

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / 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>
---	---

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	18.845	7.339	4.761	-	4.761	7.723	2.416	2.417	2.411	Continuing	Continuing
<i>526: Marine Orien Log Eq Ad</i>	-	3.766	4.001	0.840	-	0.840	2.728	2.416	2.417	2.411	Continuing	Continuing
<i>EW8: Armored Engineer Vehicles</i>	-	3.506	0.000	3.921	-	3.921	4.995	0.000	0.000	0.000	0.000	12.422
<i>G11: Adv Elec Energy Con Ad</i>	-	6.224	3.338	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.562
<i>K39: Field Sustainment Support Ad</i>	-	2.234	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.234
<i>VR8: Combat Service Support Systems - Ad</i>	-	3.115	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.115

**Note**

Project EW8 - Armored Engineer Vehicles: FY 2021 funding in the amount of \$3.921 million supports a new start effort to develop a robotic capability.

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

This Program Element (PE) 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, armored engineer vehicles, 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, bulk fuel, water generation, regulatory compliance and reliability of existing systems.

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2021 Army	<b>Date:</b> February 2020
---	----------------------------

<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / 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>
---	---

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	17.230	7.339	6.124	-	6.124
Current President's Budget	18.845	7.339	4.761	-	4.761
Total Adjustments	1.615	0.000	-1.363	-	-1.363
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.615	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-1.363	-	-1.363

**Change Summary Explanation**

FY 2021 funding request realized a net reduction of \$1.363 Million due to the following:

Project EW8 was increased \$3.921 Million for a new start to develop robotic capability for Armored Engineer Vehicles.

Project 526 was decreased \$2.083 Million due to low disbursement rate in FY 2019.

Project G11 was decreased by \$3.201 Million to support the Army's modernization priorities in support of the National Defense Strategy.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Army **Date:** February 2020

<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>
--	---	---

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
526: <i>Marine Orien Log Eq Ad</i>	-	3.766	4.001	0.840	-	0.840	2.728	2.416	2.417	2.411	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**  
FY 2021 Program funding reduced \$1,363K was due to underexecution in FY 2019. This was a result of contract award delays, contractor delay, billings, etc.

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

Project 526 Marine Orientation Logistics and Engineering Advanced Development supports Dynamic Force Repositioning (DFR) and provides the Combatant and Multi-Domain Task Force Commander with organic waterborne lift capability that can deliver today's Army maneuver platforms and equipment, and supply bulk fuel and water across the full spectrum of operations with increased speed and lower draft; and mitigates anti-access/area denial (A2/AD) threat by providing access to shallow coastal waters, rivers, in narrow inland waterways in support of dispersed force elements in austere environments and where mature ports or road networks are unavailable. The MSVs are critical modernization efforts in support of the Army's Watercraft Transformation Strategy (AWTS) and Army Force Package 2.0.

In general, this project supports efforts and studies for advanced component development, including prototypes of equipment and sub-systems to enhance the seaworthiness, safety, and survivability while increasing the lethality, tactical mobility, and operational capability of the Army Mariner to preserve the Combatant Commanders requirement of "freedom of seas" access in all areas of the world particularly the littorals, to support maneuver operations in all Areas of Responsibility.

In addition, funded efforts will address critical gaps in these areas for the legacy 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 to inform the requirement development process, and support Analysis of Alternatives (AoA). The funding enables Army's 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.

FY 2021 RDTE dollars in the amount of \$0.841 million supports modernization of the legacy fleet by investigating technology insertions, including, but not limited to: force protection, condition based maintenance, vessel electronics, autonomous operations and other emerging technologies. Funding also supports developing initial prototypes to enable refinement of Operational Requirements and early user feedback to support future sustainment and operational movement operating concepts.

In FY 2021, \$0.178 million in Reimbursable Manpower for this line has been realigned from Reimbursable Civilian Funding to Direct Operations and Maintenance. Program support costs have been accurately updated to reflect the realignments.

<b><u>B. Accomplishments/Planned Programs (\$ in Millions)</u></b>	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<b>Title:</b> At Sea Transfer Technology	3.124	1.004	-	-	-



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<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 Oriented Log Eq Ad</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<p>Remotely Weapon Station (CROWS) and non-lethal Escalation of Force (EoF). The EoF capability includes white light, green dazzler, an acoustic hailing device, percussion grenades, and Forward Looking Infra-Red (FLIR) cameras.</p> <p><b>FY 2020 Plans:</b> Will design, install, and test CROWS aboard LCU and LSV 7 class vessels.</p> <p><b>FY 2021 Base Plans:</b> Provide support to design, install, and test CROWS aboard LCU watercraft fleet. The EoF capabilities could include, but are not limited to, white light, green dazzler, an acoustic hailing device, percussion grenades, and Electro-Optical / Infrared (EO/IR) capabilities.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Additional funding is to design and install the prototype and proof for CROWS aboard the LCU 2000 fleet.</p>					
<p><b>Title:</b> Army Watercraft Program Support</p> <p><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.</p> <p><b>FY 2020 Plans:</b> Will provide MWT Engineering test support as well as engineering and Naval support for the Fleet.</p> <p><b>FY 2021 Base Plans:</b> Provide MWT Engineering test support as well as engineering and Naval support for the Fleet.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Increase due to additional ongoing test support requirements from FY 2019 to FY 2021.</p>	0.642	0.278	0.300	-	0.300
<p><b>Title:</b> Trade Studies and Business Analyses</p> <p><b>Description:</b> Conduct Affordability and Feasibility Studies for concept development concept development for future vessel platforms.</p> <p><b>FY 2020 Plans:</b> Support the following Feasibility Studies for future vessel platforms: Initiation of human factor engineer analysis and initiation of electrical power studies to support Command, Control, Communications, Computers,</p>	-	1.008	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<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 Oriented Log Eq Ad</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Intelligence, Surveillance and Reconnaissance (C4ISR) upgrades and joint operation capabilities for legacy vessels. <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Decrease in budget affects the ability to properly fund the trade studies and analysis of future vessel platforms.					
<b>Title:</b> Electro-Optical / Infrared (EO/IR) Integration Kits <b>Description:</b> Requirement is on hold for FY 2020 -FY 2021. Funding will be moved to MWT - At Sea Transfer requirement.  Integration of EO/IR maritime infrared imaging system for maritime use on LSV and LCU vessels. The EO/IR capability greatly increases the ability for the vessel crews to identify and track smugglers, terrorists, or any other threat day and night that they encounter.  <b>FY 2020 Plans:</b> N/A Base RDTE funds. <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Development of A-kit integration designs on the LSV and LCU in FY 2020. No further design requirements in FY 2021.	-	1.063	-	-	-
<b>Title:</b> FY 2020 SBIR/STTR Transfer <b>Description:</b> Funding transferred in accordance with Title 15 USC 638  <b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC 638 <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC 638	-	0.132	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	3.766	4.001	0.840	-	0.840

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• MA4501: MODIFICATION KITS	15.693	48.821	19.386	-	19.386	19.819	21.331	7.385	10.849	Continuing	Continuing

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<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 Oriented Log Eq Ad</i>

**C. Other Program Funding Summary (\$ in Millions)**

Line Item	FY 2019	FY 2020	FY 2021	FY 2021	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Cost To	Total Cost
			Base	OCO	Total					Complete	
• MA4502: <i>INSTALLATION OF MODIFICATIONS</i>	12.306	18.438	5.251	-	5.251	4.506	4.718	4.584	4.633	Continuing	Continuing
• M11101: <i>Army Watercraft Esp</i>	8.508	35.194	40.910	-	40.910	36.608	33.922	30.510	30.511	0.000	216.163
• ML5355: <i>Items Less Than \$5.0M (Float/Rail)</i>	9.385	6.920	1.844	-	1.844	-	9.933	22.697	17.702	0.000	68.481

**Remarks**

FY 2019 Accomplishments:

- Completed CDR for MWT/CF SLEP.
- Continue Escalation of Force (EOF) development on LSV 7 Class CROWS.
- Approved ECP MWO for EOF (development) LSV 1 Class CROWS.
- Completed identification of Environmental Compliance Technologies IAW evolving statutory and regulatory requirements.

**D. Acquisition Strategy**

Leverage government and public research centers Ground Vehicle Systems Center (GVSC), Naval Surface Warfare Center (NSWC) Philadelphia, AWS System Technical Support (STS) contractor (McKean Defense) 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.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 4				PE 0603804A / Logistics and Engineer Equipment - Adv Dev				526 / Marine Oriented Log Eq Ad								
<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.132		-		-		-	0.000	0.132	-	
<b>Subtotal</b>			-	-		0.132		-		-		-	0.000	0.132	N/A	
<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	3.268	-		0.478	Feb 2020	0.445	Nov 2020	-		0.445	Continuing	Continuing	-	
At Sea Transfer Systems (Modular Warping Tug / Causeway Ferry)	SS/CPFF	TARDEC DTIC - I, Battelle : Fort Belvoir, VA	4.374	3.124	Feb 2019	1.004	Nov 2019	-		-		-	0.000	8.502	-	
Environmental Compliance Uniform National Discharge Standards (UNDS)	MIPR	Carderock : Maryland and Pennsylvania	3.281	-		0.038	Dec 2019	0.095	Nov 2020	-		0.095	Continuing	Continuing	-	
Trade Study Analyses	TBD	TBD : TBD	-	-		1.008	Feb 2020	-		-		-	0.000	1.008	-	
EO/IR Integration	MIPR	TARDEC : Warren, MI	-	-		1.063	Oct 2019	-		-		-	0.000	1.063	-	
<b>Subtotal</b>			10.923	3.124		3.591		0.540		-		0.540	Continuing	Continuing	N/A	
<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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, NAVSEA Carderock :	1.427	0.642	Dec 2018	0.278	Dec 2019	0.300	Dec 2020	-		0.300	Continuing	Continuing	-	

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2021 Army</b>												<b>Date: February 2020</b>			
<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>Support (\$ in Millions)</b>				<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 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>
		Maryland, Warren, MI													
<b>Subtotal</b>			1.427	0.642		0.278		0.300		-		0.300	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			12.350	3.766		4.001		0.840		-		0.840	Continuing	Continuing	N/A
<b>Remarks</b>															

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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	[Redacted]																											
Force Protection: Common Remotely Operated Weapon Station	[Redacted]																											
Force Protection: CROWS on LSV Class	[Redacted]																											
Force Protection: CROWS on LCU Class	[Redacted]																											
At Sea Transfer Technology (MCS)	[Redacted]																											
Modular Warping Tug (MWT) / Causeway Ferry (CF)	[Redacted]																											
MWT / CF - SLEP Prototype and Proof Concept	[Redacted]																											
MWT / CF - SLEP Testing	[Redacted]																											
Environmental Compliance	[Redacted]																											
Uniformed National Discharge Standards (UNDS)	[Redacted]																											
UNDS Batch 2	[Redacted]																											
UNDS Batch 3	[Redacted]																											
Trade Studies and Business Analyses	[Redacted]																											

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2021 Army</b>		<b>Date:</b> February 2020
<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 Oriented Log Eq Ad</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Army Watercraft Program Support	1	2018	4	2025
Force Protection: Common Remotely Operated Weapon Station (CROWS)	1	2018	4	2025
Force Protection: CROWS on LSV Class	1	2018	2	2022
Force Protection: CROWS on LCU Class	1	2018	4	2023
At Sea Transfer Technology (MCS)	1	2018	1	2021
Modular Warping Tug (MWT) / Causeway Ferry (CF)	1	2018	1	2021
MWT / CF - SLEP Development Contract	4	2018	4	2018
MWT / CF - SLEP Prototype and Proof Concept	1	2018	4	2020
MWT / CF - SLEP Testing	1	2020	4	2020
Environmental Compliance	1	2018	4	2025
Uniformed National Discharge Standards (UNDS)	1	2018	4	2025
UNDS Batch 2	4	2020	4	2020
UNDS Batch 3	4	2022	4	2022
Trade Studies and Business Analyses	4	2019	4	2025

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<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>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
EW8: <i>Armored Engineer Vehicles</i>	-	3.506	0.000	3.921	-	3.921	4.995	0.000	0.000	0.000	0.000	12.422
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This is a new start in FY2021.

FY 2021 funding in the amount of \$3.921 million supports a new start effort to develop a robotic capability for Armored Engineer Vehicles.

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

This project supports a new start effort for the prototype development, test and evaluation of a robotic capability Remote Control System (RCS) for the Assault Breacher Vehicle (ABV), to include prototype fabrication, developmental testing, operational testing and logistics demonstration / user test events. This project also supports live fire test and evaluation, initial operational test and evaluation and production qualification testing of the Joint Assault Bridge (JAB).

Funding supports modernization of Army Bridging and Armored Engineer Vehicle fleets by investigating technology insertions including, but not limited to: condition based maintenance, increased military load capacities, autonomous operations and other emerging technologies. Funding also supports developing initial prototypes and testing to enable refinement of Operational Requirements and early user feedback to support future sustainment and operational movement operating concepts.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Assault Breacher Vehicle (ABV) Remote Control System (RCS)	-	-	3.921	-	3.921
<b>FY 2021 Base Plans:</b> New start effort. Funding supports prototype development and fabrication of a Remote Control System (RCS) capability for the Assault Breacher Vehicle (ABV). Funding also provides for Systems Engineering Project Management (SEPM) matrix functional support.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY 2020 to FY 2021 increase due to first year of RDT&E funding for ABV RCS program. New start effort.					
<b>Title:</b> Joint Assault Bridge (JAB)	2.221	-	-	-	-
<b>Description:</b> This effort funds the development and testing of the Joint Assault Bridge (JAB). The JAB provides the Army Mobility Augmentation Companies (MACs) and Armor Brigade Combat Teams (ABCTs) Brigade					

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<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>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
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 and provide freedom of maneuver on the battlefield and keep pace with Abrams ABCT operations.					
<b>Title:</b> Armored Mobile Earthmover (AME) <b>Description:</b> This effort funds the development and testing of the Armored Mobile Earthmover (AME). AME will replace the M9 Armored Combat Earthmover and will be primarily a mobility asset, enabling maneuver units during attacks and movements to contact. The AME 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.	1.285	-	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	3.506	-	3.921	-	3.921

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• GZ3001: <i>Joint Assault Bridge</i>	119.147	205.517	142.178	-	142.178	143.054	220.376	245.365	196.252	Continuing	Continuing
• G82925: <i>Assault Breacher Vehicle</i>	62.107	31.697	19.500	-	19.500	26.171	26.041	1.171	-	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**  
Funding will support RDT&E efforts for testing and follow-on production of Assault Bridging system. The Assault Breacher Vehicle (ABV) Remote Control System (RCS) program will pursue a competitive prototype development and testing strategy with multiple vendors to select an RCS materiel solution for production and integration into the ABV system.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 4				PE 0603804A / Logistics and Engineer Equipment - Adv Dev				EW8 / Armored Engineer Vehicles							
<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Matrix Functional Support	MIPR	Various : Various	0.779	0.150	Oct 2018	-		0.500	Dec 2020	-		0.500	0.000	1.429	-
<b>Subtotal</b>			0.779	0.150		-		0.500		-		0.500	0.000	1.429	N/A
<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
AME Analysis of Alternatives (AOA)	C/FFP	TBD : TBD	-	1.285	Jan 2019	-		-		-		-	0.000	1.285	-
JAB Force Protection Development and Fabrication	SS/FFP	DRS SUSTAINMENT SYSTEMS, INC. : SAINT LOUIS, MO	2.084	-		-		-		-		-	0.000	2.084	-
ABV RCS Prototype Development and Fabrication	TBD	TBD : TBD	-	-		-		3.421	May 2021	-		3.421	0.000	3.421	-
<b>Subtotal</b>			2.084	1.285		-		3.421		-		3.421	0.000	6.790	N/A
<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
JAB Initial Operational Test & Evaluation (IOTE)	MIPR	Operational Test Command : Ft. Hood, TX	3.143	2.071	Feb 2020	-		-		-		-	0.000	5.214	-
JAB Production Qualification Testing (PQT)	MIPR	Aberdeen Test Center : Aberdeen Proving Grounds, MD	3.936	-		-		-		-		-	0.000	3.936	-
JAB Prototype Live Fire Validation	MIPR	Aberdeen Test Center : Aberdeen	1.500	-		-		-		-		-	0.000	1.500	-

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2021 Army</b>												<b>Date:</b> February 2020			
<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>Test and Evaluation (\$ in Millions)</b>				<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 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>
		Proving Grounds, MD													
JAB Logistics Demonstration	TBD	Army Operational Test Command (AOTC) : Ft. Hood, TX	0.270	-		-		-		-		-	0.000	0.270	-
<b>Subtotal</b>			8.849	2.071		-		-		-		-	0.000	10.920	N/A
			<b>Prior Years</b>	<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			11.712	3.506		0.000		3.921		-		3.921	0.000	19.139	N/A
<b>Remarks</b>															

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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>																												
Joint Assault Bridge Live Fire Remediation Testing																												
Joint Assault Bridge Production Qualification Test																												
Joint Assault Bridge Logistics Demonstration																												
Joint Assault Bridge Initial Operational Test & Eval																												
Joint Assault Bridge Confidence Berm Test																												
Joint Assault Bridge Initial Operational Test & Eval Retest																												
Joint Assault Bridge Conditional Material Release																												
Joint Assault Bridge Full Material Release																												
Joint Assault Bridge Low Rate Initial Production																												
Joint Assault Bridge Full Rate Production Decision																												
Joint Assault Bridge Full Rate Production																												
<b>Armored Mobile Earthmover (AME)</b>																												

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
AME Analysis of Alternatives (AOA)	[Redacted] AME AOA																											
<b>Assault Breacher Vehicle (ABV) Remote Control System (RCS)</b>																												
Request for Prototype Proposals									▲ 2 RFP																			
Prototype Design									[Redacted] RCS Design																			
Prototype Awards									▲ 4 Awd																			
Prototype Fabrication									[Redacted] Fab																			
Prototype Competitive Testing													[Redacted] Test															
Production Source Selection																	[Redacted] Downselect Decision											
Contract Award																	▲ 6 Awd											
Developmental Test / Operational Test																	[Redacted] DT/OT/LFT&E											

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<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

Events	Start		End	
	Quarter	Year	Quarter	Year
Joint Assault Bridge Development & Testing	1	2016	1	2019
Joint Assault Bridge Live Fire Remediation Testing	1	2019	2	2019
Joint Assault Bridge Production Qualification Test	2	2018	1	2019
Joint Assault Bridge Logistics Demonstration	4	2018	1	2019
Joint Assault Bridge Initial Operational Test & Eval	2	2019	3	2019
Joint Assault Bridge Confidence Berm Test	1	2020	1	2020
Joint Assault Bridge Initial Operational Test & Eval Retest	3	2020	4	2020
Joint Assault Bridge Conditional Material Release	4	2020	4	2020
Joint Assault Bridge Full Material Release	1	2022	1	2022
Joint Assault Bridge Low Rate Initial Production	3	2016	2	2021
Joint Assault Bridge Full Rate Production Decision	2	2021	2	2021
Joint Assault Bridge Full Rate Production	2	2021	4	2026
Armored Mobile Earthmover (AME)	1	2018	4	2026
AME Analysis of Alternatives (AOA)	2	2019	4	2019
Assault Breacher Vehicle (ABV) Remote Control System (RCS)	1	2021	2	2026
Request for Prototype Proposals	1	2021	1	2021
Prototype Design	1	2021	3	2021
Prototype Awards	3	2021	3	2021
Prototype Fabrication	3	2021	1	2022
Prototype Competitive Testing	1	2022	4	2022
Production Source Selection	1	2023	1	2023
Contract Award	2	2023	2	2023

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<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>

Events	Start		End	
	Quarter	Year	Quarter	Year
Developmental Test / Operational Test	3	2023	4	2024

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<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>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
G11: <i>Adv Elec Energy Con Ad</i>	-	6.224	3.338	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.562
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

This Project supports the Army Network Modernization Strategy Line of Effort #4, Command Post (CP). The technologies in this portfolio are specifically designed to target CP challenges to enable power resilience across the operational spectrum and to resolve issues with setup and tear-down times and with the CP mobility and footprint. Additionally, this project supports enablers of the Integrated Visual Augmentation System (IVAS) which is a priority technology for the Network and Soldier Lethality CFT's.

As the DoD's Lead Standardization Activity for Tactical Electric Power (TEP), Project Manager Expeditionary Energy & Sustainment Systems (PM E2S2) matures and integrates technology that will improve the next generation of standard tactical power sources in support of all Services. It supports technical maturation of TEP systems that will extend Army operational mission reach and duration in support of the Army Operating Concept and Multi-Domain Battle.

Funding supports modernization of the current Tactical Electric Power capability with technology insertions including, but not limited to hybrid capabilities, light-weight power solutions, vehicle/tactical microgrid interoperability and Tactical Microgrid Standards (TMS). Funding also supports developing initial prototypes to enable refinement of Operational Requirements and early user feedback to support future sustainment an operational energy concepts.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Contract Activity	-	0.582	-	-	-
<b>Description:</b> Continue maturation and integration of technology supporting the STEP, CPI2 and PDISE programs.					
<b>FY 2020 Plans:</b> Build infrastructure prototypes to enable optimized use of existing microgrid technologies. Build prototypes to integrate command post vehicle power with Tactical Electric Power systems. Build prototypes to validate feasibility of integrating energy storage with existing TEP systems to address areas of efficiency, reliability, and footprint. Perform front end analysis to assess viability of forward-deployed, mobile nuclear power plants.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> In FY 2021 there is no RDT&E funding planned for project G11 with a subsequent transition to production.					
<b>Title:</b> Government System Test and Evaluation	0.200	1.010	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<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 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<p><b>Description:</b> Supports in house and external performance tests of concept hardware. In addition, supports evaluation of systems at Network Integration Evaluation (NIE) and evaluation of systems at larger events such as Army Expeditionary Warrior Experiment (AEWE) and Joint Warfighting Assessment (JWA).</p> <p><b>FY 2020 Plans:</b> Test and evaluate government developed hybrid architectures that will inform the STEP program. Validate performance of developed prototypes to identify and reduce risks of select technology elements of the STEP program.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> In FY 2021 there is no RDT&amp;E funding planned for project G11 with a subsequent transition to production.</p>					
<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, PDISE, and CPI2, as well as analysis and data management.</p> <p><b>FY 2020 Plans:</b> Support partnering efforts of power stakeholders including other services and other Army program offices. Provide support to Army demonstrations and exercises to evaluate power technologies under development and to gather Soldier feedback. System technologies will include hybrid and storage integrated in tactical electric power systems and determining definition of interfaces and test methodologies for implementation of TMS.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> In FY 2021 there is no RDT&amp;E funding planned for project G11 with a subsequent transition to production.</p>	4.389	1.372	-	-	-
<p><b>Title:</b> Government Program Management</p> <p><b>Description:</b> Continue development of technology supporting the STEP program, PDISE and CPI2.</p> <p><b>FY 2020 Plans:</b> Continue oversight and management of various technology projects related to Tactical Electric Power and power distribution/management across the DoD power spectrum. Specific efforts will include support of CPI2, missile defense systems, and other Army power consumers. Additional efforts include communicating power-related capability gaps and associated solutions across DoD and to OSD energy offices.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b></p>	1.635	0.222	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<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 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
In FY 2021 there is no RDT&E funding planned for project G11 with a subsequent transition to production.					
<b>Title:</b> FY 2020 SBIR/STTR Transfer	-	0.152	-	-	-
<b>Description:</b> Funding transferred in accordance with Title 15 USC 638					
<b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC 638					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC 638					
<b>Accomplishments/Planned Programs Subtotals</b>	6.224	3.338	-	-	-

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 194: <i>Engine Driven Gen Ed</i>	1.743	8.395	10.655	-	10.655	12.852	13.150	6.804	7.115	0.000	60.714
• MA9800: <i>Generators And Associated Equip</i>	136.906	115.912	53.433	0.106	53.539	61.474	61.630	65.220	54.980	0.000	549.661

**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 United States Army Combat Capabilities Development Command (CCDC) efforts.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<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>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Platoon Power Generation	MIPR	PM E2S2 : Ft. Belvoir, VA	0.100	-		-		-		-		-	Continuing	Continuing	Continuing
Small Tactical Electric Power (STEP) Components	MIPR	PM E2S2 : Fort Belvoir, VA	0.815	0.175		0.040		-		-		-	Continuing	Continuing	Continuing
Hybrid Power Sources Components	MIPR	PM E2S2 : Ft. Belvoir, VA	0.692	0.250		0.077		-		-		-	Continuing	Continuing	Continuing
Power Management and Distribution Systems	MIPR	PM E2S2 : Ft. Belvoir, VA	1.633	0.250		0.101		-		-		-	Continuing	Continuing	Continuing
Operational Energy	MIPR	PM E2S2 : Fort Belvoir, VA	1.660	0.150		-		-		-		-	Continuing	Continuing	Continuing
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.152		-		-		-	0.000	0.152	-
<b>Subtotal</b>			4.900	0.825		0.370		-		-		-	Continuing	Continuing	N/A

<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Platoon Power Generation	MIPR	CERDEC : Fort Belvoir, VA	0.750	-		-		-		-		-	Continuing	Continuing	Continuing
Small Tactical Electric Power (STEP) Components	Various	CERDEC : Fort Belvoir, VA	4.031	0.300		0.090		-		-		-	Continuing	Continuing	Continuing
Hybrid Power Sources Components	Various	Multiple Vendors : TBD	2.675	0.200		0.170		-		-		-	Continuing	Continuing	Continuing
Power Management and Distribution Systems	Various	CERDEC : Fort Belvoir, VA	5.347	0.589		0.320		-		-		-	Continuing	Continuing	Continuing
Operational Energy	TBD	TBD : TBD (FY15)	2.909	0.249		-		-		-		-	Continuing	Continuing	Continuing
Metering and Monitoring Demo	Various	TBD : TBD	0.455	-		-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			16.167	1.338		0.580		-		-		-	Continuing	Continuing	N/A

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<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>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Small Tactical Electric Power (STEP) Components	MIPR	CERDEC : Fort Belvoir, VA	1.874	0.385		0.236		-		-		-	Continuing	Continuing	Continuing
Hybrid Power Sources Components	MIPR	CERDEC : Fort Belvoir, VA	1.819	-		0.436		-		-		-	Continuing	Continuing	Continuing
Power Management and Distribution Control Systems	MIPR	CERDEC : Fort Belvoir, VA	1.860	0.376		0.696		-		-		-	Continuing	Continuing	Continuing
Platoon Power Generation	MIPR	CERDEC : Fort Belvoir, VA	0.101	-		-		-		-		-	Continuing	Continuing	Continuing
Modular Power	MIPR	Idaho National Labs; Air Force Civil Engineer Center : xxxx	-	3.000		-		-		-		-	Continuing	Continuing	Continuing
Operational Energy	MIPR	Dept of Energy Sandia National Labs : Washington DC	1.757	0.100		-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			7.411	3.861		1.368		-		-		-	Continuing	Continuing	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	1.330	0.200		0.439		-		-		-	Continuing	Continuing	Continuing
Hybrid Power Sources Components	MIPR	CERDEC : Fort Belvoir, VA	0.829	-		0.581		-		-		-	Continuing	Continuing	Continuing
Power Management and Distribution Systems	MIPR	CERDEC : Fort Belvoir, VA	2.011	-		-		-		-		-	Continuing	Continuing	Continuing



**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<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>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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>SMALL TACTICAL ELECTRIC POWER (STEP) PROGRAM</b>																												
Assess Technologies, such as STEP, to Meet Gaps-STEP	█				█																							
Develop prototypes for modular, scalable STEP systems					█																							
<b>AMMPS Hybrid Power Integration</b>																												
AMMPS Hybrid Technology Assessment					█																							
AMMPS Hybrid Prototype Development					█																							
<b>PDISE Expansion</b>																												
TMS interface & test methodology development					█				█																			
<b>ASSESSMENT OF TECHNOLOGIES Across TEP line</b>																												
Assess Technologies (remote start adapter) to Meet Gaps and	█				█																							
<b>OPERATIONAL ENERGY (OE)</b>																												
Evaluation of OE-Related Impacts, Systems and Improvement	█																											

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<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

Events	Start		End	
	Quarter	Year	Quarter	Year
SMALL TACTICAL ELECTRIC POWER (STEP) PROGRAM	1	2016	4	2020
Assess Technologies, such as STEP, to Meet Gaps-STEP	1	2016	2	2020
Develop prototypes for modular, scalable STEP systems	2	2020	4	2020
AMMPS Hybrid Power Integration	1	2020	2	2020
AMMPS Hybrid Technology Assessment	1	2020	2	2020
AMMPS Hybrid Prototype Development	3	2019	4	2020
PDISE Expansion	1	2017	2	2021
TMS interface & test methodology development	1	2019	2	2021
ASSESSMENT OF TECHNOLOGIES Across TEP line	1	2017	4	2020
Assess Technologies (remote start adapter) to Meet Gaps and Improve Efficiencies	1	2017	4	2020
OPERATIONAL ENERGY (OE)	1	2016	4	2019
Evaluation of OE-Related Impacts, Systems and Improvements	1	2016	4	2019

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Army **Date:** February 2020

<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> K39 / Field Sustainment Support Ad
--	--	--

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
K39: Field Sustainment Support Ad	-	2.234	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.234
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Project K39 completes in FY19

**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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<b>Title:</b> Rapid Rigging and DeRigging Airdrop System (RRDAS) Phase I	1.279	-	-	-	-
<b>Description:</b> Effort to reduce 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.					
<b>Title:</b> Advanced Low Velocity Airdrop System (ALVADS) - Light and Heavy/ Dual Row Airdrop System (DRAS) Application	0.955	-	-	-	-
<b>Description:</b> ALVADS provides the ability to drop equipment at 500 feet and can handle the extreme opening shocks associated with heavy equipment drops at low altitudes and the ability to quickly de-rig equipment on the battlefield.					
<b>Accomplishments/Planned Programs Subtotals</b>	2.234	-	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army	<b>Date:</b> February 2020
--	----------------------------

<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>
--	---	---

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	
• MA7806: <i>Precision Airdrop</i>	5.731	2.040	0.000	2.040	2.040	-	-	-	-	0.000	9.811
• L39: <i>Field Sustainment Support Ed</i>	2.674	1.675	1.718	-	1.718	1.771	1.805	1.798	1.798	0.000	13.239

**Remarks**

**D. Acquisition Strategy**

Conduct pre-Engineering and Manufacturing Development (EMD) advanced component development to reduce risk prior to entering EMD phase.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 4				PE 0603804A / Logistics and Engineer Equipment - Adv Dev				K39 / Field Sustainment Support Ad							
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	7.010	0.202		-		-		-		-	0.000	7.212	-
<b>Subtotal</b>			7.010	0.202		-		-		-		-	0.000	7.212	N/A
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	-		-		-		-		-	0.000	1.861	-
ALVADS-L/H DRAS	Various	Various : Various	0.937	-		-		-		-		-	0.000	0.937	-
JPADS Block 1 upgrade	Various	Various : Various	16.434	-		-		-		-		-	0.000	16.434	-
Rapid Rigging/Derigging	Various	Various : Various	0.495	0.250		-		-		-		-	0.000	0.745	-
Advanced Low Velocity Airdrop System-L/H	Various	Various : Various	1.300	0.293		-		-		-		-	0.000	1.593	-
<b>Subtotal</b>			21.027	0.543		-		-		-		-	0.000	21.570	N/A
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	0.110	-		-		-		-		-	0.000	0.110	-
ALVADS-L/H DRAS	Various	Various : Various	0.300	-		-		-		-		-	0.000	0.300	-
Rapid Riggind/DeRigging	Various	Various : Various	0.200	-		-		-		-		-	0.000	0.200	-
<b>Subtotal</b>			0.610	-		-		-		-		-	0.000	0.610	N/A



**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<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>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 prototype design and fabrication																												
Conduct ALVADS/DRAS feasibility study																												
Conduct ALVADS/DRAS prototype flight tests																												
Evalaute Integrated RRDAS technology																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<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

Events	Start		End	
	Quarter	Year	Quarter	Year
Conduct RRDAS prototype design and fabrication	3	2019	4	2019
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
Evalaute Integrated RRDAS technology	1	2019	2	2019

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<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>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
VR8: <i>Combat Service Support Systems - Ad</i>	-	3.115	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.115
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Project VR8 completes in FY 2019

**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 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Resource and Energy Efficiency Enabling Solutions	1.727	-	-	-	-
<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>Title:</b> Army Standard Family of Rigid Wall Shelters (ASF-RWS)	1.388	-	-	-	-
<b>Description:</b> 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					

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<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 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
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.					
<b>Accomplishments/Planned Programs Subtotals</b>	3.115	-	-	-	-

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• VR7: <i>Combat Service Support Systems</i>	4.837	-	0.000	-	0.000	-	-	-	-	0.000	4.837

**Remarks**

**D. Acquisition Strategy**  
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.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 4				PE 0603804A / Logistics and Engineer Equipment - Adv Dev				VR8 / Combat Service Support Systems - Ad							
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	PM FSS : Natick, MA	2.276	0.365	Nov 2018	-		-		-		-	0.000	2.641	-
<b>Subtotal</b>			2.276	0.365		-		-		-		-	0.000	2.641	N/A
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Soldier Support Equipment	Various	Various : Various	10.107	-		-		-		-		-	0.000	10.107	-
Energy Efficiency Enabling Solutions	Various	Various : Various	0.191	0.681	Jan 2019	-		-		-		-	0.000	0.872	-
Army Standard Family of Rigid Wall Shelters (ASF-RWS)	Various	Various : Various	-	1.041	Dec 2018	-		-		-		-	0.000	1.041	-
<b>Subtotal</b>			10.298	1.722		-		-		-		-	0.000	12.020	N/A
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Soldier Support Equipment	Various	Various : Various	5.650	-		-		-		-		-	0.000	5.650	-
Energy Efficiency Enabling Solutions	Various	Various : Various	0.715	0.478	Feb 2019	-		-		-		-	0.000	1.193	-
Army Standard Family of Rigid Wall Shelters (ASF-RWS)	Various	Various : Various	-	0.550	Nov 2018	-		-		-		-	0.000	0.550	-
<b>Subtotal</b>			6.365	1.028		-		-		-		-	0.000	7.393	N/A
<b>Project Cost Totals</b>			18.939	3.115		0.000		-		-		-	0.000	22.054	N/A



**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>			<b>Date:</b> February 2020
<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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 sc	█				█																							
Obtain Milestone B and transition ASF-RWS (Exp/Non-Exp) to E	█																											
Award OTA Element 1 for ASF-RWS	█																											
Conduct ASF-RWS Design Development	█																											

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<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

Events	Start		End	
	Quarter	Year	Quarter	Year
Conduct evaluation on resource & energy efficiency enabling solutions	1	2016	4	2019
Obtain Milestone B and transition ASF-RWS (Exp/Non-Exp) to EMD	1	2019	3	2019
Award OTA Element 1 for ASF-RWS	1	2019	1	2019
Conduct ASF-RWS Design Development	2	2019	4	2019