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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2019 Army	<b>Date:</b> February 2018
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<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>											
2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 7: Operational Systems Development</i>	PE 0203740A / <i>Maneuver Control System</i>											
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	3.943	6.639	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.582
484: <i>Maneuver Control System</i>	-	3.943	6.639	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.582

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

Tactical Mission Command (TMC) is a suite of products and services that provide commanders and their staff executive decision making capability in a collaborative environment. The suite of products currently in development consist of Command Web (CW), Tactical Services Infrastructure (TSI), and an Army Voice Communication System (WAVE). TMC satisfies requirements and capabilities identified in the Maneuver Control System (MCS) 6.4 Capability Production Document. The overarching capability includes a user-defined Common Operating Picture (COP) with integrated Command and Control (C2) and Situational Awareness (SA), map-centric collaboration, Army Mission Command Systems (and others) enabling system interoperability, data management, and enterprise services. TMC contributes to Mission Command (MC) Convergence for commanders and staff to effectively conduct collaborative mission planning and execution across a range of operations and spectrum of conflict. Legacy products supported by this Budget Item include Command Post of the Future (CPOF) and Battle Command Common Services (BCCS).

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
Previous President's Budget	4.031	6.639	4.047	-	4.047
Current President's Budget	3.943	6.639	0.000	-	0.000
Total Adjustments	-0.088	0.000	-4.047	-	-4.047
• Congressional General Reductions	-0.001	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.087	-			
• Adjustments to Budget Years	-	-	-4.047	-	-4.047

**Change Summary Explanation**

TMC (MCS) will be transitioning into sustainment in FY 2019.

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203740A / Maneuver Control System				Project (Number/Name) 484 / Maneuver Control System			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
484: Maneuver Control System	-	3.943	6.639	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.582
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

Tactical Mission Command (TMC) is a portfolio of products and services that enable commanders and their staff with collaborative environment, planning tools, and Common Operation Picture (COP) management and other maneuver functional tools. The overarching capability includes above platform level user-defined COP with integrated Command and Control (C2) and Situational Awareness (SA), map-centric collaboration, Army Mission Command System and other enabling system interoperability, data management and enterprise services. Products include:

Command Web is a set of modular software widgets served up over the web providing engineering functionality, improved supportability and ease-of-use in robust network environments.

Tactical Server Infrastructure (TSI) provides the network available services critical to ensuring system and software can transmit the network effectively. Additionally, TSI serves as the hosting platform for many other enabling software systems, as well as multiple Warfighter Functional Area Applications (WFAs) such as Intel, Air Missile Defense Workstations and Fires gateway, providing efficiencies in the Command Post via decreased size, weight and power.

WAVE is the voice of the internet protocol common voice solution for the CPOF portfolio of programs. It provides real-time voice interoperability between radios, intercom and other previously fielded technologies in support of the Commander's update briefing and other Mission Command tasks.

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

	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
<b>Title:</b> BCCS / TSI software development / integration	2.456	-	-
<b>Title:</b> Command Web Development	0.549	-	-
<b>Description:</b> Command Web provides modular software widgets served up over the web providing engineering functionality. Improved supportability and ease-of-use in robust network environments (compliant w/COE guidance)			
<b>Title:</b> Program Management Office	0.320	0.639	-
<b>Description:</b> Codification of program operational requirements into discrete technical packages for development, testing, deployment, and support over the systems lifecycle.			
<b>FY 2018 Plans:</b> Codification of program operational requirements into discrete technical packages for development, testing, deployment, and support over the systems lifecycle			
<b>FY 2018 to FY 2019 Increase/Decrease Statement:</b>			

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Appropriation/Budget Activity 2040 / 7			R-1 Program Element (Number/Name) PE 0203740A / Maneuver Control System			Project (Number/Name) 484 / Maneuver Control System					
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>							<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>		
TMC (MCS) will be transitioning into sustainment in FY19.											
<b>Title:</b> Test and Evaluation  <b>Description:</b> Encompasses formal test (operational assessment/test, joint certification, interoperability, and information assurance) and informal testing such as acceptance testing and risk reduction testing.  <b>FY 2018 Plans:</b> Formal test (Joint certification, interoperability, and information assurance) and informal testing such as acceptance testing and risk reduction testing.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> TMC (MCS) will be transitioning into sustainment in FY19.							0.018	0.512	-		
<b>Title:</b> WAVE MIP / Development / Intergration  <b>Description:</b> Developing and integrating voice over IP solutions into the CPOF portfolio of programs. It provides real-time voice interoperability between radios,  <b>FY 2018 Plans:</b> Finalize integration of WAVE (VOIP) with TMC portfolio of products.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Requirements for MIP/WAVE are incorporated under CPCE development in FY19 and out.							0.600	5.488	-		
<b>Accomplishments/Planned Programs Subtotals</b>							3.943	6.639	-		
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• BA9320: Maneuver Control System (MCS)	151.464	132.572	38.015	-	38.015	0.260	-	-	-	0.000	322.311
• BS9710: MCS SPARES	-	4.869	0.000	-	0.000	-	-	-	-	0.000	4.869
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
In accordance with the Training and Doctrine Command (TRADOC) requirements document approved in 2008, Maneuver Control System Capabilities Production Document, software capability will be developed in 3-year increments in support of Common Operating Environment (COE) Guidance designed to deploy specified Mission Command Essential Capabilities to operating force commanders and their integrated battle staffs. This strategy accounts for subsequent Army directives and											

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Army		<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203740A / <i>Maneuver Control System</i>	<b>Project (Number/Name)</b> 484 / <i>Maneuver Control System</i>
continued migration to the Army COE; designed to optimize opportunities for improved interoperability. The products developed under this funding line are an integral part of the Army Mission Command System of Systems.  TMC (MCS) will be transitioning into sustainment in FY 2019.  <b><u>E. Performance Metrics</u></b> N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0203740A / Maneuver Control System				Project (Number/Name) 484 / Maneuver Control System					
Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 Office Mgmt	Various	PM Mission Command : Aberdeen Proving Grounds, MD	19.990	0.320	Jan 2017	0.639		-		-		-	Continuing	Continuing	Continuing
Subtotal			19.990	0.320		0.639		-		-		-	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Tactical Applications (TacApps)	IA	Software Development: WSEC : Picatinny Arsenal, NJ	19.107	-		-		-		-		-	0.000	19.107	-
Command Web Development	Various	CECOM SEC : APG, MD	1.450	0.549	Apr 2017	-		-		-		-	0.000	1.999	-
Log Widget Development	TBD	Development: Government Agency : TBD	3.665	-		-		-		-		-	Continuing	Continuing	-
Misc Contracts	Various	Various : Various	24.931	-		-		-		-		-	Continuing	Continuing	Continuing
ABCS SoS Contract (Joint Convergence Development)	Various	Lockheed Martin : Tinton Falls, NJ	6.404	-		-		-		-		-	Continuing	Continuing	Continuing
Technical Support	Various	PM Mission Command/SEC : Various	27.251	-		-		-		-		-	Continuing	Continuing	Continuing
CPOF Development	Various	General Dynamics : Scottsdale, AZ	137.255	-		-		-		-		-	Continuing	Continuing	Continuing
ABCS SoS Contract (Joint Convergence Development) Follow-on	Various	General Dynamics : Scottsdale, AZ	1.025	-		-		-		-		-	Continuing	Continuing	-
Mission Command Convergence Development & Integration	Various	Various : Various	42.698	-		-		-		-		-	Continuing	Continuing	Continuing

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Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0203740A / Maneuver Control System				Project (Number/Name) 484 / Maneuver Control System					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Mission Command Convergence - CP CE Software Development & Integration (Common Software)	Various	software development Future Skies : APG, MD	11.055	-		-		-		-		-	0.000	11.055	-
Mission Command Convergence Development & Integration (TAIS)	Various	software development SED : Redstone Arsenal, AL	2.103	-		-		-		-		-	0.000	2.103	-
Software Development & Technical Support for BCCS	Various	CECOM Software Engineering Center : APG, MD	68.906	2.456	Feb 2017	-		-		-		-	Continuing	Continuing	Continuing
PAL Integration	IA	SRI : AZ	11.000	-		-		-		-		-	Continuing	Continuing	-
WAVE / MIP Development &intergration	Various	TBD : APG	-	0.600	Apr 2017	5.488		-		-		-	Continuing	Continuing	Continuing
Subtotal			356.850	3.605		5.488		-		-		-	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Misc Engineering Support	Various	PM Mission Command/SEC : Aberdeen Proving Ground, MD	10.340	-		-		-		-		-	Continuing	Continuing	Continuing
Misc Contracts	Various	PM Mission Command : Aberdeen Proving Ground	5.743	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			16.083	-		-		-		-		-	Continuing	Continuing	N/A

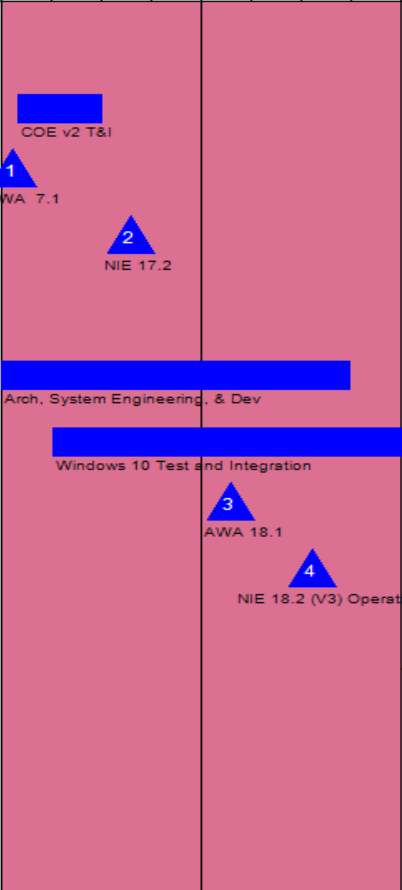





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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0203740A / Maneuver Control System				Project (Number/Name) 484 / Maneuver Control System					
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Developmental tests / CTSF integration testing	Various	Various : APG, MD	9.627	0.018		-		-		-		-	Continuing	Continuing	Continuing
AIC/NIE Testing	TBD	VARIOUS : APG, MD	10.060	-		0.512		-		-		-	0.000	10.572	-
Operational Assessment/ testing	Various	Various : APG, MD	36.804	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			56.491	0.018		0.512		-		-		-	Continuing	Continuing	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			449.414	3.943		6.639		-		-		-	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2019 Army</b>	<b>Date:</b> February 2018
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<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203740A / <i>Maneuver Control System</i>	<b>Project (Number/Name)</b> 484 / <i>Maneuver Control System</i>
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Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
COE V2																												
COE V2 Development & Test																												
AWA 17.1																												
NIE 17.2																												
Systems Integration Effort																												
Arch, System Engineering, & Dev																												
Windows 10 Test and Integration																												
AWA 18.1																												
NIE 18.2																												
AWA 19.1																												



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Army			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203740A / <i>Maneuver Control System</i>	<b>Project (Number/Name)</b> 484 / <i>Maneuver Control System</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
COE V2	2	2012	2	2017
COE v2 Arch, System Engineering, & Dev	2	2012	2	2016
COE V2 Development & Test	1	2015	2	2017
AWA 17.1	1	2017	1	2017
NIE 17.2	3	2017	3	2017
Systems Integration Effort	4	2014	2	2019
Arch, System Engineering, & Dev	4	2014	3	2018
Windows 10 Test and Integration	2	2017	2	2019
AWA 18.1	1	2018	1	2018
NIE 18.2	3	2018	3	2018
AWA 19.1	1	2019	1	2019