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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force										Date: February 2015		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207444F I Tactical Air Control Party-Mod							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	8.816	5.850	12.465	-	12.465	12.108	10.694	10.895	11.090	Continuing	Continuing
676013: Equipment Modernizaton	-	8.816	5.850	12.465	-	12.465	12.108	10.694	10.895	11.090	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Tactical Air Control Party (TACP)s are Air Force units manned by airmen who advise Army Ground Commanders and plan, request and control air power in support of army ground maneuver operations. TACPs also coordinate, request, and control airlift support and intelligence, surveillance, and reconnaissance (ISR) support for Army combat operations, and they provide ground communications support for federal disaster response and Homeland Defense operations. TACPs deploy with their aligned Army units and operate in a variety of environments including fixed operations from tactical operations centers (TOCs), mobile operations in tactical vehicles, and dismounted (on foot) operations with Army infantry patrols.

The purpose of the TACP-Modernization program is to upgrade TACP voice, data and video communications capabilities, upgrade targeting capabilities, and improve TACP battlefield awareness capabilities. These capabilities are employed at all echelons of Army organizations by: Air Support Operation Centers (ASOCs), Division TACPs, Brigade TACPs, Battalion TACPs, and Joint Terminal Attack Controllers (JTACs) deployed with Army companies or scout teams on the front lines. Improved targeting and data communications capabilities provide more accurate target coordinates, reduce close air support (CAS) response times, and reduce the probability of fratricide or collateral damage through the use of networked data communications.

The TACP-M program provides and modernizes capabilities in three major areas: Operation Center Systems, Vehicle-Mounted Systems, and Close Air Support System (CASS) software.

Close Air Support System (CASS) software segment interfaces with all TACP-M components and joint interoperability with CAS aircraft (A-10, F-16, F/A-18, AV-8B, etc), remotely piloted aircraft (RPA), artillery fire support systems, network-enabled weapons, and C2 nodes. To enable data communications with those systems / nodes, CASS incorporates several communications protocols including Variable Message Format (VMF), Link 16, Marine Tactical System (MTS), and U.S. Message Text Format (USMTF). CASS v1.4.5 will provide advanced communication and targeting capability on mobile computing devices for Dismounted TACPs, as well as provide significant interoperability improvements in software used in vehicles and operations centers. Future upgrades necessary to maintain interoperability with CAS aircraft, joint fire support systems, and emerging data networking waveforms will be guided by the TACP CASS Information System Initial Capabilities Document (IS ICD), which was approved by the Air Force Requirement Oversight Council (AFROC), Functional Capabilities Board (FCB), and Joint Capabilities Board (JCB).

This program is in Budget Activity 07, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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B. Program Change Summary (\$ in Millions)		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total		
Previous President's Budget		10.223	5.891	12.547	-	12.547		
Current President's Budget		8.816	5.850	12.465	-	12.465		
Total Adjustments		-1.407	-0.041	-0.082	-	-0.082		
• Congressional General Reductions		-	-0.041					
• Congressional Directed Reductions		-	-					
• Congressional Rescissions		-	-					
• Congressional Adds		-	-					
• Congressional Directed Transfers		-	-					
• Reprogrammings		-1.072	-					
• SBIR/STTR Transfer		-0.335	-					
• Other Adjustments		-	-	-0.082	-	-0.082		
Change Summary Explanation								
FY2014 Funding: \$1.072 million was reprogrammed to other efforts, because of excess funding available due to late contract award.								
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Close Air Support System (CASS)				8.816	5.850	12.465	-	12.465
Description: The CASS Software program will modernize software for Communications, Command and Control (C3) processing systems for multiple TACP mission areas, i.e., the Air Support Operations Centers (ASOC), Tactical Operation Centers (TOC), Mounted operations, and Dismounted operations.								
FY 2014 Accomplishments:								
- CASS v1.4.5 Release 1 software development effort resulted with 5 of 9 development sprints for dismounted CASS software completed.								
- Completed the detailed software architecture, execution interfaces, component design frameworks and libraries needed to establish the workflow for the dismounted software.								
- Developed the wireframes for the HMI, establishing a map-centric, track-centric approach that minimizes operator interaction and time needed to provide situational awareness and execute dismounted close air support operations.								
- Demonstrated CASS operations such as free text messaging, transmit tracks, ownship, and joint tactical air support requests utilizing CASS software and prototype dismounted tablet computers.								
FY 2015 Plans:								

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C. Accomplishments/Planned Programs (\$ in Millions)											
					FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total		
- Complete the design and development of the Release 1 dismounted software (SW sprints 6/9) in preparation for government testing starting in fourth quarter FY15. This will include the completion of critical design review, HSI working groups, including site visits to operational TACP units to refine and validate user interfaces and operations. - Initiating the development Release 2 tailored software for use in ASOC, TOC and vehicle mission operations. - Continue development engineering efforts to incorporate capabilities such as, Call For Fires (CFF), Small Diameter Bomb II (SDB II), and Joint Automated Deep Operations Coordination System (JADOCS) interfaces. FY 2016 Base Plans: - Complete testing, training and deploy the CASS software in the dismounted tablet. - Complete testing software for use in ASOC, TOC and vehicle mission operations. - Continue to develop, integrate, and test Machine to Manchine (MTM) interfaces with C2 Nodes, USAF aircraft, and Ground Forces as well as interoperability with the Soldier Radio Waveform (SRW) and Mobile User Objective System (MUOS) SATCOM network, which will enhance communication capability among TACP and Army warfighters. - Call For Fires (CFF), Small Diameter Bomb II (SDBII) and Joint Automated Deep Operations Coordination Systems (JADOCS) engineering builds will contribute to increased TACP capability and future interoperability with CASS. TACP CASS operators require the capability to conduct digital communications using HF radios with next Generation Automatic Link Establishment (ALE) technology to achieve faster and more dependable data exchange and shorten the kill chain. - Continue to focus on incrementally providing new mounted capabilities as funding and technology allow, which will support CASS Software ICD and contract award efforts. FY 2016 OCO Plans: N/A											
Accomplishments/Planned Programs Subtotals					8.816	5.850	12.465	-	12.465		
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPAF: BA03: Line Item #	22.854	20.504	32.449	-	32.449	42.170	42.999	55.978	30.095	Continuing	Continuing
837100: <i>Tactical C-E Equipment</i>											
Remarks											

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<u>E. Acquisition Strategy</u> TACP-M is executing an incremental development for the TACP CASS software. TACP CASS software systems engineering, design, integration, and fielding support is being provided under a cost plus incentive fee contract.		
<u>F. Performance Metrics</u> Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force													Date: February 2015		
Appropriation/Budget Activity 3600 / 7							R-1 Program Element (Number/Name) PE 0207444F / <i>Tactical Air Control Party-Mod</i>				Project (Number/Name) 676013 / <i>Equipment Modernizaton</i>				

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
14CASS Sys Int Software Dev't (CASS 1.4.5)	C/CPIF	Rockwell Collins : Poway, CA	-	4.935	Apr 2014	1.597	May 2015	3.816	Feb 2016	-		3.816	Continuing	Continuing	-
CASS Sys Int Software Dev't (CASS 2.0)	C/TBD	TBD : TBD,	-	-		-		4.642	Dec 2015	-		4.642	Continuing	Continuing	-
NSWC Crane (Naval Surface Warefare Center)	MIPR	NSWC Crane : Crane, IN	-	0.222	Jun 2014	0.950	Jan 2015	0.802	Jan 2016	-		0.802	Continuing	Continuing	-
Subtotal			-	5.157		2.547		9.260		-		9.260	-	-	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CASS Requirements documentation	MIPR	DTIC : Ft. Belvoir, VA	-	0.214	Feb 2014	-		-		-		-	Continuing	Continuing	-
CASS 1.4.5 Equipment Hardware	MIPR	DLA : Philadelphia, PA	-	0.692	Sep 2014	-		-		-		-	Continuing	Continuing	-
Subtotal			-	0.906		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Agency Support	Various	Various : Various,	-	0.208	Feb 2014	0.800	Dec 2014	0.821	Dec 2015	-		0.821	Continuing	Continuing	-
Subtotal			-	0.208		0.800		0.821		-		0.821	-	-	-

Remarks															
Development, operational and interoperability testing															

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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
+Program Management Administration	Various	Various : Various,	-	2.545	Jan 2014	2.503	Jan 2015	2.384	Jan 2016	-		2.384	Continuing	Continuing	-
Subtotal			-	2.545		2.503		2.384		-		2.384	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	8.816		5.850		12.465		-		12.465	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force			Date: February 2015		
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	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Close Air Support System (CASS) v1.4.5 Contract Award	■																											
Close Air Support System (CASS) v1.4.5 Release 1 PDR 1			■																									
Close Air Support System (CASS) v1.4.5 Release 1 PDR 2				■																								
Close Air Support System (CASS) v1.4.5 Release 1 CDR					■																							
Close Air Support System (CASS) v1.4.5 Release 1 IOC												■																
Close Air Support System (CASS) v1.4.5 Release 2 PDR						■																						
Close Air Support System (CASS) v1.4.5 Release 2 CDR							■																					
Close Air Support System (CASS) v1.4.5 Release 2 FOC														■														
Close Air Support System (CASS) v2.0 Contract Award													■															
Close Air Support System (CASS) v2.0 IOC																		■										
Close Air Support System (CASS) v2.0 FOC																					■							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force			Date: February 2015
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Close Air Support System (CASS) v1.4.5 Contract Award	1	2014	1	2014
Close Air Support System (CASS) v1.4.5 Release 1 PDR 1	3	2014	3	2014
Close Air Support System (CASS) v1.4.5 Release 1 PDR 2	4	2014	4	2014
Close Air Support System (CASS) v1.4.5 Release 1 CDR	1	2015	1	2015
Close Air Support System (CASS) v1.4.5 Release 1 IOC	4	2016	4	2016
Close Air Support System (CASS) v1.4.5 Release 2 PDR	2	2015	2	2015
Close Air Support System (CASS) v1.4.5 Release 2 CDR	3	2015	3	2015
Close Air Support System (CASS) v1.4.5 Release 2 FOC	3	2017	3	2017
Close Air Support System (CASS) v2.0 Contract Award	2	2017	2	2017
Close Air Support System (CASS) v2.0 IOC	4	2018	4	2018
Close Air Support System (CASS) v2.0 FOC	1	2019	1	2019