from Unmanned Aerial Systems (UAS) in a relevant environment.		0.797	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #6  Brownout Situational Awareness Sensor: In FY09, this Congressional Interest Item developed the range and field of view performance of the Brown-out Situational Awareness System (BSAS). Continued to ruggedize, repackag, and reduce the weight, size, and cost of the BSAS brass-board.		1.595	2.388	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #7  Night Vision Advanced Technology Research: In FY09, this Congressional Interest Item developed and demonstrated combined midwave and longwave infrared sensor capabilities for the Q2 airborne turret; developed hyperspectral sensors for tagging, tracking, and locating technologies that supports the concepts to track terrorists over a wide area once they have been identified; developed persistent imaging concepts for unmanned/unattended platforms; developed a thermal imager that can be clipped-on to existing image intensifier goggles to provide dismounted forces an infrared search capability while retaining night vision capability.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  Base FY 2011 Plans: FY 2011 Base  OCO FY 2011 Plans: FY 2011 OCO		11.960	8.953	0.000	0.000	0.000
Program #8  InfraRed Goggle Upgrade System (IRGUS): In FY09, this Congressional Interest Item developed and demonstrated the miniaturization of the thermal imager electronics and built additional systems for user evaluations.  FY 2009 Accomplishments: FY 2009		0.797	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #9  Mini-Long-Range Advanced Scout Surveillance System (LRAS3): In FY09, this Congressional Interest Item developed brass-board of Mini- LRAS3 optical sensor.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  Base FY 2011 Plans: FY 2011 Base  OCO FY 2011 Plans: FY 2011 OCO		1.594	0.000	0.000	0.000	0.000
Program #10		1.994	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Passive Infrared (IR) Sensor for Persistent Wide Area Surveillance: In FY09, this Congressional Interest Item integrated a Passive Infrared Search and Track (IRST) sensor into the "CERBERUS" architecture/platform and tested the entire platform where the passive IRST sensor replaced the active radar as the search/detection sensor.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  Base FY 2011 Plans: FY 2011 Base  OCO FY 2011 Plans: FY 2011 OCO						
Program #11  Smart Sensor Supercomputing Center: In FY09, this Congressional Interest Item matured, tested, and evaluated the algorithms for detecting, classifying, and tracking human and vehicular targets in very high clutter. Demonstrated the smart sensor processing on low cost sensors for high quality performance, on Marine radar used over land.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010		5.781	7.958	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)		R-1 ITEM NOMENCLATURE PE 0603710A: NIGHT VISION ADVANCED TECHNOLOGY		PROJECT K73: NIGHT VISION SENSOR DEMONSTRATIONS (CA)		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #12  Buster Backpack. This is a Congressional Interest Item.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  Base FY 2011 Plans: FY 2011 Base  OCO FY 2011 Plans: FY 2011 OCO		0.000	0.795	0.000	0.000	0.000
Program #13  Enhanced Driver Situational Awareness. This is a Congressional Interest Item.  FY 2009 Accomplishments: FY 2009		0.000	0.796	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #14  Microterrain Persistent Surveillance. This is a Congressional Interest Item.	0.000	1.592	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #15  Compact Airborne Multi-Mission Payload (CAMP). This is a Congressional Interest Item.	0.000	1.592	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #16  Night Vision and Electronic Sensors Directorate. This is a Congressional Interest Item.	0.000	1.990	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #17	0.000	4.477	0.000	0.000	0.000

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<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>					
	<b>FY 2009</b>	<b>FY 2010</b>	<b>Base FY 2011</b>	<b>OCO FY 2011</b>	<b>Total FY 2011</b>
Bradley Third Generation FLIR. This is a Congressional Interest Item.  <i>FY 2009 Accomplishments:</i> FY 2009  <i>FY 2010 Plans:</i> FY 2010  <i>Base FY 2011 Plans:</i> FY 2011 Base  <i>OCO FY 2011 Plans:</i> FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	30.898	32.132	0.000	0.000	0.000
<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b> N/A					
<b><u>D. Acquisition Strategy</u></b> N/A					
<b><u>E. Performance Metrics</u></b> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.					

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<b>Exhibit R-2A, PB 2011 Army RDT&amp;E Project Justification</b>								<b>DATE:</b> February 2010			
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<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>Base FY 2011 Estimate</b>	<b>OCO FY 2011 Estimate</b>	<b>Total FY 2011 Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
K86: <i>NIGHT VISION, ABN SYS</i>	15.906	15.576	15.421	0.000	15.421	16.647	16.951	19.245	21.514	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Efforts in this project mature and demonstrate intelligence, surveillance, reconnaissance, targeting, and pilotage technologies in support of the Army's aviation and networked systems. This project matures and demonstrates technology efforts that focus on improved reconnaissance, surveillance and target acquisition and night pilotage sensors, high-resolution heads-up displays, sensor fusion, and aided target recognition (AiTR) capabilities for attack, scout, cargo, and utility helicopters and unmanned aerial systems (UASs). UAS payload efforts mature and demonstrate small, lightweight, modular, payloads (electro-optical/infrared, laser radar, designator) to support target detection, identification, location, tracking, and targeting of tactical targets for the Brigade Combat Team. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. Work in this project is performed by the Army Research, Development, and Engineering Command (RDECOM)/Communications-Electronics Research, Development, and Engineering Center (CERDEC) /Night Vision and Electronic Sensors Directorate (NVESD), Fort Belvoir, VA.

**B. Accomplishments/Planned Program (\$ in Millions)**

	<b>FY 2009</b>	<b>FY 2010</b>	<b>Base FY 2011</b>	<b>OCO FY 2011</b>	<b>Total FY 2011</b>
<b>Program #1</b>  Objective Pilotage for Utility and Lift (OPUL): This effort develops, integrates, tests, and demonstrates a sensor suite that provides multi-pilot helicopters and crews simultaneous multi-user, wide field of regard imagery of the immediate surroundings. The OPUL system is designed for pilotage and navigation, providing advanced sensors for improved image quality under degraded and brown out conditions. In FY09, integrated sensor suite onto a helicopter testbed; conducted flight evaluation to perform engineering checkout; assessed integration and sensor suite performance; studied human factors aspect of multi-sensor, multi-spectral, eye points and their impact on mission performance; and conducted limited user flight assessment. In FY10, complete human factors performance studies; and conduct extensive flight evaluations and demonstrations with varying mission scenarios and environmental conditions.  <i>FY 2009 Accomplishments:</i> FY 2009	7.025	4.234	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #2  Advanced Lasers for Unmanned Aerial System (UAS) Payloads: This effort develops, integrates, and demonstrates an advanced target acquisition and designation laser payload to satisfy the reconnaissance, surveillance, and target acquisition (RSTA) mission requirements for the Class I unmanned aerial system (UAS) customized to a 7 lb payload capacity. In FY09, validated performance of the laser designator (LD)/laser range finder components in a relevant environment, and demonstrated proof-of-principle RSTA and LD payload brass-board; finalized RSTA and LD payload system design; and conducted initial demonstrations of the laser, detector, and pointing/stabilization subsystems. In FY10, validate performance of micro-turret payload laser, and imaging and stabilization components, and integrate them into a unified package; complete transition and incorporation into the Advanced Demonstrator Payload of the laser designator/laser rangefinder component into the Advanced Demonstrator Payload; and mature and test compact 2-axis laser/infrared stabilized payload components. In FY11, will complete manufacturing and integration of the advanced demonstrator payload brass-board sensors; will characterize and flight test the payloads in a relevant environment.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010		8.881	9.029	5.294	0.000	5.294

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #3  Airborne Unmanned Persistent Imaging: This effort demonstrates day and night persistent surveillance imaging (PSI) and enhanced reconnaissance, surveillance, and target acquisition (RSTA) capabilities from a single payload on the extended range/multi-purpose (ER/MP) unmanned aerial system (UAS). In FY10, mature step -stare software; and begin intelligent, tiered data processing development and hardware design trade studies. In FY11, will complete step- stare and ground-based processing software; will demonstrate brass-board for tracking, image compression, and scene segmentation software; and will finalize designs for tiered data processing and integrate designs for the 3rd generation focal plane array.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  Base FY 2011 Plans: FY 2011 Base  OCO FY 2011 Plans: FY 2011 OCO		0.000	1.981	7.224	0.000	7.224
Program #4		0.000	0.000	2.903	0.000	2.903

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Multi-mode system Payloads for Enhanced Targeting: This effort demonstrates improved targeting capabilities, (especially against difficult camouflage, concealment, and defilade targets), by combining the wide area search and identification capabilities of hyperspectral imaging with the three dimensional target identification and through foliage/camouflage capabilities of laser radar (LADAR) for target range interrogation). In FY11, will leverage and mature mono-block laser technology to begin the development of a compact multi-function laser capable of providing standard eye-safe range-finding and LADAR laser functions.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  Base FY 2011 Plans: FY 2011 Base  OCO FY 2011 Plans: FY 2011 OCO						
Program #5  Small Business Innovative Research/Small Business Technology Transfer Programs  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010		0.000	0.332	0.000	0.000	0.000

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<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>					
	<b>FY 2009</b>	<b>FY 2010</b>	<b>Base FY 2011</b>	<b>OCO FY 2011</b>	<b>Total FY 2011</b>
<i>Base FY 2011 Plans:</i> FY 2011 Base  <i>OCO FY 2011 Plans:</i> FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	15.906	15.576	15.421	0.000	15.421
<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>					
N/A					
<b><u>D. Acquisition Strategy</u></b>					
N/A					
<b><u>E. Performance Metrics</u></b>					
Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.					

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