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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev							
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
Total Program Element	-	17.445	35.333	14.248	-	14.248	14.387	17.937	17.779	32.428	0.000	149.557
526: Marine Orien Log Eq Ad	-	3.625	4.345	3.896	-	3.896	3.916	3.923	3.914	3.608	0.000	27.227
EW8: Armored Engineer Vehicles	-	0.000	12.200	1.484	-	1.484	1.977	1.977	2.100	6.963	0.000	26.701
G11: Adv Elec Energy Con Ad	-	5.051	6.524	3.335	-	3.335	3.372	7.201	7.405	17.413	0.000	50.301
K39: Field Sustainment Support Ad	-	2.528	2.429	2.311	-	2.311	1.675	1.720	1.773	1.807	0.000	14.243
K41: Water And Petroleum Distribution - Ad	-	2.237	4.773	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.010
VR8: Combat Service Support Systems - Ad	-	4.004	5.062	3.222	-	3.222	3.447	3.116	2.587	2.637	0.000	24.075
A. Mission Description and Budget Item Justification												
This program element supports advanced component development and prototypes of new and improved technologies for combat support and combat service support equipment essential to sustaining combat operations. Advancements in bridging, electric power generators, material-handling, environmental control, shelter systems, cargo aerial delivery, field service systems, mortuary affairs equipment and petroleum equipment are necessary to improve safety and increase the tactical mobility, operational capability, lethality and survivability on the digital battlefield and to provide for greater sustainment while reducing the logistics support burden. Army Watercraft funding supports initiatives to enhance the seaworthiness, safety, survivability, supportability, energy efficiency, environmental, regulatory compliance and reliability of existing systems.												

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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> 2040: <i>Research, Development, Test &amp; Evaluation, Army I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>
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<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	20.834	35.333	18.397	-	18.397
Current President's Budget	17.445	35.333	14.248	-	14.248
Total Adjustments	-3.389	0.000	-4.149	-	-4.149
• Congressional General Reductions	-0.008	-			
• Congressional Directed Reductions	-2.708	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.673	-			
• Adjustments to Budget Years	-	-	-4.149	-	-4.149

**Change Summary Explanation**

Program summary change is due to reprogramming of funds to pay higher priority Army critical requirements.

The FY 2019 funding request was reduced by \$4.761 million to account for the availability of prior year execution balances.

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev				Project (Number/Name) 526 / Marine Orien Log Eq Ad			
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
526: Marine Orien Log Eq Ad	-	3.625	4.345	3.896	-	3.896	3.916	3.923	3.914	3.608	0.000	27.227
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

This program element supports projects and studies for advanced component development, including prototypes of equipment and sub-systems which provide critical capabilities for Unified Land Operations (ULO), by extending the Commander's available maneuver space into and throughout the littorals, inland waterways and near coastal regions. Army watercraft equipment enables the conduct of riverine, Logistics-over-the-Shore (LOTS) and Joint Logistics-over-the-Shore (JLOTS), inter and intra-theater transport, movement and maneuver, mission command and sustainment, as identified in DODD 5100.01 (Functions of the Department of Defense and it's major components). Army Watercraft exploit the inland waterways and littoral regions as waterborne maneuver and supply routes, conducting operations through littoral entry points (developed, undeveloped, and austere access points) and in non-permissive, and/or denied access scenarios. The Army uses a spectrum of Army Watercraft systems, from heavy sustainment ocean going landing craft capable of intra-theater and ship to shore transport and undeveloped beach or harbor access, to oceangoing and harbor utility tug boats and barge derricks for transport and denied port/salvage operations, and modular causeway systems for (LOTS/JLOTS). The funding supports initiatives to enhance the seaworthiness, safety, survivability, supportability, energy efficiency, environmental, regulatory compliance and reliability of existing systems. Funded efforts will address critical gaps in these areas for the current fleet, while at the same time researching, developing and testing emergent technologies. To support future acquisitions and future fleet planning, funding efforts will include conducting trade studies, Business Case Analyses (BCA) to inform the requirement development process, and support Analysis of Alternatives (AoA). The funding enables our compliance with the National Defense Authorization Act of 1996 and 502(6) of the Clean Water Act and compliance with Environmental protection Agency (EPA) emission standards.

FY19 funding will primarily support maturation of the Service Life Extension Program (SLEP) design for the Modular Warping Tug (MWT), support continued integration of Force Protection, and environmental projects.

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

	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
<b>Title:</b> At Sea Transfer Technology	1.175	2.150	2.150	-	2.150
<b>Description:</b> At Sea Transfer Technology enables roll on and roll off (RO/RO) capability from vessels at sea; and causeway transport of vehicles and equipment to the beach or shore. The current effort serves to inform development of a Service Life Extension Program (SLEP) for the Modular Warping Tug (MWT) and Causeway Ferry (CF) which are principle working platforms in the Modular Causeway System (MCS).					
<b>FY 2018 Plans:</b> -Continue to develop the MWT/CF SLEP Design Solution; transition design to prototype.					

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Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev		Project (Number/Name) 526 / Marine Orien Log Eq Ad		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Continue development of the MWT/CF Technical Data Package (TDP).						
<b>FY 2019 Base Plans:</b> Complete SLEP design prototype. -Perform testing of MWT/CF SLEP prototype -Complete MWT/CF Production Level TDP.						
<b>Title:</b> Environmental Compliance Projects		0.811	1.055	0.506	-	0.506
<b>Description:</b> Environmental projects enable compliance with requirements as defined in law under Uniform National Discharge Standards (UNDS) and Environmental Protection Agency (EPA) emissions standards. The EPA reviews the UNDS Code of Federal Regulations (CFR) language in five year increments separated into three batches (types of discharge). This is an ongoing assessment of statutory language which may or may not result in material solution change.						
<b>FY 2018 Plans:</b> - Funding to continue identification of Environmental Compliance Technologies IAW evolving statutory and regulatory requirements. - Continue MSD shipboard test and evaluation. - Continue OWS requirement and capability analysis. - Continue Clean Ballast Water requirement and capability analysis.						
<b>FY 2019 Base Plans:</b> - Funding to continue identification of Environmental Compliance Technologies IAW evolving statutory and regulatory requirements. - Continue MSD shipboard test and evaluation. - Continue OWS requirement and capability analysis. - Continue Clean Ballast Water requirement and capability analysis.						
<b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Costs associated with this requirement have decreased due to progression of the projects.						
<b>Title:</b> Force Protection Capability		0.768	0.770	0.770	-	0.770
<b>Description:</b> Army Watercraft Systems (AWS) Force Protection capability is limited to defensive measures. Current efforts include development of gunner station and weapon station locations, integration of Common Remotely Weapon Station (CROWS) and non-lethal Escalation of Force (EoF). The EoF capability includes						

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
white light, green dazzler, an acoustic hailing device, percussion grenades, and Forward Looking Infra-Red (FLIR).  <b>FY 2018 Plans:</b> -Develop CROWS Integration kit for LCU 2000. -Continue EoF development.  <b>FY 2019 Base Plans:</b> Install and test CROWS aboard LSV-7 class.						
<b>Title:</b> Army Watercraft Program Support  <b>Description:</b> Matrix Salary Support includes Program Management and System Engineering resources required to manage the program projects and provide contractor oversight. It also includes benefits, travel, personnel training and other Government costs required to retain a professional acquisition workforce.  <b>FY 2018 Plans:</b> -PM/Matrix Support. -Fund Navy for UNDS analysis and committee representation.  <b>FY 2019 Base Plans:</b> -Matrix Support -Fund Navy for UNDS analysis and committee representation.		0.371	0.370	0.370	-	0.370
<b>Title:</b> Energy Efficiency and Emissions Compliance  <b>Description:</b> Energy efficiency and emission compliance of Army Watercraft explores emerging technologies to improve power consumption, conform with regulation, and reduce the environmental impact of Army Watercraft.		0.500	-	-	-	-
<b>Title:</b> Trade Studies and Business Analyses  <b>Description:</b> Conduct Affordability and Feasibility Studies, to include support of Analysis of Alternatives for future vessel platforms.  <b>FY 2019 Base Plans:</b> Support initiation of Feasibility Study for future vessel platforms.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b>		-	-	0.100	-	0.100

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Appropriation/Budget Activity 2040 / 4				R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev				Project (Number/Name) 526 / Marine Orien Log Eq Ad				
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Support Feasibility study will begin for MSV(H) in FY19												
Accomplishments/Planned Programs Subtotals								3.625	4.345	3.896	-	3.896
C. Other Program Funding Summary (\$ in Millions)												
Line Item	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	
• MA4501: MODIFICATION KITS	46.363	26.018	25.201	-	25.201	28.122	26.466	22.310	30.770	0.000	205.250	
• MA4502: INSTALLATION OF MODIFICATIONS	17.112	26.490	15.886	-	15.886	4.667	4.812	4.031	4.204	0.000	77.202	
• M11101: Army Watercraft Esp	21.860	20.110	27.711	-	27.711	36.933	46.100	40.957	38.330	0.000	232.001	
• ML5355: Items Less Than \$5.0M (Float/Rail)	1.967	2.877	8.385	-	8.385	2.422	1.931	1.943	0.994	0.000	20.519	
Remarks												
FY 2017 Accomplishments:												
- Awarded MWT/CF SLEP Design contract 12 May 2017 with Contract Mod awarded 30 Sep 2017.												
- Completed MWT/CF Electrical Design Study 30 Sep 2017.												
- Developed Technical Data Package (TDP) for 4 of 9 MWT/CF modules.												
- Completed 100% of the Flexor Study.												
- LSV-1 installed the Chlorinator aboard the vessel 24 April -12 May 2017; evaluation is ongoing.												
- Marine Sanitation Device (MSD) procured for installation aboard the LSV-1 on 4-15 Dec 2017.												
D. Acquisition Strategy												
Leverage government and public research centers (TARDEC and Naval Surface Warfare Center (NSWC) Philadelphia) and known public research institutes (Battelle) along with associated contract mechanisms to prototype, test, and evaluate component technologies that may be applicable to the current and future Army Watercraft fleet.												
E. Performance Metrics												
-Integrated Master Schedule (IMS) whereby cost, schedule, and performance including critical path can be measured.												
-Technical Reviews with entrance and exit criteria.												
-Deliverables: drawings, test data and test reports, studies and analytical reports, final project reports.												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
Appropriation/Budget Activity 2040 / 4						R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev				Project (Number/Name) 526 / Marine Orien Log Eq Ad					
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
Force Protection, Escalation of Force (EoF) Development (i.e. CROWS)	MIPR	TARDEC : Warren, MI	1.881	0.768	Jan 2017	0.770	Feb 2018	0.770	Feb 2019	-		0.770	Continuing	Continuing	-
At Sea Transfer Systems (Modular Warping Tug / Causeway Ferry)	SS/CPFF	Program Support Center (PSC) - Health and Human Services : Bethesda, MD	1.041	1.175	Jan 2017	2.150	Jan 2018	2.150	May 2019	-		2.150	Continuing	Continuing	-
Environmental Compliance Uniform National Discharge Standards (UNDS)	MIPR	TARDEC, Carderock : Warren, MI and Maryland	2.011	0.811	Dec 2016	1.055	Feb 2018	0.506	Jan 2019	-		0.506	Continuing	Continuing	-
Energy Efficiency and Emissions Compliance	C/ FFPLOE	Battelle : Columbus, OH	0.966	0.500	May 2017	-		-		-		-	0.000	1.466	-
Army Watercraft Module, Berthing (AWMB) Development	C/ FFPLOE	PM Force Sustainment Systems : Natick, MA	1.504	-		-		-		-		-	0.000	1.504	-
Trade Study Analyses	MIPR	NAVSEA : Philadelphia, PA	-	-		-		0.100	Sep 2019	-		0.100	0.000	0.100	-
Subtotal			7.403	3.254		3.975		3.526		-		3.526	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
Army Watercraft Program Support	MIPR	Detroit Arsenal PMs, TARDEC, ILSC. : Warren, MI	0.987	0.371	Dec 2016	0.370	Nov 2017	0.370	Nov 2018	-		0.370	Continuing	Continuing	-
Subtotal			0.987	0.371		0.370		0.370		-		0.370	Continuing	Continuing	N/A
Remarks Matrix Employees are funded through a reimbursable MIPR and disbursed monthly.															

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2019 Army</b>										<b>Date:</b> February 2018			
<b>Appropriation/Budget Activity</b> 2040 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>					<b>Project (Number/Name)</b> 526 / <i>Marine Orien Log Eq Ad</i>			
	<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>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	8.390	3.625		4.345		3.896		-		3.896	Continuing	Continuing	N/A
<b>Remarks</b>													



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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2019 Army</b>			<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 2040 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>		<b>Project (Number/Name)</b> 526 / <i>Marine Orien Log Eq Ad</i>	

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
Army Watercraft Program Support																												
Force Protection: Common Remotely Operated Weapon Station																												
Force Protection: CROWS on LSV-7 Class																												
CROWS on LSV-7																												
Force Protection: CROWS on LCU 2000 Class																												
CROWS on LCUXXXX																												
At Sea Transfer Technology																												
Modular Warping Tug (MWT) / Causeway Ferry (CF)																												
MWT / CF - SLEP Development Contract																												
MWT / CF - SLEP Prototype and Proof Concept																												
MWT / CF - SLEP Testing																												
Environmental Compliance																												
Uniformed National Discharge Standards (UNDS)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army																Date: February 2018																			
Appropriation/Budget Activity 2040 / 4								R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev								Project (Number/Name) 526 / Marine Orien Log Eq Ad																			
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
UNDS Batch 2												1				5																			
UNDS Batch 3																																			
Trade Studies and Business Analyses																																			

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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>	<b>Project (Number/Name)</b> 526 / <i>Marine Orien Log Eq Ad</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Army Watercraft Program Support	4	2016	4	2023
Force Protection: Common Remotely Operated Weapon Station (CROWS)	4	2016	4	2023
Force Protection: CROWS on LSV-7 Class	4	2016	4	2018
CROWS on LSV-7	4	2018	4	2018
Force Protection: CROWS on LCU 2000 Class	4	2016	4	2019
CROWS on LCXXXX	4	2019	4	2019
At Sea Transfer Technology	4	2016	4	2023
Modular Warping Tug (MWT) / Causeway Ferry (CF)	1	2018	4	2019
MWT / CF - SLEP Development Contract	3	2018	3	2018
MWT / CF - SLEP Prototype and Proof Concept	3	2018	3	2018
MWT / CF - SLEP Testing	2	2019	2	2019
Environmental Compliance	4	2016	4	2023
Uniformed National Discharge Standards (UNDS)	4	2016	4	2023
UNDS Batch 2	2	2018	2	2018
UNDS Batch 3	2	2019	2	2019
Trade Studies and Business Analyses	4	2019	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev				Project (Number/Name) EW8 / Armored Engineer Vehicles			
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
EW8: Armored Engineer Vehicles	-	0.000	12.200	1.484	-	1.484	1.977	1.977	2.100	6.963	0.000	26.701
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note The Joint Assault Bridge (JAB) was funded under PR 654804/H02 in FY17 and prior.												
A. Mission Description and Budget Item Justification This project supports live fire test and evaluation, initial operational test and evaluation and production qualification testing of the Joint Assault Bridge (JAB). This project also funds efforts to upgrade and modernize the Assault Bridging Management portfolio through the development of new systems and enhancement of existing systems such as the Mobile Armored Combat Earthmover (MACE). MACE will be replacing the aging M9 Armored Combat Earthmover (ACE).												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Joint Assault Bridge (JAB)  Description: The Joint Assault Bridge (JAB) provides the Army Mobility Augmentation Companies (MACs) and Armor Brigade Combat Teams (ABCTs) Brigade Engineer Battalions (BEBs) with a survivable, deployable and sustainable heavy assault bridging capability. The JAB System will provide a Gap Crossing Capability to cross wet or dry gaps to provide freedom of maneuver on the battlefield and keep pace with Abrams ABCT operations.  Funding provided for program development and testing  FY 2018 Plans: Funding supports live fire test and evaluation, initial operational test and evaluation and production qualification testing of the Joint Assault Bridge (JAB).  FY 2018 to FY 2019 Increase/Decrease Statement: FY18 is the final year of RDT&E funding for the Joint Assault Bridge (JAB) program. JAB RDT&E efforts were funded under 654804.H02 for FY17 and prior.								-	12.200	-	-	-
Title: Mobile Armored Combat Earthmover (MACE)  Description: The Mobile Armored Combat Earthmover (MACE) will replace the M9 Armored Combat Earthmover and will be primarily a mobility asset, enabling maneuver units during attacks and movements to								-	-	1.484	-	1.484

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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 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>				<b>Project (Number/Name)</b> EW8 / <i>Armored Engineer Vehicles</i>				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>  contact. The MACE will provide hasty survivability and counter-mobility capabilities to the maneuver units until more survivability and counter-mobility assets can move forward to support the maneuver force's defenses. It will operate with primarily medium and heavy mechanized forces but will be capable of supporting all combat forces and the full range of military operations.  Funding provided for program development and testing  <b><i>FY 2019 Base Plans:</i></b> Funding supports Whole Systems Trades Analysis Tool (WSTAT) analyses by the TACOM Cost & Systems Analysis Group and supporting organizations. The WSTAT output will be an input to the follow-on formal Analysis of Alternatives study to be conducted by the Army Capabilities Integration Center.  <b><i>FY 2018 to FY 2019 Increase/Decrease Statement:</i></b> FY19 is the first year of funding for the Mobile Armored Combat Earthmover (MACE) program.								<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
<b>Accomplishments/Planned Programs Subtotals</b>								-	12.200	1.484	-	1.484
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
<u>Line Item</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019 Base</u>	<u>FY 2019 OCO</u>	<u>FY 2019 Total</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>Cost To Complete</u>	<u>Total Cost</u>	
• GZ3001: <i>Joint Assault Bridge</i>	64.752	128.350	142.255	-	142.255	205.772	226.964	290.954	248.729	Continuing	Continuing	
<b>Remarks</b>												
<b>D. Acquisition Strategy</b> Funding will support RDT&E efforts to support testing and follow-on production for Assault Bridging.												
<b>E. Performance Metrics</b> N/A												

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2019 Army</b>												<b>Date:</b> February 2018			
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<b>Management Services (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Support	MIPR	Various : Various	-	-		0.600	Nov 2017	0.150	Nov 2018	-		0.150	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		0.600		0.150		-		0.150	Continuing	Continuing	N/A
<b>Product Development (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
MACE Whole Systems Trades Analysis Tool (WSTAT)	C/FFP	TBD : TBD	-	-		-		1.334	Jan 2019	-		1.334	0.000	1.334	-
<b>Subtotal</b>			-	-		-		1.334		-		1.334	0.000	1.334	N/A
<b>Test and Evaluation (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Initial Operational Test & Evaluation (IOTE)	MIPR	Operational Test Command : Ft. Hood, TX	-	-		6.693	Mar 2018	-		-		-	0.000	6.693	-
Developmental Testing & Operational Testing (DT / OT)	MIPR	Aberdeen Proving Grounds : MD	-	-		0.407	Jan 2018	-		-		-	0.000	0.407	-
Production Qualification Testing (PQT)	MIPR	Aberdeen Proving Grounds : MD	-	-		4.500	Nov 2017	-		-		-	0.000	4.500	-
<b>Subtotal</b>			-	-		11.600		-		-		-	0.000	11.600	N/A
<b>Project Cost Totals</b>			-	-		12.200		1.484		-		1.484	Continuing	Continuing	N/A
<b>Remarks</b>															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2019 Army</b>			<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 2040 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>		<b>Project (Number/Name)</b> EW8 / <i>Armored Engineer Vehicles</i>	

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
<b>Joint Assault Bridge Development &amp; Testing</b>																												
Life Fire Test & Eval																												
Production Qualification Test																												
Developmental Test / Operational Test																												
Initial Operational Test & Eval																												
Full Rate Production																												
<b>Mobile Armored Combat Earthmover (MACE)</b>																												
MACE - Whole System Trades Analysis Tool (WSTAT)																												
MACE - Materiel Development Decision (MDD)																												
MACE - Market Survey																												

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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>	<b>Project (Number/Name)</b> EW8 / <i>Armored Engineer Vehicles</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Joint Assault Bridge Development & Testing	1	2016	1	2019
Life Fire Test & Eval Armor Development	1	2016	4	2016
Life Fire Test & Eval	4	2016	4	2018
Production Qualification Test	4	2017	2	2018
Developmental Test / Operational Test	2	2018	2	2018
Initial Operational Test & Eval	3	2018	3	2018
Full Rate Production	1	2019	1	2019
Mobile Armored Combat Earthmover (MACE)	1	2018	4	2026
MACE - Whole System Trades Analysis Tool (WSTAT)	2	2018	4	2018
MACE - Materiel Development Decision (MDD)	1	2019	4	2019
MACE - Market Survey	1	2020	2	2020



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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev				Project (Number/Name) G11 / Adv Elec Energy Con Ad			
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
G11: Adv Elec Energy Con Ad	-	5.051	6.524	3.335	-	3.335	3.372	7.201	7.405	17.413	0.000	50.301
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note Management and Distribution Control (MDC) was previously named Improved Power Distribution Illumination Systems Electrical (IPDISE).												
A. Mission Description and Budget Item Justification The Tactical Electric Power (TEP) program was established by the Department of Defense to develop modernized, standard families of mobile electric power sources and power distribution systems for all Services throughout the Department of Defense. Project Manager Expeditionary Energy & Sustainment Systems (PM E2S2) matures and integrates technology that will improve the next generation of tactical power sources in support of all Services. It supports initiatives that are essential to the development and fielding of modernized TEP sources from Watts to Megawatts level that will extend Army operational mission reach and duration through the improvements to efficiency, reliability, maintainability, and interoperability in support of the Army Operating Concept and Multi-Domain Battle. FY19 funding will support test and evaluation of technologies in support of Small Tactical Electric Power (STEP), Management and Distribution Control (MDC), and Command Post Infrastructure Integration (CPI2). Technologies include hybrid power systems, open architecture tactical microgrids, command post infrastructure, and validated methods to prove out suitability and effectiveness. Funding also supports the Joint Operational Energy Initiative (JOEI), a holistic Modeling and Simulation approach to the evaluation of Operational Energy (OE)-related theater-wide impacts of systems and improvements with the vision of reducing Army energy dependency and demand. Program costs include developing concept hardware and executing system evaluations at Army demonstration events and exercises (AEWE, AWA, etc.)												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Contract Activity								2.351	3.524	-	-	-
Description: Continue maturation and integration of technology supporting the STEP and MDC programs.												
FY 2018 Plans: Develop various technologies related to TEP and power distribution/management across the DoD power spectrum. Specific efforts will include demo of metering and monitoring systems, energy storage and inverter systems, and MDC. Develop tools, systems and capability to provide holistic M&S analysis of Operational Energy, and support customer/stakeholder analysis to inform key Science and Technology (S&T), Acquisition, and Requirements Development decision making.												
FY 2018 to FY 2019 Increase/Decrease Statement:												

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army				Date: February 2018		
Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev		Project (Number/Name) G11 / Adv Elec Energy Con Ad		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Due to affordability issues funding in FY19 was moved to other RDTE efforts. Efforts in support of the STEP program such developing demonstration of metering and monitoring systems, energy storage and inverter systems, and support of MDC programs will be delayed until FY20.						
<p><b>Title:</b> Government System Test and Evaluation</p> <p><b>Description:</b> Supports in house and external performance tests of concept hardware. Also supports evaluation of systems at Network Integration Evaluation (NIE).</p> <p><b>FY 2018 Plans:</b> Continue evaluation and testing of various technologies related to tactical electric power and power distribution and management across the DoD power spectrum. Efforts will be aimed at resolving technology gaps to meet Army User requirements. Efforts will support the TEP CPD. Specific efforts will include performance testing of hybrid/alternative energy power sources, open standards grid communications, and intelligent power distribution/management systems. Program supports new equipment and concept demonstrations at NIE 18.2.</p> <p><b>FY 2019 Base Plans:</b> Continue evaluation and testing of various technologies related to tactical electric power and power distribution and management across the DoD power spectrum. Efforts will be aimed at resolving technology gaps to meet Army User requirements. Efforts will support the TEP CPD. Specific efforts will include performance testing of hybrid energy power sources.</p> <p><b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Due to affordability issues funding was reduced in FY19 in order to support other higher priority RDTE efforts.</p>		0.400	0.400	0.200	-	0.200
<p><b>Title:</b> Other Contracts and Government agencies</p> <p><b>Description:</b> Matrix engineering and analysis support for continued development of technology supporting the STEP program, MDC, and CPI2, as well as analysis and data management.</p> <p><b>FY 2018 Plans:</b> Continue evaluation and testing of various technologies related to tactical electric power and power distribution and management across the DoD power spectrum. Efforts will be aimed at resolving technology gaps to meet Army User requirements. Efforts will support the TEP CPD. Specific efforts will include contract management and testing of hybrid/ alternative energy power sources and power distribution/management systems. Program supports new equipment and concept demonstrations at NIE 17.2. Includes oversight, analysis and management</p>		1.000	1.300	1.500	-	1.500

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army				Date: February 2018		
Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev		Project (Number/Name) G11 / Adv Elec Energy Con Ad		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
of Operational Energy-related impacts, systems and improvements to reduce Army's energy dependence and improve operational capabilities. <b>FY 2019 Base Plans:</b> Continue evaluation and testing of various technologies related to tactical electric power and power distribution and management across the DoD power spectrum. Efforts will be aimed at resolving technology gaps to meet Army User requirements. Efforts will support the TEP CPD. Specific efforts will include contract management and testing of hybrid/ alternative energy power sources and power distribution/management systems. Program supports new equipment and concept demonstrations at NIE 19.2. Includes oversight, analysis and management of Operational Energy-related impacts, systems and improvements to reduce Army's energy dependence and improve operational capabilities. <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> FY19 is higher than FY18 as increased matrix inter-service support will be required to cover analysis that will shape and inform requirements for hybrid and micro-grid architectures. These efforts will feed the MDC and STEP programs by establishing a clear alignment between user demands and technology capabilities.						
<b>Title:</b> Government Program Management <b>Description:</b> Continue development of technology supporting the STEP program, MDC and CPI2. <b>FY 2018 Plans:</b> Oversight and management of various technology projects related to Tactical Electric Power and power distribution/management across the DoD power spectrum. Efforts will be aimed at resolving technology gaps to meet Army User requirements. Efforts will support the TEP Capabilities Production Document (CPD). Specific efforts will include support of MEHPS, and power MDC systems. Oversight, analysis and management of Operational Energy-related impacts, systems and improvements to reduce Army's energy dependence and improve operational capabilities. <b>FY 2019 Base Plans:</b> Oversight and management of various technology projects related to Tactical Electric Power and power distribution/management across the DoD power spectrum. Efforts will be aimed at resolving technology gaps to meet Army User requirements. Efforts will support the CPI2 Capabilities Development Document (CDD). Specific efforts will include support of CPI2, and power MDC systems. Oversight, analysis and management		1.300	1.300	1.635	-	1.635

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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 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>		<b>Project (Number/Name)</b> G11 / <i>Adv Elec Energy Con Ad</i>	

  

<b>B. Accomplishments/Planned Programs (\$ 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>
of Operational Energy-related impacts, systems and improvements to reduce Army's energy dependence and improve operational capabilities.					
<b><i>FY 2018 to FY 2019 Increase/Decrease Statement:</i></b> FY19 includes additional management support and expected with ramp-up of the CPI2 program compared to FY18. Intelligent power integration into the system will require greater inter-office engagement and coordination.					
<b>Accomplishments/Planned Programs Subtotals</b>	5.051	6.524	3.335	-	3.335

  

<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>
• 194: <i>Engine Driven Gen Ed</i>	6.599	12.890	1.803	-	1.803	5.095	15.485	14.475	14.163	0.000	70.510
• MA9800: <i>Generators And Associated Equip</i>	132.391	116.204	133.772	0.569	134.341	113.476	88.765	115.703	101.957	0.000	802.837

  

**Remarks**

  

**D. Acquisition Strategy**

Complete advanced development pre-milestone B technology assessments and analysis, and transition products to Engineering and Manufacturing Development (EMD) phase (Milestone B) and subsequent transition to production (Milestone C). Support concept development and demonstration efforts. Products and technologies supported include tactical power and energy sources, alternative/renewable energy systems, power distribution components, and power management and distribution control systems. Perform analysis of Operational Energy related impacts to future development programs to better direct RDECOM efforts.

  

**E. Performance Metrics**

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
Appropriation/Budget Activity 2040 / 4						R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev				Project (Number/Name) G11 / Adv Elec Energy Con Ad					
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
Platoon Power Generation	MIPR	PM E2S2 : Ft. Belvoir, VA	-	-		0.200		-		-		-	Continuing	Continuing	Continuing
Small Tactical Electric Power (STEP) Components	MIPR	PM E2S2 : Fort Belvoir, VA	0.733	-		0.200		0.175		-		0.175	Continuing	Continuing	Continuing
Hybrid Power Sources Components	MIPR	PM E2S2 : Ft. Belvoir, VA	0.432	0.164		0.200		-		-		-	Continuing	Continuing	Continuing
Power Management and Distribution Systems	MIPR	PM E2S2 : Ft. Belvoir, VA	0.935	0.573		0.303		0.250		-		0.250	Continuing	Continuing	Continuing
Operational Energy	MIPR	PM E2S2 : Fort Belvoir, VA	1.200	0.328		0.400		0.150		-		0.150	Continuing	Continuing	Continuing
Subtotal			3.300	1.065		1.303		0.575		-		0.575	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
Platoon Power Generation	MIPR	CERDEC : Fort Belvoir, VA	-	-		0.750		-		-		-	Continuing	Continuing	Continuing
Small Tactical Electric Power (STEP) Components	Various	CERDEC : Fort Belvoir, VA	3.281	-		0.750		0.750		-		0.750	Continuing	Continuing	Continuing
Hybrid Power Sources Components	Various	Multiple Vendors : TBD	2.165	0.205		0.250		-		-		-	Continuing	Continuing	Continuing
Power Management and Distribution Systems	Various	CERDEC : Fort Belvoir, VA	3.034	1.692		0.621		0.700		-		0.700	Continuing	Continuing	Continuing
Operational Energy	TBD	TBD : TBD (FY15)	2.000	0.409		0.500		0.249		-		0.249	Continuing	Continuing	Continuing
Metering and Monitoring Demo	Various	TBD : TBD	-	0.205		0.250		-		-		-	Continuing	Continuing	Continuing
Subtotal			10.480	2.511		3.121		1.699		-		1.699	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 / 4						R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev				Project (Number/Name) G11 / Adv Elec Energy Con Ad					
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
Platoon Power Generation	MIPR	CERDEC : Fort Belvoir, VA	-	-		0.400		-		-		-	Continuing	Continuing	Continuing
Small Tactical Electric Power (STEP) Components	MIPR	CERDEC : Fort Belvoir, VA	1.706	-		0.300		0.385		-		0.385	Continuing	Continuing	Continuing
Hybrid Power Sources Components	MIPR	CERDEC : Fort Belvoir, VA	1.229	0.492		0.200		-		-		-	Continuing	Continuing	Continuing
Power Management and Distribution Control Systems	MIPR	CERDEC : Fort Belvoir, VA	1.258	0.492		0.300		0.376		-		0.376	Continuing	Continuing	Continuing
Operational Energy	MIPR	Dept of Energy Sandia National Labs : Washington DC	1.500	0.163		0.200		0.100		-		0.100	Continuing	Continuing	Continuing
Subtotal			5.693	1.147		1.400		0.861		-		0.861	Continuing	Continuing	N/A
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
Platoon Power Generation (PPG)	MIPR	CERDEC : Fort Belvoir, VA	-	-		0.250		-		-		-	Continuing	Continuing	Continuing
Small Tactical Electric Power (STEP) Components	MIPR	CERDEC : Fort Belvoir, VA	1.130	-		0.200		0.200		-		0.200	Continuing	Continuing	Continuing
Hybrid Power Sources Components	MIPR	CERDEC : Fort Belvoir, VA	0.665	0.164		-		-		-		-	Continuing	Continuing	Continuing
Power Management and Distribution Systems	MIPR	CERDEC : Fort Belvoir, VA	1.597	0.164		0.250		-		-		-	Continuing	Continuing	Continuing
Subtotal			3.392	0.328		0.700		0.200		-		0.200	Continuing	Continuing	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2019 Army</b>										<b>Date:</b> February 2018			
<b>Appropriation/Budget Activity</b> 2040 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>					<b>Project (Number/Name)</b> G11 / <i>Adv Elec Energy Con Ad</i>			
	<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>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	22.865	5.051		6.524		3.335		-		3.335	Continuing	Continuing	N/A
<b>Remarks</b>													

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**Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army** **Date:** February 2018

<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>	<b>Project (Number/Name)</b> G11 / <i>Adv Elec Energy Con Ad</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
SMALL TACTICAL ELECTRIC POWER (STEP) PROGRAM																												
Assess Technologies to Meet Gaps-STEP																												
Test Technologies to Meet Gaps-STEP																												
Transfer to Engineering and Manufacturing Development-STEP																												
<b>Management and Distribution Control (MDC)</b>																												
Assess Technologies to Meet Gaps-MDC																												
Test Technologies to Meet Gaps-MDC																												
Test Ruggedized MDC concepts with AMMPS Microgrid																												
Transfer to Engineering and Manufacturing Development-MDC Phase 3																												
<b>ASSESSMENT OF TECHNOLOGIES</b>																												
Assess Technologies to Meet Gaps and Improve Efficiencies																												
<b>OPERATIONAL ENERGY (OE)</b>																												
Evaluation of OE-Related Impacts, Systems and Improvements																												



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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>	<b>Project (Number/Name)</b> G11 / <i>Adv Elec Energy Con Ad</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
SMALL TACTICAL ELECTRIC POWER (STEP) PROGRAM	1	2016	2	2021
Assess Technologies to Meet Gaps-STEP	1	2016	2	2021
Test Technologies to Meet Gaps-STEP	1	2016	2	2021
Transfer to Engineering and Manufacturing Development-STEP	2	2021	2	2021
Management and Distribution Control (MDC)	1	2016	4	2022
Assess Technologies to Meet Gaps-MDC	1	2016	4	2018
Test Technologies to Meet Gaps-MDC	1	2020	3	2020
Test Ruggedized MDC concepts with AMMPS Microgrid	1	2016	1	2017
Transfer to Engineering and Manufacturing Development-MDC Phase 3	4	2020	4	2020
ASSESSMENT OF TECHNOLOGIES	1	2017	4	2022
Assess Technologies to Meet Gaps and Improve Efficiencies	1	2017	4	2022
OPERATIONAL ENERGY (OE)	1	2016	4	2019
Evaluation of OE-Related Impacts, Systems and Improvements	1	2016	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev				Project (Number/Name) K39 / Field Sustainment Support Ad			
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
K39: Field Sustainment Support Ad	-	2.528	2.429	2.311	-	2.311	1.675	1.720	1.773	1.807	0.000	14.243
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
This project supports development of critical cargo aerial delivery capabilities. These systems will fill identified theater distribution and services capability gaps, improve unit sustainability, and increase combat effectiveness. This project supports Advanced Component Development and Prototyping of Critical Distribution Capabilities which provide improved safety and accuracy while increasing survivability of aircraft, personnel, and equipment. This project develops critical enablers that support the Army in executing future movement and maneuver operations and distributed sustainment support by maintaining readiness through fielding and integrating new equipment. This project also ensures Army Expeditionary Forces are capable of rapid deployment through aerial delivery initiatives and reduces sustainment requirements, related Combat Support/Combat Service Support (CS/CSS) demands in lift, combat zone footprint, and costs for logistical support.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Joint Precision Airdrop System-2K Block 1 Upgrade (JPADS-BLK1)								2.128	-	-	-	-
Description: Supports increasing the technological and design maturity, testing, and integration of several key initiatives focused on: maintaining system accuracy and reliability in Global Positioning System (GPS) denied environments; collision avoidance; more precise position determination software; and improved Guidance Navigation and Control (GN&C) hardware.												
Title: Rapid Rigging and DeRigging Airdrop System (RRDAS) Phase I								-	1.918	1.277	-	1.277
Description: Reduces rigging times while also providing the capability to rapidly de-rig loads on the drop zone. This will reduce the lead time to prepare Low Velocity Airdrop System (LVADS) loads while also increasing the survivability of receiving ground forces by ensuring the airdrop loads (to include weapon systems, prime movers, trailers, etc.) are quickly de-rigged and made operational. RRDAS is a three phase Research, Development, Testing and Engineering (RDT&E) effort, Phase I will focus on loads up to 20,000 pounds and platform lengths up to 20 feet and will include prime movers such as HMMWV.												
FY 2018 Plans: Complete Milestone B package. Initiate and conduct Design Validation (DV) testing.												
FY 2019 Base Plans:												

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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 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>			<b>Project (Number/Name)</b> K39 / <i>Field Sustainment Support Ad</i>				
<b>B. Accomplishments/Planned Programs (\$ 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>
Complete component evaluation in realistic airdrop environment and transition to Engineering and Manufacturing Development (EMD).											
<b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Funds are decreasing from FY 18 to FY 19 as program is moving from technology integration and prototype development to system evaluation.											
<b>Title:</b> Advanced Low Velocity Airdrop System (ALVADS) - Light and Heavy/ Dual Row Airdrop System (DRAS) Application  <b>FY 2018 Plans:</b> Conduct DRAS Design Validation (DV) prototype testing to establish ALVADS DRAS configuration.  <b>FY 2019 Base Plans:</b> Conduct evaluation of established ALVADS DRAS configuration in a realistic operational environment. Transition to EMD.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Values are increased to fund for additional Dual Row Airdrop System (DRAS) integrated flight testing in FY 19.							0.400	0.511	1.034	-	1.034
<b>Accomplishments/Planned Programs Subtotals</b>							2.528	2.429	2.311	-	2.311
<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>
• MA7806: <i>Precision Airdrop</i>	4.298	4.147	3.751	1.980	5.731	3.788	2.079	2.140	2.184	0.000	24.367
• L39: <i>Field Sustainment Support Ed</i>	3.569	3.147	2.223	-	2.223	2.974	3.052	3.146	3.247	0.000	21.358
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
Conduct pre Engineering and Manufacturing Development (EMD) advanced component development to reduce risk prior to entering EMD phase.											
<b>E. Performance Metrics</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 / 4						R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev				Project (Number/Name) K39 / Field Sustainment Support Ad					
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
Project Management Support	Various	PMFSS : Natick, MA	6.282	0.328	Oct 2016	0.400		0.279		-		0.279	Continuing	Continuing	Continuing
SBIR+STTR	TBD	Various : Various	0.090	-		-		-		-		-	0.000	0.090	-
Subtotal			6.372	0.328		0.400		0.279		-		0.279	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
Extracted High and Low Speed Container Delivery System (EHLSCDS)	Various	Various : Various	1.861	-		-		-		-		-	Continuing	Continuing	Continuing
ALVADS-L/H DRAS	Various	Various : Various	-	0.500	Mar 2017	0.484		-		-		-	Continuing	Continuing	Continuing
JPADS Block 1 upgrade	Various	Various : Various	15.934	0.500	Nov 2016	-		-		-		-	Continuing	Continuing	Continuing
Rapid Rigging/Derigging	Various	Various : Various	-	-		0.495		0.250		-		0.250	0.000	0.745	-
Advanced Low Velocity Airdrop System-L/H	Various	Various : Various	1.300	-		-		0.295		-		0.295	0.000	1.595	-
Subtotal			19.095	1.000		0.979		0.545		-		0.545	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
JPADS Block 1 upgrade	Various	Various : Various	0.060	0.050	Nov 2016	-		-		-		-	0.000	0.110	-
ALVADS-L/H DRAS	Various	Various : Various	-	0.050	Mar 2017	0.300		-		-		-	0.000	0.350	-
Rapid Riggind/DeRigging	Various	Various : Various	-	-		0.200		-		-		-	0.000	0.200	-
Subtotal			0.060	0.100		0.500		-		-		-	0.000	0.660	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
Appropriation/Budget Activity 2040 / 4						R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev						Project (Number/Name) K39 / Field Sustainment Support Ad			
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
ALVADS-L/H DRAS	Various	YPG, AZ : YPG, AZ	-	0.500	Jul 2017	-		-		-		-	Continuing	Continuing	Continuing
Extracted High and Low Speed Container Delivery System (EHLSCDS)	Various	YPG, AZ : YPG, AZ	1.000	-		-		-		-		-	0.000	1.000	-
JPADS Block 1 upgrade	Various	YPG, AZ : YPG, AZ	-	0.600	Jan 2017	0.350		-		-		-	Continuing	Continuing	Continuing
Rapid Rigging/DeRigging	Various	Various : Various	-	-		0.200		0.737		-		0.737	0.000	0.937	-
Advanced Low Velocity Airdrop System	Various	Various : Various	-	-		-		0.750		-		0.750	0.000	0.750	-
Subtotal			1.000	1.100		0.550		1.487		-		1.487	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			26.527	2.528		2.429		2.311		-		2.311	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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>	<b>Project (Number/Name)</b> K39 / <i>Field Sustainment Support Ad</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
Conduct RRDAS Phase I market research and acquire prototype components																												
Conduct RRDAS Phase I component development/integration																												
JPADS Block I upgrade component development and risk reduction																												
JPADS 10K Block upgrade component development																												
Assure resupply Low Cost Precision market research and acquire prototypes																												
Conduct ALVADS/DRAS feasibility study																												
Conduct ALVADS/DRAS baseline evaluations																												
Conduct ALVADS/DRAS prototype flight tests																												
RRDAS Phase 2 upgrade component development																												
RRDAS Phase 3 upgrade component development																												
Evaluate Integrated RRDAS technology																												

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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>	<b>Project (Number/Name)</b> K39 / <i>Field Sustainment Support Ad</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Conduct RRDAS Phase I market research and acquire prototype components	2	2018	3	2018
Conduct RRDAS Phase I component development/integration	3	2018	4	2018
JPADS Block I upgrade component development and risk reduction	1	2017	4	2017
JPADS 10K Block upgrade component development	2	2020	2	2021
Assure resupply Low Cost Precision market research and acquire prototypes	2	2021	2	2022
Conduct ALVADS/DRAS feasibility study	3	2017	1	2019
Conduct ALVADS/DRAS baseline evaluations	2	2018	3	2018
Conduct ALVADS/DRAS prototype flight tests	3	2018	4	2019
RRDAS Phase 2 upgrade component development	4	2021	2	2023
RRDAS Phase 3 upgrade component development	4	2022	2	2024
Evalaute Integrated RRDAS technology	1	2019	2	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev				Project (Number/Name) K41 / Water And Petroleum Distribution - Ad			
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
K41: Water And Petroleum Distribution - Ad	-	2.237	4.773	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.010
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

This project develops and demonstrates the potential of prototype equipment and technologies to satisfy petroleum storage, distribution, and quality surveillance system requirements. The Technology Development programs support the development and enhancement of rapidly deployable Petroleum and Water equipment. The mission includes developing fuel quality analysis systems; achieving greater capabilities in the removal of Nuclear, Biological, Chemical (NBC) and other contaminants from water sources; reducing the logistics footprint; alternative source water acquisition, reutilization and disposal systems to reduce the requirement for transport of water into the theater; water purification and waste water treatment and material systems to decrease the logistics footprint and employment time for the transfer of liquid logistics in joint operations area. This vital equipment enables the Army to achieve its mission by providing the Army with the means to be highly mobile and self-sustaining in very hostile joint operations areas. Future Force operations demand that combat systems be rapidly deployable to the theater, rapidly emplaced upon arrival, and rapidly relocated to support a fast moving non-linear battlefield.

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

	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
<b>Title:</b> 3K Tactical Water Purification System (3K TWPS)	0.273	1.788	-	-	-
<b>FY 2018 Plans:</b> INTENTIONALLY LEFT BLANK					
<b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Funding has decreased to zero.					
<b>Title:</b> Early Entry Fluid Distribution System (E2FDS)	1.964	2.985	-	-	-
<b>Description:</b> The Early Entry Fluid Distribution System (E2FDS) is a rapidly emplaced, high-throughput petroleum distribution conduit system. The E2FDS consists of 5-mile systems that can be connected to each other to form a pipeline trace up to 50 miles long. It can throughput 850,000 gallons of petroleum or 650,000 gallons of raw/non-potable water per day. E2FDS is emplacement at a rate of 25 miles per day and retrieved at a rate of 10 miles per day. The components are configured in stackable International Standards Organization (ISO) twenty foot equivalent units (TEU) for deployment and is Heavy Expanded Mobility Tactical Truck-Load Handling System (HEMTT-LHS), Palletized Load System (PLS) and PLS Trailer transportable. It includes a Command and Control Module (C2M) that allows for central control of the pipeline trace from a single location.					



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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 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>				<b>Project (Number/Name)</b> K41 / <i>Water And Petroleum Distribution - Ad</i>			
<b>B. Accomplishments/Planned Programs (\$ 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>	
The E2FDS complements the Inland Petroleum Distribution System (IPDS) by adding an early entry capability as well as a means for rapidly extending existing pipeline.											
<b>FY 2018 Plans:</b> INTENTIONALLY LEFT BLANK											
<b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Funding has decreased to zero.											
<b>Accomplishments/Planned Programs Subtotals</b>						2.237	4.773	-	-	-	
<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>
• L41: <i>Water And Petroleum Distribution - Ed</i>	6.541	8.005	10.774	-	10.774	8.885	8.944	9.046	9.404	0.000	61.599
• MA6000: <i>Distribution Systems, Petroleum &amp; Water</i>	113.896	47.597	39.730	-	39.730	44.631	42.570	34.655	29.374	0.000	352.453
• R67500: <i>PETROLEUM QUALITY ANALYSIS SYSTEM</i>	8.207	6.903	1.770	-	1.770	-	-	-	-	0.000	16.880
<b>Remarks</b>											
<b>D. Acquisition Strategy</b> Develop engineering prototypes for the 3K Tactical Water Purification System (3K TWPS), Army Fuels Automated Management System (AFAMS), and select Non-Development Item (NDI) based on market surveys and proposals from industry. Based on market research a decision to award a competitive or sole source contract. E2FDS will conduct Developmental Testing (DT) and will test data to inform a fair opportunity decision for production. Army Fuels Automated Management System (AFAMS) sensors will require the development and testing of self-reporting sensors for all fuel storage tanks.											
<b>E. Performance Metrics</b> N/A											

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2019 Army</b>												<b>Date: February 2018</b>			
<b>Appropriation/Budget Activity</b> 2040 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603804A / Logistics and Engineer Equipment Adv Dev						<b>Project (Number/Name)</b> K41 / Water And Petroleum Distribution - Ad			
<b>Product Development (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
3K Tactical Water Purification System (3K TWPS)	Various	TARDEC : Warren, MI	1.030	-		1.788		-		-		-	0.000	2.818	Continuing
Early Entry Fluid Distribution System (E2FDS)	C/FFP	DRS : West Plains, IL	5.888	-		-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			6.918	-		1.788		-		-		-	Continuing	Continuing	N/A
<b>Support (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Early Entry Fluid Distribution System (E2FDS)	MIPR	TARDEC & PM, PAWS : Warren, MI	1.183	1.964	Feb 2017	-		-		-		-	0.000	3.147	Continuing
3K TWPS	MIPR	TARDEC : Warren, MI	-	0.273	Mar 2017	-		-		-		-	0.000	0.273	-
<b>Subtotal</b>			1.183	2.237		-		-		-		-	0.000	3.420	N/A
<b>Test and Evaluation (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Modular Fuel System (MFS)	MIPR	Yuma Proving Ground : Yuma, AZ	0.750	-		-		-		-		-	0.000	0.750	Continuing
3K Tactical Water Purification System (3K TWPS)	MIPR	TARDEC : Warren, MI	1.312	-		-		-		-		-	0.000	1.312	Continuing
Early Entry Fluid Distribution System (E2FDS)	MIPR	Aberdeen Proving Ground : APG, MD	-	-		2.985		-		-		-	0.000	2.985	-
<b>Subtotal</b>			2.062	-		2.985		-		-		-	0.000	5.047	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2019 Army										<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 2040 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>					<b>Project (Number/Name)</b> K41 / <i>Water And Petroleum Distribution - Ad</i>		
	<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>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	10.163	2.237		4.773	-		-		-	Continuing	Continuing	N/A
<b>Remarks</b>												

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2019 Army</b>			<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 2040 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>		<b>Project (Number/Name)</b> K41 / <i>Water And Petroleum Distribution - Ad</i>	

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
<b>3K Tactical Water Purification System (3K TWPS)</b>																												
3K TWPS Milestone B																												
3K TWPS Preliminary Design Review																												
3K TWPS CDR																												
3K TWPS Developmental Testing																												
3K TWPS Milestone C																												
3K TWPS Production Qualification Testing / Operational Testing																												
<b>Early Entry Fluid Distribution System (E2FDS)</b>																												
E2FDS Preliminary Design Review																												
E2FDS Critical Design Review																												
E2FDS Developmental Testing																												
E2FDS Milestone C																												
E2FDS First Article Test / Initial Operational Testing																												

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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>	<b>Project (Number/Name)</b> K41 / <i>Water And Petroleum Distribution - Ad</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
3K Tactical Water Purification System (3K TWPS)	4	2016	2	2022
3K TWPS Milestone B	2	2018	2	2018
3K TWPS Preliminary Design Review	1	2019	1	2019
3K TWPS CDR	1	2020	1	2020
3K TWPS Developmental Testing	3	2019	4	2019
3K TWPS Milestone C	3	2020	3	2020
3K TWPS Production Qualification Testing / Operational Testing	3	2021	3	2022
Early Entry Fluid Distribution System (E2FDS)	1	2016	4	2020
E2FDS Preliminary Design Review	2	2018	2	2018
E2FDS Critical Design Review	4	2018	4	2018
E2FDS Developmental Testing	1	2019	3	2019
E2FDS Milestone C	4	2019	4	2019
E2FDS First Article Test / Initial Operational Testing	1	2021	3	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev				Project (Number/Name) VR8 / Combat Service Support Systems - Ad			
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
VR8: Combat Service Support Systems - Ad	-	4.004	5.062	3.222	-	3.222	3.447	3.116	2.587	2.637	0.000	24.075
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

This project supports Advanced Component Development and Prototyping of critical soldier support and sustainment systems that provide more endurance and agility to combat operations enabling success of Army Expeditionary Forces in future multi-domain scenarios. Project includes shelter systems (rigid and soft wall), expeditionary base camp subsystems, field service systems, mortuary affairs equipment, field heaters, and other combat service support equipment. These systems will fill identified theater capability gaps, improve unit sustainability, improve resource and energy efficiency and increase combat effectiveness. This project supports Advanced Component Development and Prototyping of critical tactical support systems that support mobile Joint Service command and control, medical, and maintenance platforms. This project develops critical enablers that support the Army Campaign Plan and Army Modernization Strategy by maintaining readiness through fielding and integrating new equipment.

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

	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
<b>Title:</b> Resource and Energy Efficiency Enabling Solutions	1.063	2.128	1.516	-	1.516
<b>Description:</b> Reduces the resource, operational energy and logistics footprint of critical soldier support and sustainment systems while maintaining or improving operational effectiveness. The goal is to significantly reduce fuel, water, and power requirements to sustain multi-domain operations in addition to reducing maintenance and spare parts requirements. Systems such as Command Posts, Expeditionary Operating Bases, and Combat Support Hospitals require a significant amount of logistics and sustainment support which cost valuable resources, require extra human effort (that means a risk in the form of Soldiers on the road), limit endurance, restrict agility, and increase vulnerability.					
<b>FY 2018 Plans:</b> Conduct evaluation of integrated technologies that are transitioning from the RDECOM 6.3 programs in a realistic operational environment at the Ft Devens Base Camp Integration Laboratory (BCIL). Efforts are focused on proving out subsystem maturity and the potential of these technologies before transitioning into Engineering and Manufacturing Development (EMD) and putting them into operational use within the Army Force Provider base camps as Pre-Planned Product Improvements (P31). Focus will be on evaluating technologies that will improve upon the environmental, resource, and energy efficiency performance of the base camp. Specifically, evaluate technologies in the areas of: resource and energy efficiency; renewable energy collection and storage;					

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army			Date: February 2018			
Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev		Project (Number/Name) VR8 / Combat Service Support Systems - Ad		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
and smart base camp monitoring transitioning from the RDECOM 6.3 programs. Prepare promising technologies for transition into EMD supporting Force Provider requirements and OSD Joint Expeditionary Basing Work Group initiatives.  <b>FY 2019 Base Plans:</b> Conduct evaluation of integrated technologies that are transitioning from the RDECOM 6.3 programs in a realistic operational environment utilizing the Base Camp Integration Laboratory (BCIL). Focus efforts on technologies that will make the greatest impact on reducing resource and operational energy demands of current and developing critical enabling soldier support and sustainment platforms that support multi-domain operations to include integrated Command Posts and expeditionary sustainment systems. Identify promising alternative energy sources, renewable energy collection and storage capabilities for integration and conduct evaluations. Collect data from evaluations to inform and support Decision Points for transition into EMD.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Decrease in funding due to the fact that there were numerous efforts transitioned into EMD at the end of FY18. FY19 funding supports two main efforts: reducing resource and operational energy demands within integrated Command Posts and expeditionary sustainment systems and renewable energy collection/storage evaluation.						
<b>Title:</b> Black Waste Elimination for Small Base Camps (150 personnel)  <b>Description:</b> Provides the capability to reduce/eliminate the black water generated by small base camps. The objective capability will reduce our sustainment requirements for backhauling black waste water as well as our risk of contaminating the environment with biological contaminants. This capability will significantly reduce reliance on external support and is a key capability required to reduce sustainment requirements.  <b>FY 2018 Plans:</b> Award contract to fabricate an integrated prototype that incorporates promising black waste elimination technologies that are transitioning from the RDECOM 6.3 program for evaluation in a realistic operating environment at the Ft Devens Base Camp Integration Laboratory (BCIL).  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Decrease in funding due to completion of effort in FY18 with Decision Point after evaluation of integrated prototypes at the Ft Devens Base Camp Integration Laboratory (BCIL).		0.075	0.700	-	-	-
<b>Title:</b> Solid Waste Disposal for Small Base Camps		1.613	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army				Date: February 2018		
Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev		Project (Number/Name) VR8 / Combat Service Support Systems - Ad		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: Provides an integrated waste management (reduction, treatment or disposal process) add-on capability that can safely process 1,000 lbs or more of mixed solid waste in a single day on site. Mixed solid waste produced on a single 150 person site must be properly managed through reduction, reuse, recycling, treatment, or disposal. Most of the waste is nonhazardous solid waste. Provides a substantial improvement over the current practice of burn pits that poses a health risk to Soldiers and/or the backhaul logistics burden.						
Title: Ultralightweight Camouflage Net System (ULCANS) Description: ULCANS is durable, robust, snag resistant state of the art camouflage system that provides increased survivability against multi-spectral visual, infrared and radar threats, thermal signature suppression and significant thermal/solar reduction capability. ULCANS utilizes a snag-free design and is capable of use in all types of weather and climatic conditions except in heavy snow and winds. ULCANS variants are integrated systems that are very lightweight, easily deployable, versatile, user friendly and tailored to the equipment meeting the requirements of operations for combat systems, command and control equipment, logistic support sites, tactical facilities, and fixed facilities. RDT&E funding supports formal development of new ULCANS variants (Arctic, Urban) and necessary technology/signature enhancements for current ULCANS variants (Woodland and Desert).		0.250	-	-	-	-
Title: Expeditionary Waste to Energy System Description: The Expeditionary Waste to Energy System reduces the operational energy and logistics footprint of the expeditionary base camp system, with the goal of providing an integrated waste management and disposal process add-on capability that can safely process up to two tons of mixed solid organic waste in a single day on site with the energy associated with the management process being converted to usable energy in the form of fuel, heat and/or electric power. This capability will provide a safe and suitable means to dispose of waste in remote expeditionary base camps while reducing the fuel and power requirements to sustain operations in the field. This capability provides a substantial improvement over the current practice of burn pits and backhaul with associated vulnerabilities and safety issues.  FY 2018 Plans: Complete technology assessment of integrated capabilities to determine suitability and technology maturity. Based upon assessment results, make down selection to suitable technology for further evaluation in a realistic environment.  FY 2018 to FY 2019 Increase/Decrease Statement:		0.553	0.650	-	-	-



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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army				Date: February 2018		
Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev		Project (Number/Name) VR8 / Combat Service Support Systems - Ad		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Planned transition to EMD suspended in light of other priorities and pending future technology maturation.						
Title: Army Standard Family of Soft Wall Shelters (ASF-SWS)  Description: The ASF-SWS program will conduct formal development to incorporate the latest technologies into a fully supportable and modernized family. The intent is to eliminate the proliferation of non-standard shelters and their associated logistics burden, thereby reducing the lifecycle cost of SWS across the Services. The program will produce approved Technical Data Packages (TDPs) to support procurements by materiel developers and Program Managers (PMs) requiring SWS. ASF-SWS procurements are customer funded by PMs as a cost under their program(s).  FY 2019 Base Plans: Conduct Materiel Development Decision. Procure prototypes that integrate emerging technologies and conduct an evaluation and demonstration of these integrated SWS technologies in a realistic environment. Initial focus on Mission Command variants.  FY 2018 to FY 2019 Increase/Decrease Statement: Increase in funding due to ASF-SWS program start in FY19 and requirement to support an extensive series of evaluations on multiple ASF-SWS variants.		-	-	0.891	-	0.891
Title: Army Standard Family of Rigid Wall Shelters (ASF-RWS)  Description: The ASF-RWS program will conduct formal development to incorporate the latest technologies into a fully supportable and modernized family. The intent is to eliminate the proliferation of non-standard shelters and their associated logistics burden, thereby reducing the lifecycle cost of RWS across the Services. The program will produce approved Technical Data Packages (TDPs) to support procurements by materiel developers and Program Managers (PMs) requiring RWS. ASF-RWS procurements are customer funded by PMs as a cost under their program(s). The ASF-RWS will consist of three variants: (1) Expandable/Non-Expandable; (2) Vehicle Mounted; and (3) Panelized/Collapsible with a focus on the following features and improvements: reduced cost, reduced weight, improved energy efficiency, improved corrosion resistance, and improved transportability.  FY 2018 Plans:		0.450	1.584	0.815	-	0.815

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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 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>		<b>Project (Number/Name)</b> VR8 / <i>Combat Service Support Systems - Ad</i>							
<b>B. Accomplishments/Planned Programs (\$ 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>					
Evaluate integrated technologies transitioning from RDECOM and Industry. Complete performance specification, solicitation, and release solicitation for ASF-RWS Family of Expandable/Non-Expandable ISO RWS Variants development contract. Conduct Milestone B and transition variant to EMD.											
<b>FY 2019 Base Plans:</b> Evaluate integrated technologies from industry and RDECOM to prove out subsystem maturity prior to transition into EMD for the Vehicle Mounted ASF-RWS variants. Complete market investigation, prepare and release solicitation to support development contract for the Vehicle Mounted ASF-RWS variants.											
<b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Effort supports advance component development of multiple variants of the ASF(RWS). Funding decrease due to the transition of the Expandable/ Non-Expandable RWS variant into EMD at the end of FY18. FY19 effort reduced with focus on the Vehicle Mounted variants only.											
<b>Accomplishments/Planned Programs Subtotals</b>		4.004	5.062	3.222	-	3.222					
<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>
• VR7: <i>Combat Service Support Systems</i>	4.159	3.743	4.533	-	4.533	6.132	4.819	5.271	3.064	0.000	31.721
<b>Remarks</b>											
<b>D. Acquisition Strategy</b> Evaluate Integrated Technologies in a realistic operational environment and transition promising efforts into Engineering and Manufacturing Development (EMD). Accelerate efficiency, standardization, and safety initiatives to incorporate in deployed systems, develop new Technical Data Packages (TDP), and/or incorporate during reset of equipment.											
<b>E. Performance Metrics</b> N/A											

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2019 Army</b>												<b>Date:</b> February 2018			
<b>Appropriation/Budget Activity</b> 2040 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603804A / Logistics and Engineer Equipment Adv Dev						<b>Project (Number/Name)</b> VR8 / Combat Service Support Systems - Ad			
<b>Management Services (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Project Management Support	Various	PM FSS : Natick, MA	1.235	0.612	Oct 2016	0.457		0.365	Nov 2018	-		0.365	Continuing	Continuing	-
SBIR+STTR	TBD	various : Various	0.062	-		-		-		-		-	0.000	0.062	-
<b>Subtotal</b>			1.297	0.612		0.457		0.365		-		0.365	Continuing	Continuing	N/A
<b>Product Development (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Soldier Support Equipment	Various	Various : Various	5.571	2.486	Jan 2017	3.750		-		-		-	Continuing	Continuing	-
Energy Efficiency Enabling Solutions	Various	Various : Various	-	0.191		-		0.681	Jan 2019	-		0.681	0.000	0.872	-
Army Standard Family of Soft Wall Shelters (ASF-SWS)	Various	Various : Various	-	-		-		0.746	Mar 2019	-		0.746	0.000	0.746	-
Army Standard Family of Rigid Wall Shelters (ASF-RWS)	Various	Various : Various	-	-		-		0.295	Dec 2018	-		0.295	0.000	0.295	-
<b>Subtotal</b>			5.571	2.677		3.750		1.722		-		1.722	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Soldier Support Equipment	Various	Various : Various	4.795	-		0.855		-		-		-	Continuing	Continuing	-
Energy Efficiency Enabling Solutions	Various	Various : Various	-	0.715		-		0.585	Feb 2019	-		0.585	0.000	1.300	-
Army Standard Family of Soft Wall Shelters (ASF-SWS)	Various	Various : Various	-	-		-		0.100	Mar 2019	-		0.100	0.000	0.100	-

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2019 Army</b>												<b>Date:</b> February 2018			
<b>Appropriation/Budget Activity</b> 2040 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603804A / Logistics and Engineer Equipment Adv Dev				<b>Project (Number/Name)</b> VR8 / Combat Service Support Systems - Ad					

  

<b>Test and Evaluation (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Army Standard Family of Rigid Wall Shelters (ASF-RWS)	Various	Various : Various	-	-		-		0.450	Nov 2018	-		0.450	0.000	0.450	-
<b>Subtotal</b>			4.795	0.715		0.855		1.135		-		1.135	Continuing	Continuing	N/A

  

	<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>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	11.663	4.004	5.062	3.222	-	3.222	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		
<b>Appropriation/Budget Activity</b> 2040 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>		<b>Project (Number/Name)</b> VR8 / <i>Combat Service Support Systems - Ad</i>	

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
Conduct evaluation on resource & energy efficiency enabling solu																												
Conduct evaluation and demonstration of Black Waste Elimination																												
Evaluate Solid waste Disposal Technologies for small base camp																												
Conduct demonstration of ULCANS technology enhancements																												
Conduct technology assessment on Waste to Energy capabilities																												
Evaluate integrated ASF-RWS technologies for all variants																												
Prepare for and conduct ASF-RWS Materiel Development Decision (MDD)																												
Prepare for Milestone B and transition ASF-RWS (Exp/Non-Exp) to EMD																												
Prepare for Milestone B and transition ASF-RWS (Veh Mtd) to EMD																												
Prepare for Milestone B and transition ASF-RWS (Coll/Panel) to EMD																												
Evaluate integrated ASF-SWS technologies for all variants																												
Prepare for and conduct ASF-SWS MDD																												
Prepare for Milestone B and transition ASF-SWS (Mission Cmd) to EMD																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army																Date: February 2018												
Appropriation/Budget Activity 2040 / 4										R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment Adv Dev								Project (Number/Name) VR8 / Combat Service Support Systems - Ad										
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
Prepare for Milestone B and transition ASF-SWS (General Purpose) to EMD																												
Evaluate integrated advanced Mortuary Affairs technologies																												
Prepare for and conduct advanced Mortuary Affairs MDD																												
Prepare for Milestone B and transition advanced Mortuary Affairs to EMD																												

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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603804A / <i>Logistics and Engineer Equipment Adv Dev</i>	<b>Project (Number/Name)</b> VR8 / <i>Combat Service Support Systems - Ad</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Conduct evaluation on resource & energy efficiency enabling solutions	1	2016	4	2023
Conduct evaluation and demonstration of Black Waste Elimination technologies	1	2016	4	2018
Evaluate Solid waste Disposal Technologies for small base camps	1	2017	4	2017
Conduct demonstration of ULCANS technology enhancements	1	2016	4	2017
Conduct technology assessment on Waste to Energy capabilities	1	2016	4	2018
Evaluate integrated ASF-RWS technologies for all variants	1	2016	4	2020
Prepare for and conduct ASF-RWS Materiel Development Decision (MDD)	3	2017	1	2018
Prepare for Milestone B and transition ASF-RWS (Exp/Non-Exp) to EMD	1	2018	2	2018
Prepare for Milestone B and transition ASF-RWS (Veh Mtd) to EMD	3	2019	4	2019
Prepare for Milestone B and transition ASF-RWS (Coll/Panel) to EMD	3	2020	1	2021
Evaluate integrated ASF-SWS technologies for all variants	3	2019	4	2021
Prepare for and conduct ASF-SWS MDD	1	2019	3	2019
Prepare for Milestone B and transition ASF-SWS (Mission Cmd) to EMD	3	2019	2	2020
Prepare for Milestone B and transition ASF-SWS (General Purpose) to EMD	3	2021	2	2022
Evaluate integrated advanced Mortuary Affairs technologies	3	2022	4	2023
Prepare for and conduct advanced Mortuary Affairs MDD	3	2022	1	2023
Prepare for Milestone B and transition advanced Mortuary Affairs to EMD	3	2023	4	2023