

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 2040: Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)	<b>R-1 Program Element (Number/Name)</b> PE 0603804A / Logistics and Engineer Equipment - Adv Dev
--	--

COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	10.797	24.638	7.604	-	7.604	12.480	2.787	2.817	2.849	Continuing	Continuing
526: Marine Orien Log Eq Ad	-	2.402	2.475	2.434	-	2.434	2.429	2.787	2.817	2.849	Continuing	Continuing
EW8: Armored Engineer Vehicles	-	4.395	7.163	5.170	-	5.170	10.051	-	-	-	0.000	26.779
G11: Adv Elec Energy Con Ad	-	4.000	15.000	-	-	-	-	-	-	-	0.000	19.000

**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 to include development of a robotic capability Remote Control System for the Assault Breacher Vehicle, 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.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Previous President's Budget	11.055	9.638	7.764	-	7.764
Current President's Budget	10.797	24.638	7.604	-	7.604
Total Adjustments	-0.258	15.000	-0.160	-	-0.160
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	15.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.258	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.160	-	-0.160

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** G11: Adv Elec Energy Con Ad

Congressional Add: *Lightweight Portable Power*

Congressional Add: *Mobile micro-reactor program*

FY 2022	FY 2023
4.000	3.000
-	12.000

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2024 Army	<b>Date:</b> March 2023
---	-------------------------

<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>
---	---

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

	FY 2022	FY 2023
Congressional Add Subtotals for Project: G11	4.000	15.000
Congressional Add Totals for all Projects	4.000	15.000

**Change Summary Explanation**

Decreased funding to support higher Army priorities.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Army **Date:** March 2023

<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> 526 / Marine Orien Log Eq Ad
--	--	--

COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
526: Marine Orien Log Eq Ad	-	2.402	2.475	2.434	-	2.434	2.429	2.787	2.817	2.849	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

Project 526 Marine Orientation Logistics Equipment Advanced Development line supports current Army Watercraft Systems (AWS) that provide the Combatant, Multi-Domain Operations (MDO) and Joint All Domain Operations (JADO) Commanders with an organic waterborne lift capability to enable Dynamic Force Repositioning (DFR) in support of unified land operations. AWS provides the waterborne transportation capability to deliver combat-configured equipment with personnel, vehicles and sustainment cargo (Bulk Water and Fuel), through fixed, degraded and austere ports, inland waterways, remote and unimproved beaches and coastlines for missions across the spectrum of military operations. AWS bridges the gap between strategic sealift and sustains lethality in littoral areas or where mature ports and road networks are unavailable. Watercraft are a key enabler to Army and Joint force in support of Title 10 and DODD missions of providing logistics to joint operations and campaigns, including DODD missions of providing logistics to joint operations and campaigns, including joint logistics over joint logistics over-the-shore and intra-theater transport of time sensitive, mission-critical personnel and equipment, and in support of amphibious and riverine operations (DODD 5100.01).

This Army Watercraft funding supports initiatives 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. All modification and services efforts are critical enablers for the success Army's Watercraft Systems Transformation Strategy (AWSTS) and continued fulfillment of the AWS Title 10 mission.

Funded engineering efforts will address critical gaps in these areas for the current AWS for regaining capability, 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 2024 RDTE dollars in the amount of \$2.434 million supports modernization of the current Army Watercraft fleet by investigating technology insertions, including, but not limited to: force protection, prognostics & preventative 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. All Army Watercraft modernization efforts will incorporate Predictive Logistics which includes digital updates across commercial solutions which will improve readiness, predictive maintenance, unplanned emergency repairs.

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

	FY 2022	FY 2023	FY 2024
<b>Title:</b> Environmental Compliance Projects (UNDs)	0.045	0.055	0.070

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Army		<b>Date:</b> March 2023		
<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 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p><b>Description:</b> Environmental projects enable compliance with requirements as defined under in the law 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.</p> <p><b>FY 2023 Plans:</b> Batch Three, Phase III - Army UNDS Implementation Plan (training documentation)</p> <p><b>FY 2024 Plans:</b> Update UNDS Awareness brief for Batch III Discharges and develop an environmental compliance waterfront training brief.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> The FY 2024 increase is for completion of Batch 111 Discharges and to develop an Environmental compliance waterfront training brief for the Mariners.</p>				
<p><b>Title:</b> Force Protection Capability</p> <p><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 white light, an acoustic hailing device, and Forward Looking Infra-Red (FLIR) cameras.</p> <p><b>FY 2023 Plans:</b> Support to complete testing and final TDP for the 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, sub surface surveillance, and Electro-Optical / Infrared (EO/IR) capabilities.</p> <p><b>FY 2024 Plans:</b> Support EoF capabilities that include, but are not limited to, white light, an acoustic hailing device, sub surface surveillance, and Electro-Optical / Infrared (EO/IR) capabilities.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> The FY 2024 decrease is due to test completion for the CROWS aboard LCU watercraft.</p>		0.898	0.530	0.524
<p><b>Title:</b> Army Watercraft Program Support</p> <p><b>Description:</b> Army Watercraft Program Support includes Program Management and System Engineering matrix salaries and in-house contractor salaries, travel, and other support costs required to effectively manage the AWS projects and provide contractor</p>		0.520	1.100	1.190

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Army		<b>Date:</b> March 2023		
<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 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
oversight. It also includes benefits, personnel training, and other Government costs required to retain a professional acquisition workforce.				
<b>FY 2023 Plans:</b> Provide engineering support for C5ISR Studies and Force Protection design work.				
<b>FY 2024 Plans:</b> Provide engineering support for C5ISR Studies, LSV technical upgrades and Force Protection design work.				
<b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> The FY 2024 increase is due to development of C5ISR and LSV technical upgrades.				
<b>Title:</b> Trade Studies and Business Analysis		0.453	0.050	0.050
<b>Description:</b> Conduct Affordability and Feasibility Studies for concept development for future vessel platforms.				
<b>FY 2023 Plans:</b> Funding will support feasibility studies to improve concept development for current fleet and future fleet.				
<b>FY 2024 Plans:</b> Funding will continue to support concept development improvements for the current and future fleet.				
<b>Title:</b> SBIR/STTR Transfer		-	0.090	-
<b>Description:</b> Funding transferred in accordance with Title 15 USC §638				
<b>FY 2023 Plans:</b> SBBR/STTR decrease \$90K				
<b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> decrease due to SBIR/STR transfer \$90K.				
<b>Title:</b> Predictive Logistics		-	0.050	0.100
<b>Description:</b> As Army Watercraft are equipped with subsystems that allow for sharing of digital information it is a natural evolution to incorporate Predictive Logistics which includes digital updates across commercial solutions which will improve readiness, improve maintainability with predictive maintenance, and timely repair of unplanned emergency repairs.				
<b>FY 2023 Plans:</b>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Army		<b>Date:</b> March 2023		
<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 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>Funding will support development of digital solutions to establish predictive logistics framework that allows for improved maintainability and timely emergency repairs.</p> <p><b>FY 2024 Plans:</b> Funding to ramp up of predictive logistics to improve new digital integrated subsystem upgrades on the vessels.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> The FY 2024 increase is due to the ramp up of a predictive logistics effort that takes advantage of newly integrated digital subsystem upgrades on legacy vessels (i.e. engines and generators) that allow for improved maintainability and supportability.</p>				
<p><b>Title:</b> Test Support</p> <p><b>Description:</b> Supports in house and external performance tests of concept hardware. In addition, supports evaluation of subsystems and components for Army Watercraft Systems Current Fleet.</p> <p><b>FY 2023 Plans:</b> Funding will support test and evaluation of solutions to establish that allows for improved maintainability, readiness, and timely emergency repairs.</p> <p><b>FY 2024 Plans:</b> Funding will continue to support test and evaluation engineering design changes on the fleet to improve maintainability and readiness of the fleet.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> The FY 2024 increase is due to the ramp up of engineering design changes and obsolescence management required to improve current watercraft readiness.</p>		-	0.150	0.500
<p><b>Title:</b> At Sea Transfer Technology</p> <p><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 the Service Life Extension Program (SLEP) for the Modular Warping Tug (MWT) and Causeway Ferru (CF) which are principle working platforms on the Modular Causeway System (MCS)</p> <p><b>FY 2023 Plans:</b> Complete MCS TDP</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b></p>		0.486	0.450	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Army		<b>Date:</b> March 2023
<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 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
MCS TDP is complete.			
<b>Accomplishments/Planned Programs Subtotals</b>	2.402	2.475	2.434

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

Line Item	FY 2022	FY 2023	FY 2024			FY 2025	FY 2026	FY 2027	FY 2028	Cost To	
			Base	OCO	Total					Complete	Total Cost
• MA4501: <i>MODIFICATION KITS</i>	32.634	32.613	20.282	-	20.282	24.327	20.505	36.414	33.089	Continuing	Continuing
• MA4502: <i>INSTALLATION OF MODIFICATIONS</i>	4.240	6.957	5.833	-	5.833	8.352	5.706	5.709	5.714	Continuing	Continuing
• M11101: <i>Army Watercraft Esp</i>	58.009	47.889	30.592	-	30.592	56.597	55.641	70.072	30.395	0.000	349.195

**Remarks**

**D. Acquisition Strategy**

The Product Manager for Army Watercraft intends to leverage government and public research centers Ground Vehicle Systems Center (GVSC), Naval Surface Warfare Center (NSWC) Philadelphia, AWS System Technical Support (STS) contractor (Noblis) and known public research institutes (Battelle) along with associated contract mechanisms to prototype, test, and evaluate component technologies that can improve maintainability and supportability, increase readiness, and reduce costs of Army Watercraft Systems.

A new STS Solicitation is currently being competed through a Source Selection Evaluation Board. The new contract projected for award no later than Aug. 1 2023. The period of performance will go through FY23-FY27.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army** **Date:** March 2023

<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> 526 / Marine Oriented Log Eq Ad
--	--	---

<b>Management Services (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
SBIR/STTR Transfer	TBD	Various : Various	-	-		0.090		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	-		0.090		-		-		-	Continuing	Continuing	N/A

<b>Product Development (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Force Protection, Escalation of Force (EoF) Development (i.e. CROWS)	MIPR	TARDEC : Warren, MI	5.290	0.898	Nov 2021	0.530	Nov 2022	0.524	Nov 2023	-		0.524	Continuing	Continuing	-
Environmental Compliance Uniform National Discharge Standards (UNDS)	MIPR	Carderock : Maryland and Pennsylvania	3.403	0.045	Nov 2021	0.055	Oct 2022	0.070	Oct 2023	-		0.070	Continuing	Continuing	-
Trade Study Analyses	TBD	TBD : TBD	-	0.453	Feb 2022	0.050	Feb 2023	0.050	Feb 2024	-		0.050	0.000	0.553	-
Predictive Logistics	TBD	TBD : TBD	-	-		0.050	Jun 2023	0.100	Dec 2024	-		0.100	0.000	0.150	-
At Sea Transfer Technology	MIPR	Battelle : Battelle	7.498	0.486	May 2022	0.450	May 2023	-		-		-	0.000	8.434	-
<b>Subtotal</b>			16.191	1.882		1.135		0.744		-		0.744	Continuing	Continuing	N/A

<b>Support (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Army Watercraft Program Support	MIPR	Detroit Arsenal PMs, TARDEC, NAVSEA Carderock : Maryland, Warren, MI	2.647	0.520	Dec 2021	1.100	Dec 2022	1.190	Dec 2023	-		1.190	Continuing	Continuing	-
<b>Subtotal</b>			2.647	0.520		1.100		1.190		-		1.190	Continuing	Continuing	N/A

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army** **Date:** March 2023

<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> 526 / Marine Oriented Log Eq Ad
--	--	---

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Test and Evaluation	TBD	TBD : TBD	-	-		0.150	Jun 2023	0.500	Oct 2023	-		0.500	0.000	0.650	-
<b>Subtotal</b>			-	-		0.150		0.500		-		0.500	0.000	0.650	N/A
<b>Project Cost Totals</b>			18.838	2.402		2.475		2.434		-		2.434	Continuing	Continuing	N/A

**Remarks**  
Supply chain shortages and labor force challenges continue to negatively impact programmatic costs and schedules.

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2024 Army</b>		<b>Date:</b> March 2023
<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>

Event Name	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	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: Escalation of Force (EOF)																												
Force Protection: CROWS on LSV Class																												
Force Protection: CROWS on LCU Class																												
Environmental Compliance																												
Uniformed National Discharge Standards (UNDS)																												
UNDS Batch 3				▲ 1																								
Trade Studies and Business Analyses																												
Predictive Logistics																												
At Sea Transfer Technology																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2024 Army</b>		<b>Date: March 2023</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 Oriented Log Eq Ad</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Army Watercraft Program Support	1	2018	4	2028
Force Protection: Escalation of Force (EOF)	1	2018	4	2028
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	2028
Uniformed National Discharge Standards (UNDS)	1	2018	4	2028
UNDS Batch 2	4	2020	4	2020
UNDS Batch 3	4	2022	4	2022
Trade Studies and Business Analyses	4	2019	2	2022
Predictive Logistics	1	2023	4	2028
At Sea Transfer Technology	2	2018	4	2023

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Army										<b>Date:</b> March 2023		
<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 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
EW8: <i>Armored Engineer Vehicles</i>	-	4.395	7.163	5.170	-	5.170	10.051	-	-	-	0.000	26.779
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

This project supports 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.

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.

FY 2024 Base dollars in the amount of \$5.170 million supports Assault Breacher Vehicle Robotic Control System (ABV RCS) prototype testing, a user jury, test asset shipping, and program support.

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

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p><b>Title:</b> Assault Breacher Vehicle (ABV) Remote Control System (RCS)</p> <p><b>FY 2023 Plans:</b> Funding will complete development and fabrication of ABV RCS prototypes and refurbish an additional ABV system. Funds will be used to initiate prototype testing on completed assets, conduct the first User Jury, and ship government furnished equipment to and from the test location.</p> <p><b>FY 2024 Plans:</b> Funds additional prototype testing, conduct of a second User Jury, test asset shipping, and program support.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> The main activities for FY24 are continuance of prototype testing and the User Jury, representing decreased requirements from the refurbishment activities conducted in FY23.</p>	4.395	6.902	5.170
<p><b>Title:</b> SBIR/STTR Transfer</p> <p><b>FY 2023 Plans:</b> SBIT/STTR \$261K</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b></p>	-	0.261	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Army		<b>Date:</b> March 2023
<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 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
Decrease due to SBIR/STTR \$261K			
<b>Accomplishments/Planned Programs Subtotals</b>	4.395	7.163	5.170

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

N/A

**Remarks**

**D. Acquisition Strategy**

The Assault Breacher Vehicle (ABV) Remote Control System (RCS) program is pursuing prototype development and testing strategy with one vendor to provide an RCS materiel solution for production and integration into the ABV system. Anniston Army Depot (ANAD) previously refurbished 2 ABV assets for prototype development and testing and one additional ABV asset will be refurbished in FY23. One ABV was provided to the vendor in support of prototype development and the other ABV will be shipped to the Army Test Center (ATC) at Aberdeen Proving Grounds (APG). Two ABV assets will be stored/maintained for logistics and training use at Fort Leonard Wood (FLW). The prototype will be developed and refined through prototype test and two User Jury events in FY23 and FY24. Successful completion of prototype testing will be used as the entrance criteria into a FAR Based Development/Production Contract. Under this contract, test assets will be developed with developmental test commencing in 1st quarter FY26 and early user test in FY26. Upon successful completion of both test, Low Rate Initial Production (LRIP) delivery order for production assets will be placed in FY27. First unit equipped is projected in FY28. The current AAO is 33 for ABV-RCS kits.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army												Date: March 2023			
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							
Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
ABV RCS Matrix Functional Support	MIPR	Various : Various	0.949	1.560	Nov 2021	0.880	Nov 2022	0.863	Nov 2023	-		0.863	0.000	4.252	-
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.261	Jan 2023	-		-		-	0.000	0.261	-
<b>Subtotal</b>			0.949	1.560		1.141		0.863		-		0.863	0.000	4.513	N/A
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
ABV RCS Prototype Development and Fabrication	C/TBD	TBD : TBD	-	2.835	Apr 2022	0.606	Apr 2023	-		-		-	0.000	3.441	-
ABV RCS Refurbishment of ABV Assets	MIPR	Anniston Army Depot : Anniston AL	5.438	-		3.018	Mar 2023	-		-		-	0.000	8.456	-
ABV RCS Shipping	TBD	TBD : TBD	0.020	-		0.150	Jul 2023	0.300	Jul 2024	-		0.300	0.000	0.470	-
ABV RCS Prototype Depot Support	RO	ANAD : Anniston Army Depot	-	-		0.194	Jul 2023	0.250	Mar 2024	-		0.250	0.000	0.444	-
<b>Subtotal</b>			5.458	2.835		3.968		0.550		-		0.550	0.000	12.811	N/A
Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
ABV RCS Test & Evaluation	MIPR	ATC : Aberdeen, MD	-	-		1.954	Jul 2023	3.657	Nov 2023	-		3.657	0.000	5.611	-
User Jury	TBD	TBD : TBD	-	-		0.100	Apr 2023	0.100	Feb 2024	-		0.100	0.000	0.200	-
<b>Subtotal</b>			-	-		2.054		3.757		-		3.757	0.000	5.811	N/A



**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2024 Army</b>		<b>Date:</b> March 2023
<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 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	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
ABV RCS Request for Prototype Proposals	▲ 1																											
	ABV RCS RPP																											
ABV Overhaul (Qty of 2)																												
ABV RCS Prototype Source Selection																												
ABV RCS Prototype OTA Award																												
ABV RCS Prototype Development																												
ABV RCS User Jury (First)																												
ABV RCS User Jury (Second)																												
ABV RCS Overhaul/ Refurb																												
ABV RCS RCM Maintenance Planning																												
ABV RCS Prototype Test																												
ABV RCS Provisioning / Logistics Development																												
ABV RCS Dev/Prod Contract Award																												
ABV RCS Dev/Test Asset Build																												

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2024 Army</b>		<b>Date:</b> March 2023
<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 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028																			
	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																
ABV RCS Developmental Test																	[Redacted]				[Redacted]																							
ABV RCS Early User Test																													[Redacted]				[Redacted]											
ABV RCS Design Updates																																	[Redacted]				[Redacted]							
ABV RCS LRIP DO award																																	[Redacted]				[Redacted]							
ABV RCS Production																																	[Redacted]				[Redacted]				[Redacted]			
ABV RCS Production Qualification Test																																	[Redacted]				[Redacted]				[Redacted]			
ABV RCS Operational Test																																	[Redacted]				[Redacted]				[Redacted]			
ABV RCS Fieldings																																	[Redacted]				[Redacted]				[Redacted]			

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Army		<b>Date:</b> March 2023
<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
ABV RCS P Spec Development	1	2020	4	2021
ABV RCS Request for Prototype Proposals	1	2022	1	2022
ABV Overhaul (Qty of 2)	4	2021	2	2022
ABV RCS Prototype Source Selection	2	2022	2	2022
ABV RCS Prototype OTA Award	3	2022	3	2022
ABV RCS Prototype Development	3	2022	4	2023
ABV RCS User Jury (First)	3	2023	3	2023
ABV RCS User Jury (Second)	2	2024	2	2024
ABV RCS Overhaul/ Refurb	1	2023	4	2023
ABV RCS RCM Maintenance Planning	1	2023	1	2024
ABV RCS Prototype Test	4	2023	3	2024
ABV RCS Provisioning / Logistics Development	1	2025	2	2028
ABV RCS Dev/Prod Contract Award	2	2025	2	2025
ABV RCS Dev/Test Asset Build	2	2025	1	2026
ABV RCS Developmental Test	1	2026	4	2026
ABV RCS Early User Test	3	2026	1	2027
ABV RCS Design Updates	1	2027	2	2027
ABV RCS LRIP DO award	2	2027	2	2027
ABV RCS Production	2	2027	2	2029
ABV RCS Production Qualification Test	3	2027	1	2029
ABV RCS Operational Test	1	2028	2	2028
ABV RCS Fieldings	4	2028	3	2030

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Army **Date:** March 2023

<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>
--	---	---

COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
G11: <i>Adv Elec Energy Con Ad</i>	-	4.000	15.000	-	-	-	-	-	-	-	0.000	19.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This project is a Congressional Interest Item

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

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. This project is a Congressional Interest Item. Congressionally provided funds will support analysis and planning for potential transition to the Army of the mobile micro-reactor prototype and capability.

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

	FY 2022	FY 2023
<b>Congressional Add:</b> Lightweight Portable Power	4.000	3.000
<b>FY 2022 Accomplishments:</b> FY22 congressional funds to be executed on the continued development of lightweight, portable power generation.		
<b>FY 2023 Plans:</b> FY23 congressional funds to be executed on the final development of a lightweight, portable power generation system.		
<b>Congressional Add:</b> Mobile micro-reactor program	-	12.000
<b>FY 2023 Plans:</b> FY23 congressional funds to be executed in the analysis to support the potential transition of the mobile micro-reactor program.		
<b>Congressional Adds Subtotals</b>	4.000	15.000

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Army **Date:** March 2023

<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>
--	---	---

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 194: <i>Engine Driven Gen Ed</i>	13.102	25.023	12.806	-	12.806	12.151	7.167	3.214	3.291	0.000	76.754
• MA9800: <i>Generators And Associated Equip</i>	106.120	112.689	78.364	-	78.364	83.661	91.456	104.272	104.475	Continuing	Continuing

**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**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2024 Army</b>			<b>Date:</b> March 2023
<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 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028							
	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				
Lightweight portable power																																
Modeling and development of lightweight portable power																																
Mobile micro-reactor program																																
Planning and Analysis of MMPP technologies and applications																																

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Army		<b>Date:</b> March 2023
<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
Lightweight portable power	2	2021	4	2024
Modeling and development of lightweight portable power	2	2021	4	2024
Mobile micro-reactor program	3	2023	4	2024
Planning and Analysis of MMPP technologies and applications	3	2023	4	2024