Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Army											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*					R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	-	26.508	31.303	33.533	-	33.533	26.261	19.944	11.731	12.881	Continuing	Continuing
11A: *Advanced Payload Develop & Spt (MIP)*	-	15.910	6.247	5.557	-	5.557	8.361	8.113	3.094	3.310	Continuing	Continuing
11B: *Tsp Development (MIP)*	-	6.282	20.730	24.691	-	24.691	13.125	7.247	4.437	4.747	Continuing	Continuing
123: *Joint Technology Center System Integration*	-	4.316	4.326	3.285	-	3.285	4.775	4.584	4.200	4.824	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Project 11A: The Advanced Payloads Development project line is a shared funding line between multiple Payload programs. These Payload programs support the Army's transformation by developing Reconnaissance, Surveillance and Target Acquisition (RSTA) and Intelligence, Surveillance and Reconnaissance (ISR) payload systems for Brigade Combat Teams, Divisions, and Corps Unmanned Aircraft Systems (UAS). This is in accordance with Headquarters Department of the Army (HQDA) and Training and Doctrine Command (TRADOC) UAS priorities.

Small Tactical Radar - Lightweight (STARLite) Synthetic Aperture Radar/Ground Moving Target Indicator (SAR/GMTI) is a lightweight, high performance, all weather, multi-functional radar system for the Gray Eagle Unmanned Aircraft System (UAS). The STARLite system provides wide area, near real time Reconnaissance, Surveillance and Target Acquisition (RSTA) capabilities. It operates throughout the UAS flight mission profile in adverse weather and through battlefield obscurants. The SAR mode generates quality images for the battlefield commander for detection, classification and location of stationary commercial wheeled vehicle-size targets. The GMTI mode detects moving ground targets, to include man-sized detection, and provides location information and performs cross-cue with the Electro-Optic/ Infrared (EO/IR) sensors.

Common Sensor Payload (CSP) - Electro Optical / Infra Red / Laser Designator (EO/IR/LD) provides High Definition (HD) Full Motion Video (FMV) in both the Electro Optical and Mid Wave IR spectrums with day/night capability to collect and display continuous imagery with the ability to designate targets of interest for attack by laser guided precision weapons. It is the EO/IR/LD sensor for Gray Eagle UAS which supports force applications, battlespace awareness, force protection, and net-centric operations across the battlefield to provide wide area, near real time RSTA capabilities. Additional initiatives will continue to focus on the transition of technologies directly supporting emerging requirements and the Army's Current and Future Force. CSP is being procured for the Gray Eagle UAS program and has potential application to other platforms.

Project 11B: The Tactical Signals Intelligence (SIGINT) Payload (TSP) is a SIGINT sensor, currently under development for the Gray Eagle that detects radio frequency (RF) emitters. The TSP system will provide a SIGINT capability to the tactical commander. The TSP system will be a modular, scalable payload using an architecture that is software reconfigurable to allow for growth and flexibility as technology, and as the adversaries use of technology, changes. This flexible

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Army	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*

architecture allows for third party software applications to be integrated into the TSP system. The TSP system is a complementary system to the aerial and terrestrial Intelligence, Surveillance, and Reconnaissance (ISR) layers through direct interface with the Distributed common Ground system - Army (DCGS-A) Information and Intelligence Enterprise (DI2E). It supports Manned/Unmanned (MUM) teaming with Brigade Combat Team ground SIGINT Terminal Guidance (STG) teams and manned airborne assets. The TSP system improves situational awareness and shortens the targeting cycle by detecting and identifying emitters associated with high value targets (HVTs). The TSP system is capable of processing conventional signals, standard military signals, and modern signals of interest. This includes detection recognition, identification, direction finding, and high confidence geo-location. The TSP system operates in two modes, passive and active to provide an enhanced Aerial Precision Geolocation (APG) capability.

Project 123: The Unmanned Aircraft System (UAS) Joint Technology Center/Systems Integration Laboratory (JTC/SIL) is a Joint facility that develops, integrates, and supports the enhancement of its Multiple Unified Simulation Environment (MUSE) capability for Army systems and operational concepts. The JTC/SIL conducts prototype hardware and software development, builds the UAS Institutional Mission Simulator (IMS) trainers for the Shadow, Hunter, and Gray Eagle programs, and provides modeling and simulation support. The MUSE is a real-time, operator in-the-loop simulation that may be integrated with larger simulations in support of Army and Joint training and exercises. The MUSE is also employed as a Mission Rehearsal Tool for ongoing combat operations. This project funds the management of the JTC/SIL and MUSE enhancements. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	26.508	31.303	16.860	-	16.860
Current President's Budget	26.508	31.303	33.533	-	33.533
Total Adjustments	0.000	0.000	16.673	-	16.673
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	16.673	-	16.673

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 11A: *Advanced Payload Develop & Spt (MIP)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
11A: *Advanced Payload Develop & Spt (MIP)*	-	15.910	6.247	5.557	-	5.557	8.361	8.113	3.094	3.310	Continuing	Continuing
Quantity of RDT&E Articles												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

Not applicable for this item.

A. Mission Description and Budget Item Justification

The Advanced Payloads Development project is a shared funding line between multiple Payload programs. These Payload programs support the Army's transformation by developing Reconnaissance, Surveillance and Target Acquisition (RSTA) and Intelligence, Surveillance and Reconnaissance (ISR) payload systems for Brigade Combat Teams, Divisions, and Corps Unmanned Aircraft Systems (UAS). This is in accordance with Headquarters Department of the Army (HQDA) and Training and Doctrine Command (TRADOC) UAS priorities.

Small Tactical Radar - Lightweight (STARLite) Synthetic Aperture Radar/Ground Moving Target Indicator (SAR/GMTI) is a lightweight, high performance, all weather, multi-functional radar system for the Gray Eagle Unmanned Aircraft System (UAS). The STARLite system provides wide area, near real time Reconnaissance, Surveillance and Target Acquisition (RSTA) capabilities. It operates throughout the UAS flight mission profile in adverse weather and through battlefield obscurants. The SAR mode generates quality images for the battlefield commander for detection, classification and location of stationary commercial wheeled vehicle-size targets. The GMTI mode detects moving ground targets, to include man-sized detection, and provides location information and performs cross-cue with the Electro-Optic/ Infrared (EO/IR) sensors.

Common Sensor Payload (CSP) - Electro Optical / Infra Red / Laser Designator (EO/IR/LD) provides High Definition (HD) Full Motion Video (FMV) in both the Electro Optical and Mid Wave IR spectrums with day/night capability to collect and display continuous imagery with the ability to designate targets of interest for attack by laser guided precision weapons. It is the EO/IR/LD sensor for Gray Eagle UAS which supports force applications, battlespace awareness, force protection, and net-centric operations across the battlefield to provide wide area, near real time RSTA capabilities. Additional initiatives will continue to focus on the transition of technologies directly supporting emerging requirements and the Army's Current and Future Force. CSP is being procured for the Gray Eagle UAS program and has potential application to other platforms.

FY 2014 base development dollars in the amount of $5.557 million is for software development to improve CSP and STARLite Sensor Processing and Exploitation.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 11A: *Advanced Payload Develop & Spt (MIP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: CSP High Definition (HD) - EO/IR/LD	14.281	3.567	0.000
Articles:	0	0	
Description: Development, testing and integration ***FY 2012 Accomplishments:*** CSP HD Development, testing and integration ***FY 2013 Plans:*** CSP HD Development, testing and integration			
Title: CSP HD Target Location Accuracy (TLA) - EO/IR/LD	0.000	2.680	0.000
Articles:		0	
Description: Target Location Accuracy (TLA) - Non Recurring Engineering (NRE), design, integrate and test of TLA ***FY 2013 Plans:*** Contract Prep Work - RFP, SOW and contract award for FY14 TLA Development			
Title: STARLite ER (Extended Range) - SAR/GMTI	1.629	0.000	0.000
Articles:	0		
Description: STARLite (SAR/GMTI) - Design, build, test and integrate 3 STARLite ER integration and test systems (Larger Antenna = Extended Range and Increased Reliability) onto the host platform (Gray Eagle). ***FY 2012 Accomplishments:*** Finalize testing events and integration onto host platform (Gray Eagle)			
Title: Software Development to improve CSP and STARLite Sensor Processing and Exploitation	0.000	0.000	5.557
Description: Development, Testing and Integration ***FY 2014 Plans:*** Software Development to improve CSP and STARLite Sensor Processing and Exploitation			
Accomplishments/Planned Programs Subtotals	15.910	6.247	5.557

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 11A: *Advanced Payload Develop & Spt (MIP)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• A00020: *MQ-1 PAYLOAD - UAS - A00020*	146.983	231.508	97.781		97.781	72.009	59.680	53.900	11.200	Continuing	Continuing

Remarks

MQ-1 PAYLOAD - UAS - A00020: Shared Aircraft Procurement, Army (APA) procurement funding line for CSP,STARLite, Tactical Signals Intelligence (SIGINT) Payload (TSP) and Advanced Payloads.

D. Acquisition Strategy

STARLite SAR/GMTI is a threshold requirement for the Gray Eagle UAS. The acquisition strategy for STARLite program was based on a full and open competition for the Army. A five year competitive production contract was awarded in April 2008 to Northrop Grumman for the build, integration, test and delivery of STARLite systems with preplanned improvements for Extended Range and Increased Reliability. A follow-on production and sustainment contract is planned for award in August 2013 for 3 years that will procure all the remaining STARLite Payloads required for the Gray Eagle platform and provide system sustainment. FRP is scheduled for FY13 while S/W improvements to the current sensors are planned for FY14.

Common Sensor Payload (CSP) EO/IR/LD is a KPP (Key Performance Parameter) requirement for the Gray Eagle UAS. The acquisition strategy for the CSP program was based on a full and open competition for the Army. It was briefed and approved at the Army Systems Acquisition Review Council (ASARC) in Dec 2006. A competitive contract was awarded in Nov 2007 to Raytheon for the build, integration, test and delivery of the CSP. FRP is scheduled for FY13 while improvements to the current sensors are planned for FY14. CSP High Definition (HD) is being cut into the existing payload with a retrofit schedule planned for award in FY13 to bring all of the previously procured CSP baseline systems up to the HD configuration.

The acquisition strategy for FY14 software development to improve CSP and STARLite Sensor Processing and Exploitation is to utilize existing contract vehicles.

E. Performance Metrics

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 11A: *Advanced Payload Develop & Spt (MIP)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Mgmt Personnel	Various	PM RUS:Aberdeen, MD	7.086	0.871	Dec 2011	0.567	Dec 2012	0.500	Dec 2013	-		0.500	Continuing	Continuing	Continuing
PM ARES Funding for TSP	Allot	PM, ARES:Aberdeen, MD	11.255	-		-		-		-		-	0.000	11.255	11.255
		Subtotal	18.341	0.871		0.567		0.500		0.000		0.500			

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
STARLite Extended Range (ER) (SAR/GMTI)	C/CPFF	Northrop Grumman:Linthicum, MD	6.786	-		-		-		-		-	0.000	6.786	6.786
CSP EO/IR/LD	C/FFP	Raytheon:McKinney, TX	48.500	-		-		-		-		-	0.000	48.500	48.500
CSP HD (High Definition)	MIPR	NSWC Crane:Crane, IN	3.000	7.850	Feb 2012	-		-		-		-	0.000	10.850	10.850
CSP TLA - NRE, Build and Test - Contract Closeout	MIPR	NSWC Crane:Crane, IN	22.000	-		2.680		-		-		-	0.000	24.680	Continuing
Improvements to Sensor Processing and Exploitation	TBD	TBD:TBD	0.000	-		-		5.057	Mar 2014	-		5.057	Continuing	Continuing	Continuing
		Subtotal	80.286	7.850		2.680		5.057		0.000		5.057			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Gray Eagle Integration Support (STARLite, CSP, HD & TLA)	MIPR	PM UAS / General Atomics:Huntsville, AL	20.344	4.191	Feb 2012	1.500		-		-		-	Continuing	Continuing	Continuing
		Subtotal	20.344	4.191		1.500		0.000		0.000		0.000			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Army			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 11A: *Advanced Payload Develop & Spt (MIP)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
STARLite ER (Extended Range) - SAR/GMTI	MIPR	Various:Linthicum, MD	12.250	-		-		-		-		-	0.000	12.250	12.250
CSP (EO/IR/LD)	MIPR	Various:Various	13.779	-		-		-		-		-	0.000	13.779	13.779
CSP HD	MIPR	TBD:TBD	0.000	2.998	Feb 2012	1.500		-		-		-	0.000	4.498	4.498
		Subtotal	26.029	2.998		1.500		0.000		0.000		0.000	0.000	30.527	30.527

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	145.000	15.910		6.247		5.557		0.000		5.557			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 11A: *Advanced Payload Develop & Spt (MIP)*

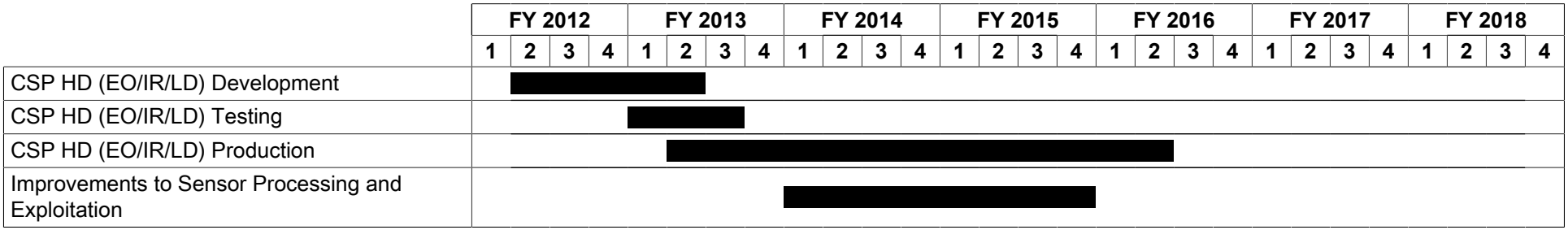

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204A: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 11A: *Advanced Payload Develop & Spt (MIP)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CSP HD (EO/IR/LD) Development	2	2012	2	2013
CSP HD (EO/IR/LD) Testing	1	2013	3	2013
CSP HD (EO/IR/LD) Production	2	2013	2	2016
Improvements to Sensor Processing and Exploitation	1	2014	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 11B: *Tsp Development (MIP)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
11B: *Tsp Development (MIP)*	-	6.282	20.730	24.691	-	24.691	13.125	7.247	4.437	4.747	Continuing	Continuing
Quantity of RDT&E Articles												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

TSP efforts in FY11 and prior years were carried in both Projects 11A (Advanced Payload Development) and 11B (TSP Development). All TSP funding in FY12 and beyond is carried in Project 11B.

A. Mission Description and Budget Item Justification

The Tactical Signals Intelligence (SIGINT) Payload (TSP) is a SIGINT sensor, currently under development for the Gray Eagle that detects radio frequency (RF) emitters. The TSP system will provide a SIGINT capability to the tactical commander. The TSP system will be a modular, scalable payload using an architecture that is software reconfigurable to allow for growth and flexibility as technology, and as the adversaries use of technology, changes. This flexible architecture allows for third party software applications to be integrated into the TSP system. The TSP system is a complementary system to the aerial and terrestrial Intelligence, Surveillance, and Reconnaissance (ISR) layers through direct interface with the Distributed Common Ground System - Army (DCGS-A) Information and Intelligence Enterprise (DI2E). It supports Manned/Unmanned (MUM) teaming with Brigade Combat Team ground SIGINT Terminal Guidance (STG) teams and manned airborne assets. The TSP system improves situational awareness and shortens the targeting cycle by detecting and identifying emitters associated with high value targets (HVTs).

The TSP system is capable of processing conventional signals, standard military signals, and modern signals of interest. This includes detection, recognition, identification, direction finding, and high confidence geo-location. The TSP system operates in two modes, passive and active to provide an enhanced Aerial Precision Geolocation (APG) capability.

FY2014 Base funding in the amount of $24.691 Million supports TSP Engineering and Manufacturing Development (EMD) phase contract as well as test and evaluation, program management and engineering costs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: EMD Non-Recurring Engineering (NRE), Training Development, Other Licensing and Equipment.	6.282	20.730	24.691
Articles:	0	0	
Description: EMD NRE, Training Development, Other Licensing and Equipment.			
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 11B: *Tsp Development (MIP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continued EMD NRE, Training Development, Other Licensing and Equipment. ***FY 2013 Plans:*** Continues TSP Block 1, Increment 1 EMD Phase, Commences EMD Test and Evaluation (Contractor Flight Test, Limited User Test). ***FY 2014 Plans:*** Complete TSP Block 1, Increment 1 EMD Phase. Commences TSP Block 1, Increment 2 EMD Phase.			
Accomplishments/Planned Programs Subtotals	6.282	20.730	24.691

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• NSA: *NSA MIP (TSP)*	6.813	2.892	1.769		1.769					0.000	11.474
• A00020: *MQ-1 Payload*		231.508	97.871		97.871	72.009	59.680	53.900	11.200	0.000	526.168

Remarks

MQ-1 Payload - UAS - A00020: Shared Aircraft Procurement, Army (APA) procurement funding line for CSP, STARLite, TSP, and Advanced Payloads.

D. Acquisition Strategy

TSP is a threshold requirement for the MQ-1C Gray Eagle UAS. The TSP program entered the Engineering and Manufacturing Development (EMD) phase with a Milestone B decision in September 2011. The TSP Program EMD contract award was based on full-and-open competition and was focused on integration and test onto the Gray Eagle platform and integration and test of TSP software into the Distributed Common Ground System-Army (DCGS-A). The TSP EMD program is a derivative of systems that are currently fielded on the Hunter UAS and a variety of other manned platforms. The demonstrated scalability of these fielded materiel solutions allows the TSP EMD program to leverage effort that directly supports the TSP EMD program.

The TSP programs Acquisition Strategy has been modified to accommodate the FY 2012 Appropriation that reduced the 11B Funding Line by $14.100 Million. The TSP program is following an incremental Acquisition Strategy with a TSP Block 0, Block 1 and Block 2. Schedule adjusted in accordance with the TSP Acquistion Decision Memorandum dated 22 Mar 2012.

The TSP Block 0 will provide an early TSP operational capability for the Gray Eagle program.

The TSP Block 1 is the current Program of Record that entered EMD in FY 2011.

The TSP Block 2 effort will address System enhancements and upgrades as the threat and technology evolves.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 11B: *Tsp Development (MIP)*

E. Performance Metrics

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 11B: *Tsp Development (MIP)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management-Gov	RO	PM ARES:APG	5.412	0.810	Dec 2011	1.264	Dec 2012	1.005	Dec 2013	-		1.005	Continuing	Continuing	Continuing
Program Management Support	MIPR	Various:APG	2.830	0.350	Dec 2011	0.396	Mar 2013	0.792	Mar 2014	-		0.792	Continuing	Continuing	Continuing
FFRDC Support	FFRDC	MITRE:APG	0.286	0.358	Feb 2012	1.260	Mar 2013	0.215	Mar 2014	-		0.215	Continuing	Continuing	0.000
		Subtotal	8.528	1.518		2.920		2.012		0.000		2.012			

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TSP EMD	C/CPIF	BAE Systems,:Nashua, NH	2.841	3.544	Mar 2012	6.953	Mar 2013	16.083	Dec 2013	-		16.083	Continuing	Continuing	Continuing
		Subtotal	2.841	3.544		6.953		16.083		0.000		16.083			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	Various:...	1.250	0.540	Mar 2012	1.000	Mar 2013	0.750	Mar 2014	-		0.750	Continuing	Continuing	Continuing
		Subtotal	1.250	0.540		1.000		0.750		0.000		0.750			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test and Activities	MIPR	Various:ATEC/APG	4.139	0.680	May 2012	4.600	Mar 2013	2.960	Jan 2014	-		2.960	Continuing	Continuing	Continuing
Operational Testing	MIPR	ATEC:APG	0.500	-		3.247	Mar 2013	0.400	Jan 2014	-		0.400	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Army			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 11B: *Tsp Development (MIP)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Range & Aircraft Support	MIPR	Lakehurst, Ft Huachuca, others:Various	0.000	-		2.010	Mar 2013	2.486	Jan 2014	-		2.486	Continuing	Continuing	Continuing
		Subtotal	4.639	0.680		9.857		5.846		0.000		5.846			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	17.258	6.282		20.730		24.691		0.000		24.691			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 11B: *Tsp Development (MIP)*

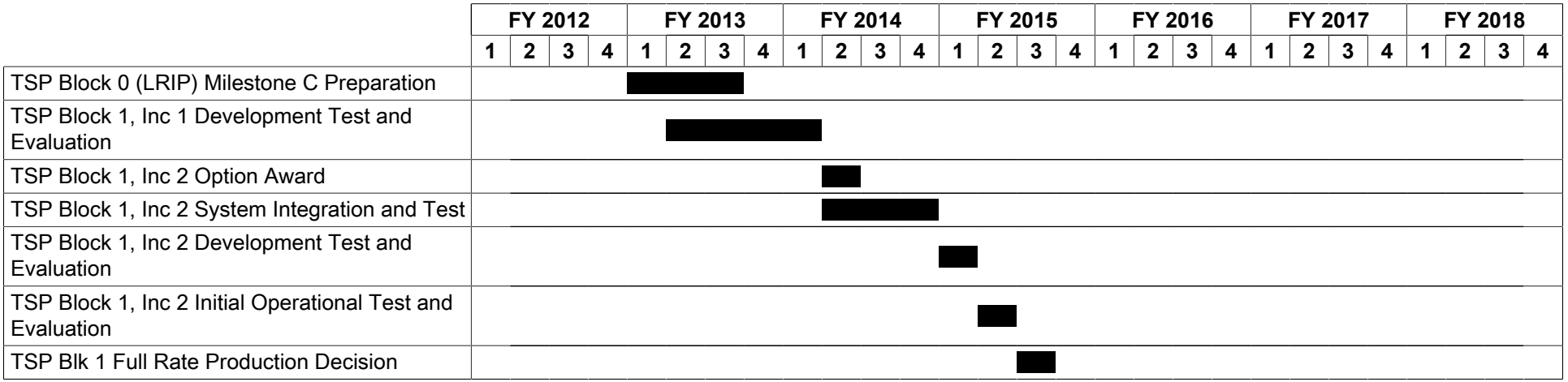

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 11B: *Tsp Development (MIP)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
TSP Block 0 (LRIP) Milestone C Preparation	1	2013	3	2013
TSP Block 1, Inc 1 Development Test and Evaluation	2	2013	1	2014
TSP Block 1, Inc 2 Option Award	2	2014	2	2014
TSP Block 1, Inc 2 System Integration and Test	2	2014	4	2014
TSP Block 1, Inc 2 Development Test and Evaluation	1	2015	1	2015
TSP Block 1, Inc 2 Initial Operational Test and Evaluation	2	2015	2	2015
TSP Blk 1 Full Rate Production Decision	3	2015	3	2015

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 123: *Joint Technology Center System Integration*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
123: *Joint Technology Center System Integration*	-	4.316	4.326	3.285	-	3.285	4.775	4.584	4.200	4.824	Continuing	Continuing
Quantity of RDT&E Articles												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Unmanned Aircraft System (UAS) Joint Technology Center/Systems Integration Laboratory (JTC/SIL) is a Joint facility that develops, integrates, and supports the enhancement of its Multiple Unified Simulation Environment (MUSE) capability for Army systems and operational concepts. The JTC/SIL conducts prototype hardware and software development, builds the UAS Institutional Mission Simulator (IMS) trainers for the Shadow, Hunter, and Gray Eagle programs, and provides modeling and simulation support. The MUSE is a real-time, operator in-the-loop simulation that may be integrated with larger simulations in support of Army and Joint training and exercises. The MUSE is also employed as a Mission Rehearsal Tool for ongoing combat operations. This project funds the management of the JTC/SIL and MUSE enhancements.

This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Product Development	1.800	1.840	1.700
Articles:	0	0	
Description: Funding is provided for the following efforts.			
FY 2012 Accomplishments: Released MUSE 8.8 software which contained advanced weaponization, improvements for software for integrating third party software to meet user requirements such as mapping and visualization softwre, advanced mission planning capabilities, ease of use enhancements to assist users in operation of the system, network environment, entity handling software improvements and Windows 7 64 bit operations.			
FY 2013 Plans: Integration of a government owned visualization package. Develop more ease of use enhancements including standardized set up packages for the aircraft simulation. Evaluate Ground Control Station simulation improvements for fidelity and realism. Design, develop, implement, and release Build 8.8.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 123: *Joint Technology Center System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Move to smart phone or more portable computing capabilities. Evaluate the adaptable environment that gives the user more flexibility by choosing which components to use for a more customized environment. Incorporate new sensor technologies. Incorporate new aircraft and avionics. Design, develop, implement, and release Build 9.04			
Title: Support OSD Joint UAS Interoperability Requirements and Activities	2.000	2.000	1.141
Articles:	0	0	
Description: Funding is provided for the following efforts. ***FY 2012 Accomplishments:*** Established the JSIL as a legitimate Joint test organization by forging relationships with Test Resources Management Center (TRMC) and Joint Interoperability Test Center (JITC). continued to move the UAS Control Segment Working Group (UCS WG) forward to include coordinating and integrating a tri-service demonstration of the architecture. Developed of UCS Architecture related tools and training aids. Maintained Unmanned Systems Interoperability Profile (USIP) Management Plan which governs the USIP process. ***FY 2013 Plans:*** Develop UCS Architecture environment and compliance tools. Develop and publish multiple new USIPs based on OSD prioritization. Provide technical and administrative support to I IPT and associated WGs. ***FY 2014 Plans:*** Continue development of UCS Architecture environment and compliance tools. Continue to develop and publish multiple new USIPs based on OSD prioritization. Continue to provide technical and administrative support to I IPT and associated WGs.			
Title: Management Services	0.516	0.486	0.444
Articles:	0	0	
Description: Funding is provided for the following efforts. ***FY 2012 Accomplishments:*** Provided coordination and oversight of MUSE product development and OSD Interoperability Requirements and Tood development. ***FY 2013 Plans:*** Continue coordination and oversight of MUSE product development and OSD Interoperability Requirements and tool development. ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 123: *Joint Technology Center System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue coordination and oversight of MUSE product development and OSD Interoperability Requirements and Tool development.			
Accomplishments/Planned Programs Subtotals	4.316	4.326	3.285

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• PE 0603261N Navy: *PE 0603261N Navy*	3.573	2.000	2.000		2.000	2.000				Continuing	Continuing
• PE 0305206F Air Force: *PE 0305206F Air Force*	3.235	3.464	2.472		2.472	3.983	4.044	3.455	3.507	Continuing	Continuing

Remarks

The JTC/SIL and the MUSE receive funding from the Air Force and Navy through their POM processes. This effort is a continuing effort in support of Service UAS programs.

D. Acquisition Strategy

Continued MUSE development will be accomplished through a combination of Government in-house functional directorate support using a variety of existing contract vehicles.

E. Performance Metrics

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Army			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204A: *Tactical Unmanned Aerial Vehicles*	PROJECT 123: *Joint Technology Center System Integration*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	MIPR	AMC, AMCOM, AMRDEC, SED:Redstone Arsenal, AL	0.796	0.516	Dec 2011	0.486		0.444		-		0.444	Continuing	Continuing	Continuing
		Subtotal	0.796	0.516		0.486		0.444		0.000		0.444			

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MUSE Development	MIPR	AMC, AMCOM, AMRDEC, SED:Redstone Arsenal, AL	3.687	1.800	Dec 2011	1.840		1.700	Dec 2013	-		1.700	Continuing	Continuing	Continuing
		Subtotal	3.687	1.800		1.840		1.700		0.000		1.700			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Interoperability Support	MIPR	AMC, RDECOM, AMRDEC:Redstone Arsenal, AL	2.000	2.000	Dec 2011	2.000		1.141	Dec 2013	-		1.141	Continuing	Continuing	0.000
		Subtotal	2.000	2.000		2.000		1.141		0.000		1.141			0.000

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.483	4.316		4.326		3.285		0.000		3.285			

Remarks