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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army I BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0604805A I Command, Control, Communications Systems - Eng Dev							
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	-	7.131	4.431	2.726	-	2.726	2.606	2.350	2.364	2.386	-	23.994
593: Joint Battle Command - Platform (JBC-P)	-	7.131	4.431	2.726	-	2.726	2.606	2.350	2.364	2.386	-	23.994

A. Mission Description and Budget Item Justification

This Program Element (PE) supports efforts to develop interoperability of Army programs and products, horizontally and vertically for the digitized battlefield. Project supports Information Standards Interoperability Engineering and Joint Interoperability Certification. It provides the critical elements of the Army/Joint Technical Architecture, the mandated standards and communication protocols for Army/Joint ground and air operations, and crucial certification test tools to evaluate systems' interoperability for the Warfighter in support of the Vice Chief of Staff of the Army (VCSA) and Army Acquisition Executive (AAE). It also provides Joint certification testing and certification recommendations to the Joint Chiefs of Staff (JCS) for Army systems. This Army-wide effort directly supports the management, oversight, development, maintenance, and interoperability at the Army enterprise level C4I/IT (Command, Control, Communications, Computers, and Intelligence/Information Technology) architecture efforts required to implement Unit Set Fielding (USF), Software Blocking (SWB) Policy and Army Knowledge Management.

Project 593, JBC-P, funds the Systems Engineering, Software Development and Testing of JBC-P. JBC-P, which includes Blue Force Tracking (BFT) and Army Aviation, and provides true Joint force Command and Control (C2) Situational Awareness (SA) and communications (e.g., terrestrial, celestial) capability at the platform level through command center locations (e.g., Network Operations Centers (NOC), Tactical Operation Centers (TOCs), Brigade Command Posts) and enables mission accomplishment across the entire spectrum of military operations.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	7.376	4.433	9.161	-	9.161
Current President's Budget	7.131	4.431	2.726	-	2.726
Total Adjustments	-0.245	-0.002	-6.435	-	-6.435
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-0.245	-0.002	-6.435	-	-6.435

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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
593: Joint Battle Command - Platform (JBC-P)	-	7.131	4.431	2.726	-	2.726	2.606	2.350	2.364	2.386	-	23.994
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Mounted Computing Environment (MCE) efforts were begun under Proj/PE 0604805A/593 – Joint Battle Command – Platform (JBC-P), as directed by the AAE, in support of the Common Operating Environment directive. The Army established MCE, Proj/PE 604818.EJ5 as a separate funding line in FY2016. This funding line segregates the costs of MCE from JBC-P.

A. Mission Description and Budget Item Justification

The Joint Battle Command - Platform (JBC-P) program is the cornerstone of joint forces Command and Control (C2) Situational Awareness (SA) and communications. JBC-P provides secure Blue Force Tracking capability in Platforms and Command Posts, providing soldiers and commanders a map-based Common Operating Picture of the battlefield, and as a result, reducing fratricide.

As part of the Army's Common Operating Environment (COE) Architecture initiative, developed to standardize end-user environments and enable streamlined deployment of new warfighting applications, JBC-P serves a primary role as the basis of the Mounted Computing Environment (MCE), one of six (6) environments within the COE framework. Future development of the Mounted CE will leverage JBC-P hardware and software to consolidate and integrate multiple warfighting systems in the Platform (Mounted) environment. This integrated Mounted CE, with its open standards, enhanced interoperability, and simplified end-user interface will speed delivery of new Mission Command applications to the warfighter while improving the effectiveness and value of current systems. MCE efforts will transfer from PE 0604805 Project 593 to PE 0604818 Project EJ5 in FY 2016.

Fiscal Year 2016 funding provides Software Design and Development, System Engineering, associated Test and Integration, and Program Management that supports the underlying JBC-P baseline and CDD threshold requirements.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2014	FY 2015	FY 2016
Title: Software Development	2.483	1.271	0.782
Description: Develop capabilities, product applications, platform interoperability, and system services across the JBC-P family of systems, to include the development of capabilities to meet Key Performance Parameters (KPPs), and other system attributes. Also develop unique software and integration capabilities in support of the Mounted Computing Environment (MCE), part of the Common Operating Environment (COE). Develop Multi-Level Security Domains for Network, Users, and Information.			
FY 2014 Accomplishments:			

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2014	FY 2015	FY 2016
<p>Software efforts included migrating to Commercial Off The Shelf (COTS) (Android) and integrating additional Mission Command capabilities including precision fires and collaboration/planning functions for platform systems. Migrated to common open interfaces across other platform components (sensors, radios) in order to reduce complexity and make integration common across all platform vehicle types (VICTORY). Co-hosted systems/application on the Mounted Family of Computer Systems (MFoCS), i.e. router switch, forward observer system in order to reduce Size Weight and Power (SWaP) on platforms. Built automated tools to support compliance with MCE and COE standards.</p> <p>FY 2015 Plans: Funding is required for on-going software development efforts focused on the migration of JBC-P and other platform systems to the MCE and COE standards. This effort includes migrating to specific network communications standards, and providing routing services on a COTS operating system (Android). Software capabilities also under migration to MCE standards include the use of Common Geospatial (map) services and additional Vehicle Integration for C4ISR/EW Interoperability (VICTORY) component types. Funds are also required for continued conduct of User Juries to assess software maturity.</p> <p>FY 2016 Plans: Develop capabilities, product applications, platform interoperability, and system services across the JBC-P family of systems, to include the development of capabilities to meet Key System Attributes (KSAs) in the CDD (in lieu of CPD).</p>					
<p>Title: Software/Systems Engineering</p> <p>Description: Perform Software/Systems Engineering in support of the development of JBC-P capabilities, applications, and services, to include, but not limited to, conducting engineering studies, architecture development (both software and network), system analyses, technical readiness assessments, technical interchange meetings/events, and development of related reports and other deliverables.</p> <p>FY 2014 Accomplishments: Continued system engineering efforts for JBC-P in support of COE baselines, focusing on hardware/software integration, engineering and development of common services across platforms. Included planning and engineering of future MCE capabilities using COTS (Android), i.e.: Common Authentication. Performance characterization on different HW/SW configurations using MFoCS.</p> <p>FY 2015 Plans: Funding is required for continued system engineering efforts in support of COE baselines and expanding common services across platforms. Includes planning and engineering of future MCE capabilities using COTS (Android), including Shared Software Databus, Common Geospatial (map) Services, Common Overlay, and Single Security Services.</p> <p>FY 2016 Plans:</p>			2.908	2.043	1.257

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2014	FY 2015	FY 2016
Continue system engineering efforts for JBC-P balance of CDD threshold requirements and support of the Battle Command Product Line.					
Title: Test, Evaluation and Integration Description: Plan and conduct system software acceptance testing from CDD for baseline products, Integration Events (i.e., tests and assessments) in support of the JBC-P Family of Systems, to include Risk Reduction Events, vulnerability testing, and Army Interoperability Certification (AIC) testing. FY 2014 Accomplishments: Tested software capability in support of the Network Operations Center (NOC). Established tools and a process for 3rd party application testing and accreditation. FY 2015 Plans: Ongoing Verification & Validation efforts of MCE, HW/SW integration testing, 3rd party application testing and accreditation. Support for Army Warfighting Assessments (AWA), User Juries and other demonstrations for MCE. FY 2016 Plans: Test software capability, Developmental Testing (DTs), and Risk Reduction Events (RREs) for continued support of JBC-P.			0.314	0.250	0.154
Title: Program Management Description: JBC-P Program Management, including Technical, Logistics, and Business staff oversight. FY 2014 Accomplishments: During this timeframe, provided technical, logistics and business oversight for JBC-P FoS software development and system engineering activities. Program Management included funds execution, contract management, and logistical support to program's RDT&E activities. Included establishment of the MCE Governance process, which includes participation in Common Operating Environment (COE) working group infrastructure, operations, participation in Technical Advisory boards, system of systems engineering & the Platform Integrated Process Team (IPT) efforts. FY 2015 Plans: Provide program management, logistics, and business oversight for JBC-P/MCE Software/System Engineering activities. Program Management includes overall management of program milestones, major events, funds execution, contract management, and logistical support. Includes management of the MCE Governance process, which includes participation in COE working group infrastructure, operations, participation in Technical Advisory boards, system of systems engineering & the Platform IPT efforts. FY 2016 Plans:			1.426	0.867	0.533

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B. Accomplishments/Planned Programs (\$ in Millions)										FY 2014	FY 2015	FY 2016
During this timeframe, will provide technical, logistics and business oversight for JBC-P FoS software development and system engineering activities. Program Management includes funds execution, contract management, and logistical support to program's RDT&E activities.												
Accomplishments/Planned Programs Subtotals										7.131	4.431	2.726
C. 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	
• Joint Battle Command - Platform: OPA W61990	65.379	87.892	133.339	-	133.339	136.537	131.990	134.955	144.360	-	834.452	
• Mounted Computing Environment (MCE): RDTE 654818 PROJ EJ5	-	-	12.370	-	12.370	15.669	18.798	16.994	7.839	-	71.670	
Remarks												
Procurement funding in Fiscal Year 2014 through 2020 (Base funding) is designated for the procurement, fielding, and program management of JBC-P Family of Systems including JBC-P, JBC-P Log, and the implementation of the Mounted Computing Environment (MCE).												
A MCE line was created under PE 0604818A - Army Tactical Command & Control Hardware & Software to segregate the costs for MCE Development. This is for MCE Software Development, Software/Systems Engineering, Test, Evaluation, Integration, and Program Management.												
D. Acquisition Strategy												
The program entered Milestone B (Engineering and Manufacturing Development phase) in September 2009. RDTE funding for JBC-P began in Fiscal Year 2010. The Acquisition Strategy Report (ASR) was approved in July 2012. The Milestone Decision Authority (MDA) approved a Milestone C, conditional on positive Limited User Test (LUT) results, in July 2012.												
The JBC-P Capabilities Development Document in lieu of Capabilities Production Document (CDD ILO CPD) was Joint Requirements Oversight Council (JROC) approved March 2013. Completed Initial Operational Test & Evaluation (IOT&E) as part of Network Integration Evaluation (NIE) 13.2 in 3QFY13. The IOT&E tested the JBC-P system software on existing FBCB2 hardware (non-dismountable vehicle systems) and future production-representative hardware. The MDA authorized entry into Full Rate Production (FRP) and deployment for JBC-P V1.4, December 2013, conditional on achieving Army Interoperability Certification (AIC) and Joint Interoperability Test Certification (JITC) prior to fielding.												
As encouraged by DoD policy, development efforts are being performed by the Software Engineering Directorate (SED) of the Aviation and Missile Research, Development and Engineering Center (AMRDEC). Any additional development efforts in the approved CDD in lieu of CPD that cannot be accomplished by either SED												

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or SEC will be obtained via other existing contract vehicles. Hardware along with fielding, training and field support efforts will be obtained through existing competitively awarded contracts.		
This JBC-P funding develops the unique JBC-P capabilities that serve as the foundational element and core software platform of the MCE and provides additional visibility of MCE development in support of COE.		
E. Performance Metrics		
N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army													Date: February 2015		
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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
JBC-P Software Development	MIPR	Multiple : Multiple	62.143	2.483		1.271		0.782		-		0.782	21.303	87.982	-
JBC-P Software/System Engineering	MIPR	Multiple : Multiple	30.718	2.908		2.044		1.257		-		1.257	9.714	46.641	-
Subtotal			92.861	5.391		3.315		2.039		-		2.039	31.017	134.623	-
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
PM Support (Gov't-Core)	Sub Allot	PM JBC-P : Aberdeen Proving Ground (APG), MD	2.894	1.426		0.867		0.533		-		0.533	2.458	8.178	-
Subtotal			2.894	1.426		0.867		0.533		-		0.533	2.458	8.178	-
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
Develop and Conduct Tests and Assessments	MIPR	Multiple : Multiple	25.508	0.314		0.249		0.154		-		0.154	9.757	35.982	-
Subtotal			25.508	0.314		0.249		0.154		-		0.154	9.757	35.982	-
			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			121.263	7.131	4.431		2.726		-		2.726	43.232	178.783	-	
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army																Date: February 2015																					
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Event Name										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
SW/MCE Development																																					
(1) Full Rate Production (FRP)/SW Fielding Decision										▲1				▲2																							
(2) First Unit Equipped (FUE)														▲2																							
(3) NIE 14.1										▲3																											
(4) RRE 14										▲4																											
(5) NIE 14.2 (MOT&E)														▲5																							
(6) RRE 16.1																		▲6																			
(7) AWA 16.1																		▲7																			
(8) NIE 16.2																		▲8																			
(9) AWA 17.1																						▲9															
(10) NIE 17.2																						▲10															
(11) AWA 18.1																										▲11											
(12) NIE 18.2																														▲12							

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army																Date: February 2015												
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Event Name	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
(1) AWA 19.1																												
(2) NIE 19.2																												
(3) AWA 20.1																												
(4) NIE 20.2																												
FRP Delivery Orders Funded with PROC																												
FRP Delivery Order 1 Award																												
FRP Option Year 2																												
FRP Option Year 3																												
FRP Option Year 4																												
FRP Option Year 5																												

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

Events	Start		End	
	Quarter	Year	Quarter	Year
SW/MCE Development	1	2010	4	2020
Full Rate Production (FRP)/SW Fielding Decision	1	2014	1	2014
First Unit Equipped (FUE)	2	2015	2	2015
NIE 14.1	1	2014	1	2014
RRE 14	2	2014	2	2014
NIE 14.2 (MOT&E)	3	2014	3	2014
RRE 16.1	4	2015	4	2015
AWA 16.1	1	2016	1	2016
NIE 16.2	3	2016	3	2016
AWA 17.1	1	2017	1	2017
NIE 17.2	3	2017	3	2017
AWA 18.1	1	2018	1	2018
NIE 18.2	3	2018	3	2018
AWA 19.1	1	2019	1	2019
NIE 19.2	3	2019	3	2019
AWA 20.1	1	2020	1	2020
NIE 20.2	3	2020	3	2020
FRP Delivery Orders Funded with PROC	1	2014	4	2020
FRP Delivery Order 1 Award	1	2014	1	2015
FRP Option Year 2	1	2015	1	2016
FRP Option Year 3	1	2016	1	2017
FRP Option Year 4	1	2017	1	2018

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Events	Start		End	
	Quarter	Year	Quarter	Year
FRP Option Year 5	1	2018	1	2019