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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Army **Date:** February 2016

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>					PE 0604805A / <i>Command, Control, Communications Systems - Eng Dev</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	5.116	2.683	4.245	-	4.245	9.814	5.084	4.834	4.057	Continuing	Continuing
593: <i>Joint Battle Command - Platform (JBC-P)</i>	-	5.116	2.683	4.245	-	4.245	9.814	5.084	4.834	4.057	Continuing	Continuing

Note

Effective FY2016, the Army segregated the costs of Mounted Computing Environment (MCE) Proj/PE 604818.EJ5, from Joint Battle Command – Platform (JBC-P), Proj/PE 0604805A/593, in support of MCE efforts associated to the Common Operating Environment (COE) directive from the AAE to the Program Executive Offices, dated 20 December 2011.

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.

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Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604805A / <i>Command, Control, Communications Systems - Eng Dev</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	4.431	2.726	2.606	-	2.606
Current President's Budget	5.116	2.683	4.245	-	4.245
Total Adjustments	0.685	-0.043	1.639	-	1.639
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.685	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-0.043	1.639	-	1.639

Change Summary Explanation

FY 2015 reprogramming provides additional development and testing of the Mobile Computing Environment within the Joint Battle Command - Platform product.

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Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604805A / <i>Command, Control, Communications Systems - Eng Dev</i>				Project (Number/Name) 593 / <i>Joint Battle Command - Platform (JBC-P)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
593: <i>Joint Battle Command - Platform (JBC-P)</i>	-	5.116	2.683	4.245	-	4.245	9.814	5.084	4.834	4.057	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Effective FY2016, the Army segregated the costs of Mounted Computing Environment (MCE) Proj/PE 604818.EJ5, from Joint Battle Command – Platform (JBC-P), Proj/PE 0604805A/593, in support of MCE efforts associated to the Common Operating Environment (COE) directive from the AAE to the Program Executive Offices, dated 20 December 2011.

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, as a result, reducing fratricide.

JBC-P serves a primary role, and is the foundational element and core software platform of the Mounted Computing Environment (MCE), under the COE directive. The COE is a set of standardized computing technologies that facilitates secure and interoperable applications to be rapidly developed and executed across a variety of computing environments. The MCE, one of the six computing environments (CEs) formalized by the AAE under the COE directive, standardizes end-user environments while enabling streamlined deployment of new warfighting applications.

MCE leverages JBC-P hardware and software to consolidate and integrate multiple warfighting systems in the Platform (mounted) environment. This integrated MCE, 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.

FY2017 funding provides the means to continue to develop capabilities, product applications, and security enhancements to counter the emerging cyber threat, with a focus on the integration of MCE infrastructure developments and the interoperability of the JBC-P software with other CEs.

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

	FY 2015	FY 2016	FY 2017
Title: Software Development	1.567	0.770	1.218
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.			

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Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604805A / <i>Command, Control, Communications Systems - Eng Dev</i>	Project (Number/Name) 593 / <i>Joint Battle Command - Platform (JBC-P)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p><i>FY 2015 Accomplishments:</i> Funding used 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 included migrating to specific network communications standards, and providing routing services on a COTS operating system. 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 were also required for continued conduct of User Juries to assess software maturity.</p> <p><i>FY 2016 Plans:</i> 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><i>FY 2017 Plans:</i> 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 and the implementation of Tactical PKI (T-PKI). Integrate developments from the MCE with the JBC-P core system to allow the development, certification, and integration of developed apps that will deliver operational capabilities to the platform. Develop security enhancements to counter the emerging cyber threat.</p>				
<p><i>Title:</i> Software/Systems Engineering</p> <p><i>Description:</i> 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><i>FY 2015 Accomplishments:</i> Funding was required for continued system engineering efforts in support of COE baselines and expanding common services across platforms. Included planning and engineering of future MCE capabilities using COTS, including Shared Software Databus, Common Geospatial (map) Services, Common Overlay, and Single Security Services.</p> <p><i>FY 2016 Plans:</i> Continue system engineering efforts for JBC-P balance of CDD threshold requirements and support of the Battle Command product line.</p> <p><i>FY 2017 Plans:</i></p>		2.293	1.237	1.958

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Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604805A / <i>Command, Control, Communications Systems - Eng Dev</i>	Project (Number/Name) 593 / <i>Joint Battle Command - Platform (JBC-P)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Continue system engineering efforts for JBC-P balance of CDD threshold requirements and support of the Battle Command product line. Conduct software systems engineering for the integration of MCE infrastructure developments and the interoperability of JBC-P software with other Computing Environments				
<p>Title: Test, Evaluation and Integration</p> <p>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.</p> <p>FY 2015 Accomplishments: Funds used for 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.</p> <p>FY 2016 Plans: Test software capability, Developmental Testing (DTs), and Risk Reduction Events (RREs) for continued support of JBC-P.</p> <p>FY 2017 Plans: Conduct testing on enhancements to the the JBC-P system resulting from integration of MCE and Mounted Family of Computing System developments. Testing will include, Developmental Testing (DT), Risk Reduction Events (RREs) and Operation Assessments for the integration of approved Cross Cutting Capabilities (CCC) and interoperability with other Computing Environments.</p>		0.389	0.152	0.239
<p>Title: Program Management</p> <p>Description: JBC-P Program Management, including Technical, Logistics, and Business staff oversight.</p> <p>FY 2015 Accomplishments: Provided program management, logistics, and business oversight for JBC-P/MCE Software/System Engineering activities. Program Management included overall management of program milestones, major events, funds execution, contract management, and logistical support. Included management of the MCE Governance process, which included participation in COE working group infrastructure, operations, participation in Technical Advisory boards, system of systems engineering & the Platform IPT efforts.</p> <p>FY 2016 Plans: 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.</p> <p>FY 2017 Plans:</p>		0.867	0.524	0.830

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
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 and oversight of the Certification of Software Apps that will interoperate with the JBC-P system as part of the MCE.			
Accomplishments/Planned Programs Subtotals	5.116	2.683	4.245

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• Joint Battle Command - Platform: <i>OPA W61990</i>	87.892	133.339	137.501	-	137.501	139.088	135.010	143.338	158.706	0	934.874
• Mounted Computing Environment (MCE): <i>RDTE 654818 PROJ EJ5</i>	-	12.370	15.271	-	15.271	18.606	16.814	7.668	8.683	0	79.412

Remarks
Procurement funding in Fiscal Year 2015 through 2021 (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).

Effective FY2016, the Army segregated the costs of Mounted Computing Environment (MCE) Proj/PE 604818.EJ5, from Joint Battle Command – Platform (JBC-P), Proj/PE 0604805A/593, in support of MCE efforts associated to the Common Operating Environment (COE) directive from the AAE to the Program Executive Offices, dated 20 December 2011. MCE efforts include continued 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. On completion of Army Interoperability Certification (AIC) and Joint Interoperability Test Certification (JITC), MDA authorized Full Rate Production (FRP).

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.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0604805A / Command, Control, Communications Systems - Eng Dev				593 / Joint Battle Command - Platform (JBC-P)								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	64.626	1.567		0.770		1.218		-		1.218	Continuing	Continuing	0	
JBC-P Software/System Engineering	MIPR	Multiple : Multiple	33.626	2.293		1.237		1.958		-		1.958	Continuing	Continuing	0	
Subtotal			98.252	3.860		2.007		3.176		-		3.176	-	-	0.000	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	4.320	0.867		0.524		0.830		-		0.830	Continuing	Continuing	0	
Subtotal			4.320	0.867		0.524		0.830		-		0.830	-	-	0.000	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	25.822	0.389		0.152		0.239		-		0.239	Continuing	Continuing	0	
Subtotal			25.822	0.389		0.152		0.239		-		0.239	-	-	0.000	
Project Cost Totals			128.394	5.116		2.683		4.245		-		4.245	-	-	0.000	
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army **Date:** February 2016

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604805A / <i>Command, Control, Communications Systems - Eng Dev</i>	Project (Number/Name) 593 / <i>Joint Battle Command - Platform (JBC-P)</i>
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Event Name	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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) First Unit Equipped (FUE)																												
(2) RRE 16.1																												
(3) AWA 16.1																												
(4) NIE 16.2																												
(5) AWA 17.1																												
(6) NIE 17.2																												
(7) AWA 18.1																												
(8) NIE 18.2																												
(9) AWA 19.1																												
(10) NIE 19.2																												
(11) AWA 20.1																												
(12) NIE 20.2																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army **Date:** February 2016

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604805A / <i>Command, Control, Communications Systems - Eng Dev</i>	Project (Number/Name) 593 / <i>Joint Battle Command - Platform (JBC-P)</i>
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Event Name	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
FRP Delivery Orders Funded with PROC																												
FRP Delivery Order 1 Award																												
FRP Option Year 2																												
FRP Option Year 3																												
FRP Option Year 4																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604805A / <i>Command, Control, Communications Systems - Eng Dev</i>	Project (Number/Name) 593 / <i>Joint Battle Command - Platform (JBC-P)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SW/MCE Development	1	2010	4	2021
First Unit Equipped (FUE)	2	2015	2	2015
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	2	2018
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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