Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	53.676	54.642	41.669	-	41.669	26.218	21.903	12.893	13.018	0.000	224.019
194: *Engine Driven Gen Ed*	-	4.726	16.317	15.023	-	15.023	13.077	12.393	7.304	7.374	0.000	76.214
EJ9: *Maneuver Support Vessel (MSV)*	-	9.591	4.333	2.473	-	2.473	-	-	-	-	0.000	16.397
FG4: *Ultra-Lightweight Camouflage Net System (ULCANS)*	-	8.000	-	-	-	-	-	-	-	-	0.000	8.000
H02: *Tactical Bridging - Engineering Development*	-	14.445	19.158	8.528	-	8.528	-	-	-	-	0.000	42.131
L39: *Field Sustainment Support Ed*	-	3.955	1.618	1.847	-	1.847	3.285	3.866	3.128	3.159	0.000	20.858
L41: *Water And Petroleum Distribution - Ed*	-	8.707	8.548	7.921	-	7.921	6.677	2.053	-	-	0.000	33.906
L46: *Maintenance Support Equipment*	-	1.300	0.766	0.972	-	0.972	-	-	-	-	0.000	3.038
L47: *Improved Environmental Control Units Ed*	-	2.952	1.801	1.529	-	1.529	1.125	1.231	1.230	1.242	0.000	11.110
VR7: *Combat Service Support Systems*	-	-	2.101	3.376	-	3.376	2.054	2.360	1.231	1.243	0.000	12.365

A. Mission Description and Budget Item Justification

This Program Element (PE) provides system development and demonstration for various projects. This PE includes the development of water craft, military tactical and assault bridging, material handling equipment, construction equipment, engineer support equipment, soldier support equipment (to include shelter systems, environmental control, field service equipment, camouflage systems and aerial delivery equipment), water purification equipment, petroleum distribution equipment, and mobile electric power.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	53.676	59.261	0.000	-	0.000
Current President's Budget	53.676	54.642	41.669	-	41.669
Total Adjustments	0.000	-4.619	41.669	-	41.669
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-6.600			
• Congressional Rescissions	-	-			
• Congressional Adds	-	2.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	41.669	-	41.669
• FFRDC Transfer	-	-0.019	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: FG4: *Ultra-Lightweight Camouflage Net System (ULCANS)*		
Congressional Add: *Mobile Camouflage System (MCS)*	8.000	-
Congressional Add Subtotals for Project: FG4	8.000	-
Project: H02: *Tactical Bridging - Engineering Development*		
Congressional Add: *Program increase - health usage monitoring system*	2.500	-
Congressional Add: *Program increase - national hydrography dataset*	-	2.000
Congressional Add Subtotals for Project: H02	2.500	2.000
Congressional Add Totals for all Projects	10.500	2.000

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** 194 / *Engine Driven Gen Ed*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
194: *Engine Driven Gen Ed*	-	4.726	16.317	15.023	-	15.023	13.077	12.393	7.304	7.374	0.000	76.214
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is a key enabler for multiple Army Modernization Priorities by providing adaptable and efficient electrical power sources for network modernization, lethality, long range precision fires, and, air & missile defense. The main efforts are integrating standardized power solutions supporting specific programs and modernizations within the CPI2 command post, Soldier power battery charging, and precision fires and air & missile defense systems.

This project supports the Tactical Electric Power (TEP) programs (2kW-800kW Generators and Associated Equip) which is established to develop a modernized, standard family of Mobile Electric Power (MEP) systems to include MEP Generating Sources (MEPGS), and MEP Distribution Systems (MEPDS), MEP Storage Systems (MEPSS) and MEP Management Systems (MEPMS) for all Services throughout the Department of Defense IAW DoDI 4120.11. Building on the device/ component evaluations conducted in PE 0603804A project G11, this project supports the system development and demonstration of a series of innovative mobile electric power systems that are essential to the development and eventual fielding of modernized MEPGS, MEPMS, MEPSS and MEPDS. This project also supports Army modernization priorities, specifically Combat Support/Combat Service Support (CS/CSS) demands in Network / Command, Control, Communications & Intelligence (C3I), Soldier Lethality, Air & Missile Defense and Long Range Precision Fires and reduces sustainment requirements.

Power Distribution illumination Systems Electrical (PDISE) provides reliable, modular design power distribution equipment that is critical to deploying power networks. PDISE Expansion will add power distribution > 60kW. with the PPCK Improved Primary Switching Center (iPSC) and Improved Secondary Distribution Center (iSDC) to address, capability gaps identified for FPE Force Provider Expeditionary) modernization by incorporating advanced capabilities to accept either 4160 Volts Alternating Current (VAC) primary input or power from an Army Deployable Power Generation and Distribution System (DPGDS). This project supports the complete the development of the PPCK components, system integration, develop manufacturing processes, fabrication, and test and evaluate the system before proceeding into the production.

STEP is a modernization program for existing legacy small power generation systems, that will provide expeditionary, durable and reliable tactical electric power capabilities less than 5kW, to support operations in the austere environments of today's battlefield. The STEP program is a critical enabler to the Army modernization priorities under Army Futures Command Soldier Lethality Cross Functional Team (CFT) and Network CFT. It will provide battery charging power sources for Soldier borne sensors, lasers and optics.

FY 2023 funds will support prototyping and engineering, manufacturing and development efforts for the STEP Lightweight System, STEP 3kW, PDISE Expansion power distribution solution and IFCN effort.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Power Distribution Illumination Systems Electrical (PDISE) expansion	0.130	2.595	2.500

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** 194 / *Engine Driven Gen Ed*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Description: Prepare PDISE- Prime effort by awarding the Prime Power Distribution System (PPDS) contract, developing Prime Power Connection Kit first article units and start developmental testing inclusive of the Improved Primary Switching Center (iPSC) and Improved Secondary Distribution Center (iSDC) The Prime Power Connection Kit (PPCK) enables distribution of power from prime power sources which use medium voltages or higher. The system will transform medium or higher voltages down to standard 120/208 V, 3-phase power. Elements of the PPCK will enhance the existing Secondary Distribution Center (SDC) by incorporating advanced capabilities to accept either 4160 Volts Alternating Current (VAC) primary input power from a USA Deployable Power Generation and Distribution System (DPGDS) or a United States Air Force (USAF) Basic Expeditionary Airfield Resources (BEAR) power source or 13,800 VAC from contracted and commercial power sources or host nation/existing distribution systems. The PPCK includes the following: PDISE components are man-portable, safe for all weather operation and allows the warfighter to get electricity where its needed, when its needed. It provides flexibility to field operations and can be quickly assembled/dissembled for rapid relocation. Provides safe power distribution from the point of generation to the point of need - Network/C3I, Air & Missile Defense, Long Range Precision Fires, Command Post and Combat Support/Combat Service Support systems. ***FY 2022 Plans:*** FY22 PDISE Expansion Large and Prime prototype build contract award. ***FY 2023 Plans:*** FY23 funding will support PPCK contract award and prototype builds. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 decrease due to completion of PDISE Expansion Large and Prime prototype builds, and PPCK contract award			
Title: STEP ***Description:*** The Small Tactical Electrical Power (STEP) is a modernization program for existing legacy 2kW and 3kW systems, that will provide small tactical electric power capabilities less than 5-Kilowatts (<5kW), that is durable and reliable, in order to operate in the austere environments of today?s battlefield. The STEP program will consist of three distinct power generating and power storage capabilities. These systems will be approached along lines of efforts that associate with each system; STEP Lightweight (STEP-LW), STEP Hybrid Augmentation Systems (STEP HAS), and STEP 3kW. The STEP program is a critical enabler to the Army modernization priorities under Army Futures Command Soldier Lethality Cross Function Team (CFT) and Network CFT. It will be power sources for Soldier borne sensors, lasers and optics. ***FY 2022 Plans:***	4.280	12.688	11.487

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** 194 / *Engine Driven Gen Ed*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
STEP 3kW EMD contract will begin 2QFY22, and the STEP-LW 2kW OTA will finish in 3QFY22. ***FY 2023 Plans:*** Continuation of STEP 3kW EMD effort with 3 vendors ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease due to completion of STEP LW 2kW OTA and continuation of Step 3kW EMD			
Title: IFCN Effort ***Description:*** The effort will develop and integrate an advanced hybrid power solution for the AMMPS generators to initially support operation of the Integrated Fire Control Network (IFCN) Relay. Primary effort will include development and integration of a 10kW bi-directional power converter, integration of 6T format Lithium Ion (Li-Ion) batteries and development of a hybrid power architecture design that will provide IFCN a full range of AC and DC power. The bi-directional power converter will supply AC and DC power, provide AC transfer switch functions and charge Li-Ion batteries. ***FY 2022 Plans:*** The FY22 plan is to initiate design and integration of the system. ***FY 2023 Plans:*** FY23 funds will support prototype development and testing. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase in funds for prototype systems development (4 power converters, 12 battery modules per vendor).	0.316	0.439	1.036
Title: SBIR/STTR ***FY 2022 Plans:*** SBIR/STTR transfer ***FY 2022 to FY 2023 Increase/Decrease Statement:*** SBIR/STTR transfer	-	0.595	-
Accomplishments/Planned Programs Subtotals	4.726	16.317	15.023

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• G11: *Adv Elec Energy Con Ad*	9.000	4.000	0.000	-	0.000	-	-	-	-	0.000	13.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** 194 / *Engine Driven Gen Ed*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• MA9800: *Generators And Associated Equip*	101.239	105.892	54.400	-	54.400	80.713	87.635	96.284	96.257	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Small Tactical Electric Power (STEP) program is a modernization program that will provide a family of systems of improved mobile Tactical Electric Power (TEP) sources and will replace the legacy 2 kilowatt (kW) Military Tactical Generator (MTG) and the 3kW Tactical Quiet Generator (TQG). STEP models will be lightweight, modular, reliable, and more logistically supportable power sources than their predecessors for the Department of Defense's (DoD) 21st Century digitized forces.

The acquisition for STEP will incorporate Joint service requirements to reduce cost, maximize interoperability and increase performance over existing generator systems. STEP will implement 3 separate lines of effort. STEP Lightweight (STEP- LW) will conduct an effort to incentivize the industry and foster competition for small lightweight power generators. STEP-LW is currently in development through a prototype other transaction agreement. This effort includes prototyping, Soldier evaluations, testing and systems demonstration to deliver a design to meet all performance requirements and to provide the technical, logistics documentation to support STEP under the Army's two level maintenance concept. The STEP-LW generator sets are expected to enter the acquisition life-cycle at MS C in FY23. STEP 3kW system will enter development at MS B in FY22.

Power Distribution Illumination Systems Electrical (PDISE) provides the linkage between the generators and the Network/C3I, Air & Missile Defense, Long Range Precision Fires, Command Post and Combat Support/Combat Service Support systems. PDISE is a family of power distribution and Illumination equipment that transmit electrical power from mobile generation equipment to the end users in a field environment. PDISE expansion program = Prime Power Connection Kit (PPCK) inclusive of the Improved Primary Switching Center (iPSC) and Improved Secondary Distribution Center (iSDC).

The acquisition strategy includes a 2-year Firm-Fixed Price (FFP) developmental contract in 1QFY23 that will develop a materiel solution to support the Force Provider Expeditionary contingency-base operations with a Prime Power Connection Kit (PPCK). The developmental contract includes the research, design, manufacturing, and delivery of first articles to support the developmental testing scheduled in 4QFY24. First article testing will be completed no later than 4QYF24 with follow-on operational assessment starting in 1QFY25.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** 194 / *Engine Driven Gen Ed*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PDISE Expansion	Various	PM E2S2 : Ft. Belvoir	1.275	-		-		1.000		-		1.000	Continuing	Continuing	Continuing
Small Power Sources	Various	PM E2S2 Ft. Belvior : Ft. Belvior	2.008	1.250		-		-		-		-	0.000	3.258	-
STEP	TBD	PM E2S2 Ft. Belvior : PM E2S2 Ft. Belvior	-	0.082		1.700		1.400		-		1.400	0.000	3.182	-
SBIR/STTR Transfer	TBD	Various : Various	-	-		0.595		-		-		-	0.000	0.595	-
		Subtotal	3.283	1.332		2.295		2.400		-		2.400	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AMMPS HYBRID	TBD	AMMPS HYBRID : FT. BELVOIR	3.350	-		-		-		-		-	0.000	3.350	-
Small Power Sources	Various	STEP : TBD	2.719	0.425		-		-		-		-	0.000	3.144	-
STEP	TBD	PM E2S2 Ft. Belvior : PM E2S2 Ft. Belvior	-	0.400		10.086		8.790		-		8.790	0.000	19.276	-
PDISE	TBD	Prototyping and engineering, manufacturing and development efforts : TBD	-	-		2.595	Jun 2022	1.400	Dec 2022	-		1.400	0.000	3.995	-
		Subtotal	6.069	0.825		12.681		10.190		-		10.190	0.000	29.765	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Small Power Sources	TBD	STEP : TBD	0.282	0.426		-		-		-		-	0.000	0.708	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** 194 / *Engine Driven Gen Ed*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
STEP	TBD	PM E2S2 Ft. Belvior : PM E2S2 Ft. Belvior	-	0.120		0.400		0.500		-		0.500	0.000	1.020	-
PDISE Expansion	TBD	PM E2S2 : Ft. Belvoir	-	-		-		0.100		-		0.100	0.000	0.100	-
IFCN	TBD	PM E2S2 Ft. Belvoir : PM E2S2 Ft. Belvoir	-	0.316		0.439		1.036		-		1.036	0.000	1.791	-
		Subtotal	0.282	0.862		0.839		1.636		-		1.636	0.000	3.619	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PDISE Expansion	Various	PM E2S2 : Ft. Belvoir	2.418	0.130	Jan 2021	-		-		-		-	0.000	2.548	-
Small Power Sources	TBD	STEP : TBD	1.458	1.577		-		-		-		-	0.000	3.035	-
STEP	TBD	PM E2S2 Ft. Belvior : PM E2S2 Ft. Belvior	-	-		0.502		0.797		-		0.797	0.000	1.299	-
		Subtotal	3.876	1.707		0.502		0.797		-		0.797	0.000	6.882	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.510	4.726		16.317		15.023		-		15.023	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** 194 / *Engine Driven Gen Ed*

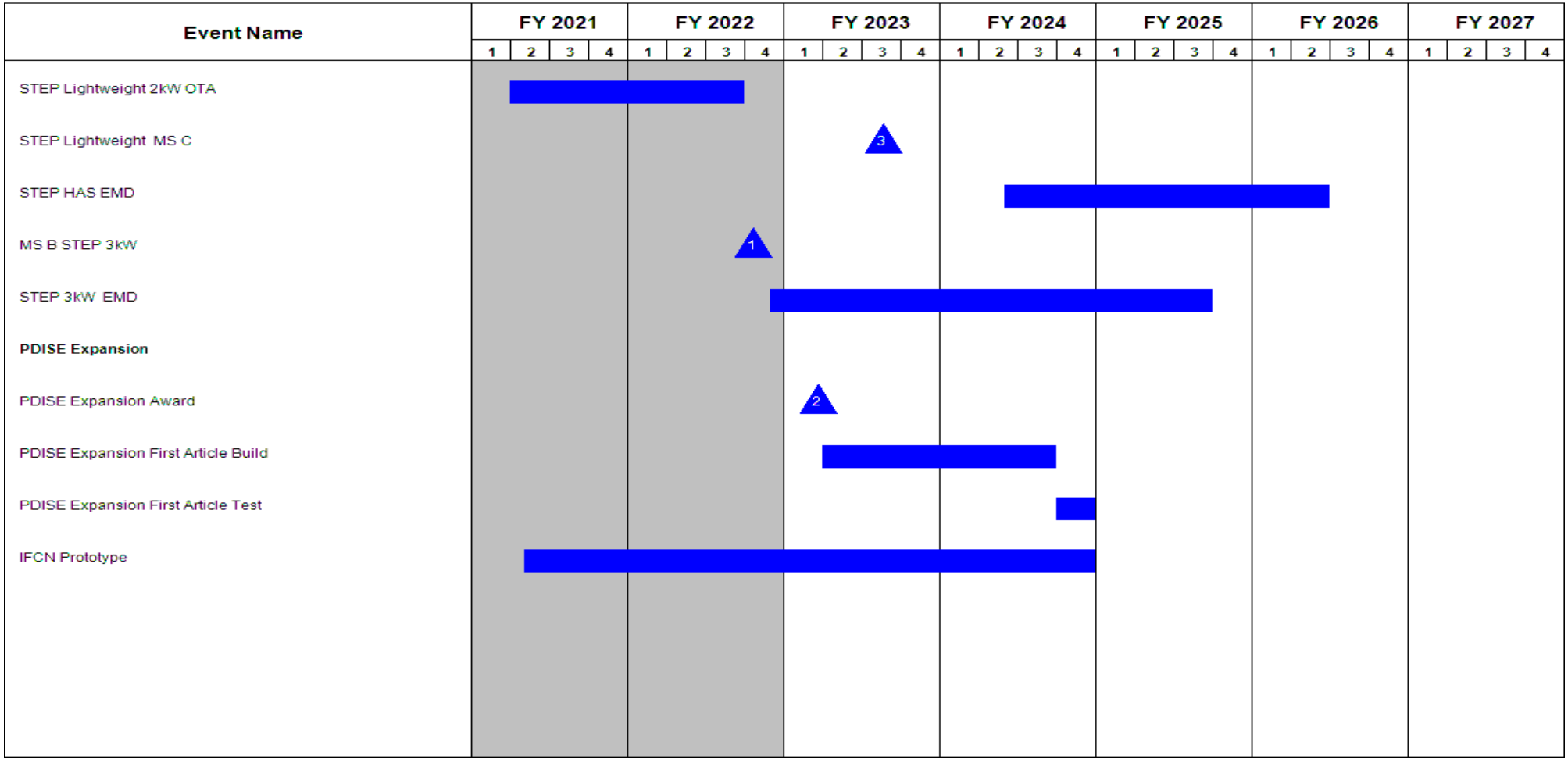

Exhibit R-4A, **RDT&E Schedule Details:** PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** 194 / *Engine Driven Gen Ed*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
STEP Lightweight 2kW OTA	1	2021	3	2022
STEP Lightweight MS C	3	2023	3	2023
STEP HAS EMD	2	2024	2	2026
MS B STEP 3kW	4	2022	4	2022
STEP 3kW EMD	4	2022	3	2025
PDISE Expansion	3	2021	4	2029
PDISE Expansion Award	1	2023	1	2023
PDISE Expansion First Article Build	2	2023	3	2024
PDISE Expansion First Article Test	4	2024	4	2024
IFCN Prototype	2	2021	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** EJ9 / *Maneuver Support Vessel (MSV)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
EJ9: *Maneuver Support Vessel (MSV)*	-	9.591	4.333	2.473	-	2.473	-	-	-	-	0.000	16.397
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project line supports the family of Army Ship to Shore (S2S) connectors that support Dynamic Force Repositioning (DFR) by providing the Combatant, Multi-Domain Operations (MDO) and Joint All Domain Operations (JADO) Commanders with the ability to access multiple entry points via littorals and inland waterways (waterborne corridor) IOT sustain forces within an anti-access/area denial (A2/AD) bubble. The family of S2S connectors include the Maneuver Support Vessel (Light) and the Ship to Shore / Over the Shore Logistics Vessel (SSLV), which are the Army's first digital architecture vessels (with improved draft, speed, and payload) and critical modernization efforts in support of the Army's Watercraft Systems Transformation Strategy (AWSTS). S2S connectors will provide Surge, Precision and Dispersed Logistics to move and maneuver tailored forces, combat ready troops, platforms, equipment, and supply bulk fuel and water across the full spectrum of operations. S2S connectors mitigate A2/AD threats 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 Maneuver Support Vessel (Light) - MSV(L) provides upgraded capabilities such as higher operational speed, reduced draft and increased payload to support expeditionary movement and maneuver of tailored forces and combat power to mitigate the Anti-Access/Area Denial (A2/AD) operational environment. Capable of delivering a combat configured Abrams, Stryker or Bradley Fighting Vehicles along with critical sustainment missions including delivery of food, water, fuel, and ammunition. MSV(L) is the first modernization program which will displace the Army's aging Landing Craft Mechanized-8 (LCM-8) class of vessels. The LCM-8 does not have the speed, functional draft (shallow water capability), interoperability, or maneuver capability to move today's Army Maneuver Platforms.

MSV(L) completes the Engineering and Manufacturing Development (EMD) phase in FY21 and delivers producing the single full scale prototype. The prototype will undergo contractor and government testing, which will inform the updated Joint Capabilities Integration Development System (JCIDS) requirements documentation at MS C. Following successful prototype testing, JCIDS requirements documentation approval and MS C approval, the Milestone Decision Authority (MDA) will authorize the start of the Production and Deployment (P&D) phase.

The Ship to Shore / Over the Shore Logistics Vessel (SSLV) is the second major modernization program in the AWSTS, which is a transformational capability that will provide a logistics capability to joint forces and intra-theater transport of time-sensitive, mission-critical personnel and materiel. While the SSLV is initially geared towards the INDOPACOM theater and emerging requirements, it will be an ocean going capability that can be moved to other theaters as the need arises..

The SSLV is a modernization program that will meet the joint formation's future strategic requirement for Surge, Precision and Dispersed Logistics to move and maneuver tailored forces, combat ready troops, platforms, equipment, and supply bulk fuel and water in support of MDO and JADO.

FY23 funds are used to complete affordability and feasibility studies to inform the SSLV Analysis of Alternatives (AoA) and inform requirements development process.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** EJ9 / *Maneuver Support Vessel (MSV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Engineering and Manufacturing Development (EMD) Contract ***Description:*** The EMD phase of the contract includes system engineering and analysis to support execution of the Preliminary Design Review (PDR), Critical Design Review (CDR), Contract Systems Integration Laboratory (CSIL) fabrication, model basin testing, production of full-scale prototype vessel and required testing. In addition, deliverables include development of Integrated Product Support (IPS) analysis and products, as well as, development of Technical Data Package (TDP).	6.842	-	-
Title: Government Test and Evaluation Support ***Description:*** Government test support.	0.950	-	-
Title: Government Furnished Equipment (GFE) ***Description:*** GFE for prototype vessel consists of Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR).	0.200	-	-
Title: Program Management / Systems Engineering ***Description:*** PM/Matrix Support includes PM and systems engineering oversight required to manage the program and provide contractor oversight. Salaries for support through the EMD phase of MSV(L) and start SSLV in FY 2022. ***FY 2022 Plans:*** Funds will cover matrix salaries for Engineers supporting SSLV program. ***FY 2023 Plans:*** Funds matrix support, travel, and general oversight efforts. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** The FY 2023 increase is for program development.	0.456	0.500	0.605
Title: Program Management Support Contract ***Description:*** Program Management and Contract Support for MSV(L) thru FY21 and SSLV program starting in FY21.	1.143	-	-
Title: SSLV Affordability and Feasibility Studies ***Description:*** Conduct Affordability and Feasibility Studies for future watercraft modernization. ***FY 2022 Plans:***	-	3.675	1.868

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** EJ9 / *Maneuver Support Vessel (MSV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Funding needed to conduct feasibility studies and conduct Affordability Analysis/Cost Analysis in support of Requirements and Framing Analysis. ***FY 2023 Plans:*** Funding needed to complete feasibility studies and Affordability Analysis in support of AoA. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** The FY 2023 decrease is due to the completion of the AoA by TRAC Fort Leavenworth.			
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.158	-
Accomplishments/Planned Programs Subtotals	9.591	4.333	2.473

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• R03050: *Maneuver Support Vessel (Light) (MSV-L)*	66.586	76.660	104.676	-	104.676	150.589	24.768	13.581	13.576	0.000	450.436

Remarks

Significant Accomplishments:
- Quality Assurance, Inspections, and Checks effectively conducted during build by ABS, DCMA, and Program Office
- Successfully processed a TSARC request for a prototype crew
- Conducted effective test planning for acceptance testing and early user assessment
- Milestone C Documentation generated and submitted into staffing.
- MSV(L) EMD final year funded.

D. Acquisition Strategy

MSV(L) completes the Engineering and Manufacturing Development (EMD) phase in FY21 and delivers producing the single full scale prototype. The single full scale prototype will undergo contractor and government testing, which will inform the updated Joint Capabilities Integration Development System (JCIDS) requirements

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** EJ9 / *Maneuver Support Vessel (MSV)*

documentation at MS C. Following successful prototype testing, JCIDS requirements documentation approval and MS C approval, the Milestone Decision Authority (MDA) will authorize the start of the Production and Deployment (P&D) phase.

Ship to Shore / Over the Shore Logistics Vessel (SSLV): FY23 funds are used to complete affordability and feasibility studies to inform the SSLV Analysis of Alternatives (AoA) and inform requirements development process.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** EJ9 / *Maneuver Support Vessel (MSV)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR Transfer	TBD	Various : Various	-	-		0.158		-		-		-	Continuing	Continuing	-
		Subtotal	-	-		0.158		-		-		-	Continuing	Continuing	N/A

Remarks

COVID19 IMPACTS: Although the MSV(L) OEM is on schedule to deliver the prototype on schedule, maintaining production has required the implementation of strict safety protocols, production workspace social distancing and shifting of resources from other lower priority programs to the MSV(L) effort. The OEM has been able to overcome positive test results, quarantine and keep production moving.

The shipbuilding industry is largely driven by commercial shipping customers. Army Watercraft utilizes several small business and small to medium sized shipyards, which are more vulnerable to shifts in COVID safety protocols and uncertainty. We are currently experiencing an average of 25-30% absenteeism rate at the shipyards due to COVID19. In addition, we have seen a decrease in shipyard competition, an increase in sub-contractor proposals due to COVID travel restrictions and overall increase in new production proposals. To date, we have been able to mitigate the impact to the Army Watercraft Systems Transformation Strategy (AWSTS).

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Manufacturing Development (EMD)	C/FFP	Vigor Works, LLC : Clackamas, OR	70.913	6.842	Jul 2021	-		-		-		-	0.000	77.755	77.822
Government Furnished Equipment (GFE)	Reqn	Various : Various	2.317	0.200	May 2021	-		-		-		-	0.000	2.517	-
Trade Studies and Business Analysis SSLV	TBD	Various : Various	0.264	-		3.675	Nov 2021	1.868	Nov 2022	-		1.868	Continuing	Continuing	-
		Subtotal	73.494	7.042		3.675		1.868		-		1.868	Continuing	Continuing	N/A

Remarks

MSV(L) Contract was awarded on 28 Sep 2017 to Vigor Works, LLC.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** EJ9 / *Maneuver Support Vessel (MSV)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Salaries for Matrix Personnel Army Watercraft, GVSC, ILSC PSID and ACC-Wrn.	MIPR	Detroit Arsenal : Warren, MI 48397-5000	20.764	0.456	Dec 2020	0.500	Dec 2021	0.605	Dec 2022	-		0.605	0.000	22.325	-
Salaries / Travel for Program Management Support Contracts	C/CPFF	Picatinny Arsenal, New Jersey 07806-5000 : Warren, MI 48397-5000	4.681	1.143	Feb 2022	-		-		-		-	0.000	5.824	-
		Subtotal	25.445	1.599		0.500		0.605		-		0.605	0.000	28.149	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation - Government	MIPR	ATEC: APG : APG, MD	1.046	0.950	Nov 2020	-		-		-		-	0.000	1.996	-
		Subtotal	1.046	0.950		-		-		-		-	0.000	1.996	N/A

Remarks

MSV(L) completes the Engineering and Manufacturing Development (EMD) phase in FY21 and delivers producing the single full scale prototype.

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	99.985	9.591		4.333		2.473		-		2.473	Continuing	Continuing	N/A

Remarks

FY23 funds are used to complete affordability and feasibility studies to inform the SSLV Analysis of Alternatives (AoA) and inform requirements development process.

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** EJ9 / *Maneuver Support Vessel (MSV)*

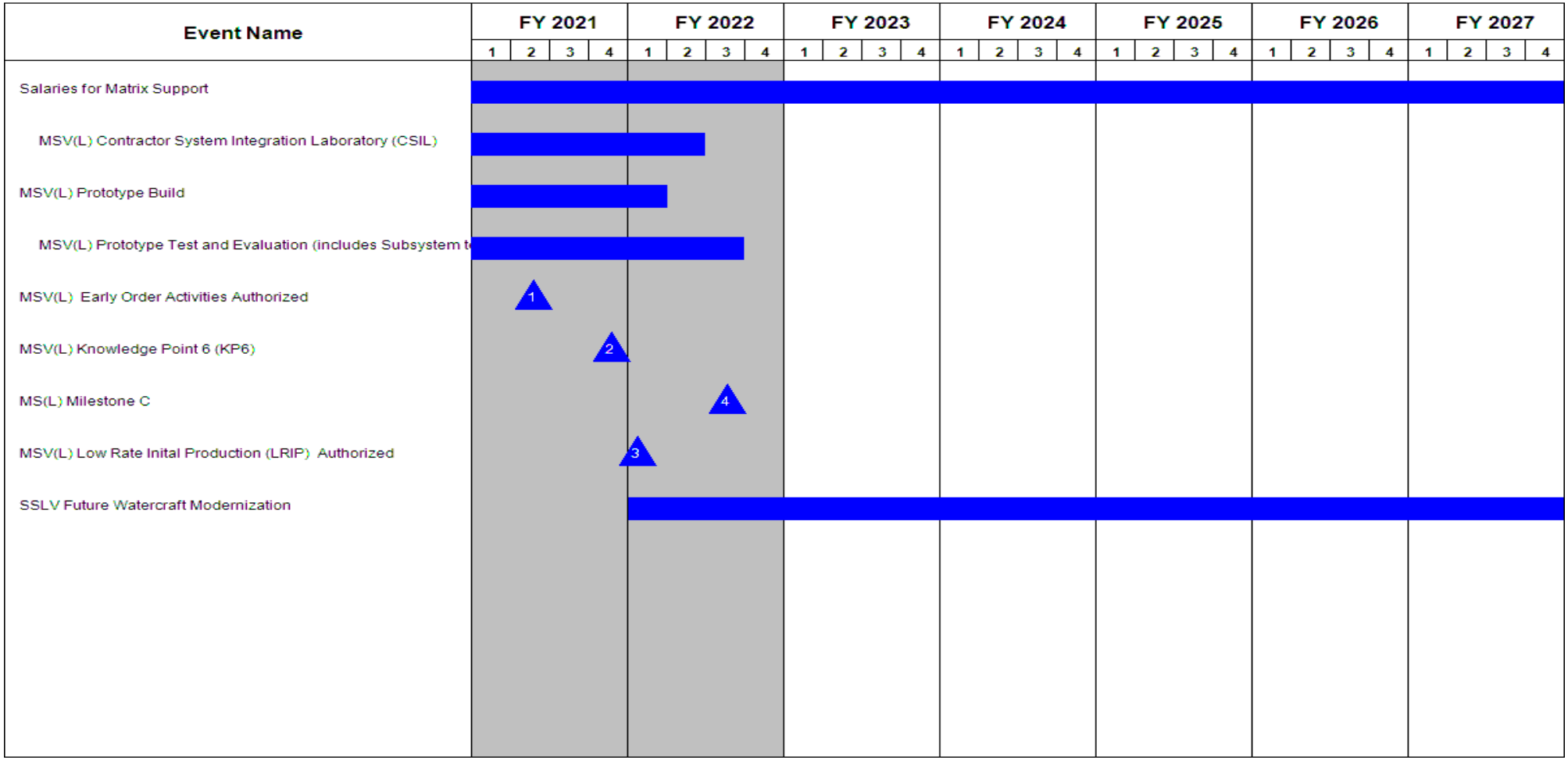

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** EJ9 / *Maneuver Support Vessel (MSV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Salaries for Matrix Support	4	2016	4	2027
MSV(L) Analysis of Alternatives (AoA) Final Report Complete	2	2015	2	2015
MSV(L) Capabilities Development Document (CDD) Approved	4	2015	4	2015
MSV(L) Configuration Steering Board (CSB) Held and Approved	1	2016	1	2016
MSV(L) Industry Day Held	1	2016	1	2016
MSV(L) Army Requirements Oversight Board (AROC) / CDD Update	4	2016	4	2016
MSV(L) CDD Update / Army Requirements Oversight Council (AROC)	4	2016	4	2016
MSV(L) RFP Posting	4	2016	4	2016
MSV(L) RFP Released	1	2017	1	2017
MSV(L) Milestone B	4	2017	4	2017
MSV(L) Contract Award - Knowledge Point 2	4	2017	4	2017
MSV(L) Knowledge Point 2 (KP2)	2	2018	2	2018
MSV(L) Preliminary Design Review (PDR)	3	2018	3	2018
MSV(L) Knowledge Point 3 (KP3)	4	2018	4	2018
MSV(L) Modeling and Simulation	4	2018	4	2018
MSV(L) Contractor System Integration Laboratory (CSIL)	4	2018	2	2022
MSV(L) Model Basin Testing	4	2018	1	2019
MSV(L) Knowledge Point 4 (KP4)	2	2019	2	2019
MSV(L) Critical Design Review (CDR)	2	2019	2	2019
MSV(L) Knowledge Point 5 (KP5)	1	2020	1	2020
MSV(L) Prototype Build	4	2019	1	2022
MSV(L) Prototype Test and Evaluation (includes Subsystem tests)	4	2019	3	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** EJ9 / *Maneuver Support Vessel (MSV)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MSV(L) Early Order Activities Authorized	2	2021	2	2021
MSV(L) Knowledge Point 6 (KP6)	4	2021	4	2021
MS(L) Milestone C	3	2022	3	2022
MSV(L) Low Rate Inital Production (LRIP) Authorized	1	2022	1	2022
SSLV Future Watercraft Modernization	1	2022	4	2027

Note

FY23 funds are used to complete affordability and feasibility studies to inform the SSLV Analysis of Alternatives (AoA) and inform requirements development process.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** FG4 / *Ultra-Lightweight Camouflage Net System (ULCANS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
FG4: *Ultra-Lightweight Camouflage Net System (ULCANS)*	-	8.000	-	-	-	-	-	-	-	-	0.000	8.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

ULCANS provides increased survivability against multi-spectral visual, infrared and radar threats, thermal signature suppression and significant thermal/solar reduction capability. ULCANS is capable of use in all types of weather and climatic conditions except in heavy snow and winds. ULCANS variants are integrated systems that are very lightweight, easily deployable, versatile, user friendly and tailored to the equipment meeting the requirements of operations for combat systems, command and control equipment, logistic support sites, tactical facilities, and fixed facilities. RDT&E funding for ULCANS Increment I program supports formal development for necessary technology/signature enhancements of three ULCANS Increment I variants (Woodland, Arctic, Desert/Urban) to replace current legacy ULCANS variants (Woodland and Desert).

Mobile Camouflage System (MCS) provides Full Spectrum Signature Management for Vehicles from ground, aerial, and satellite. MCS enables combat vehicle protection and survivability against current peer and near-peer threats; defeats enemy targeting and surveillance systems through multi-spectral concealment (UV, VIS, NIR, SWIR, Thermal, Radar); enables multi-domain operations in A2/AD environment and provides operational units layered protection and concealment against long-range precision fires, drones, ground, aerial, and satellite threats.

Funding supports modernization of current camouflage net systems by investigating technology insertions that decrease Soldier and ground combat vehicle detection from threat sensors. Funding also supports developing initial prototypes to enable refinement of operational requirements and early user feedback to maintain overmatch signature reduction against future threat sensors from peer competitors.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
Congressional Add: Mobile Camouflage System (MCS) ***FY 2021 Accomplishments:*** Award OTA Phase I and II contracts and conduct testing and evaluation of the prototypes received to determine the best path forward for the MCS program. Utilize outcomes of OTA contract efforts to aid in requirements development to support EMD phase.	8.000	-
Congressional Adds Subtotals	8.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** FG4 / *Ultra-Lightweight Camouflage Net System (ULCANS)*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

The acquisition strategy is to accelerate product development and testing to transition into production.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** FG4 / *Ultra-Lightweight Camouflage Net System (ULCANS)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ULCANS	Various	PMFSS : Natick, MA	3.760	-		-		-		-		-	0.000	3.760	-
Mobile Camouflage System	TBD	PMFSS : Natick, MA	0.972	1.430		-		-		-		-	0.000	2.402	-
		Subtotal	4.732	1.430		-		-		-		-	0.000	6.162	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ULCANS Increment I Woodland Variant	C/FFP	PMFSS : Natick, MA	6.607	-		-		-		-		-	0.000	6.607	-
ULCANS Increment I Snow/Alpine Variant	C/FFP	PMFSS : Natick, MA	7.811	-		-		-		-		-	0.000	7.811	-
ULCANS Increment I Desert/Urban Variant	C/FFP	PMFSS : Natick, MA	1.812	-		-		-		-		-	0.000	1.812	-
Mobile Camouflage System (MCS)	TBD	PM FSS : Natick, MA	3.972	4.570		-		-		-		-	0.000	8.542	-
		Subtotal	20.202	4.570		-		-		-		-	0.000	24.772	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ULCANS Increment I Woodland Variant	Various	Various : Various	2.925	-		-		-		-		-	0.000	2.925	-
ULCANS Increment I Snow/Alpine Variant	Various	Various : Various	2.963	-		-		-		-		-	0.000	2.963	-
ULCANS Increment I Desert/Urban Variant	Various	Various : Various	0.609	-		-		-		-		-	0.000	0.609	-
Mobile Camouflage System (MCS)	TBD	PM FSS : Natick, MA	1.971	2.000		-		-		-		-	0.000	3.971	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** FG4 / *Ultra-Lightweight Camouflage Net System (ULCANS)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	8.468	2.000		-		-		-		-	0.000	10.468	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	33.402	8.000		-		-		-		-	0.000	41.402	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** FG4 / *Ultra-Lightweight Camouflage Net System (ULCANS)*

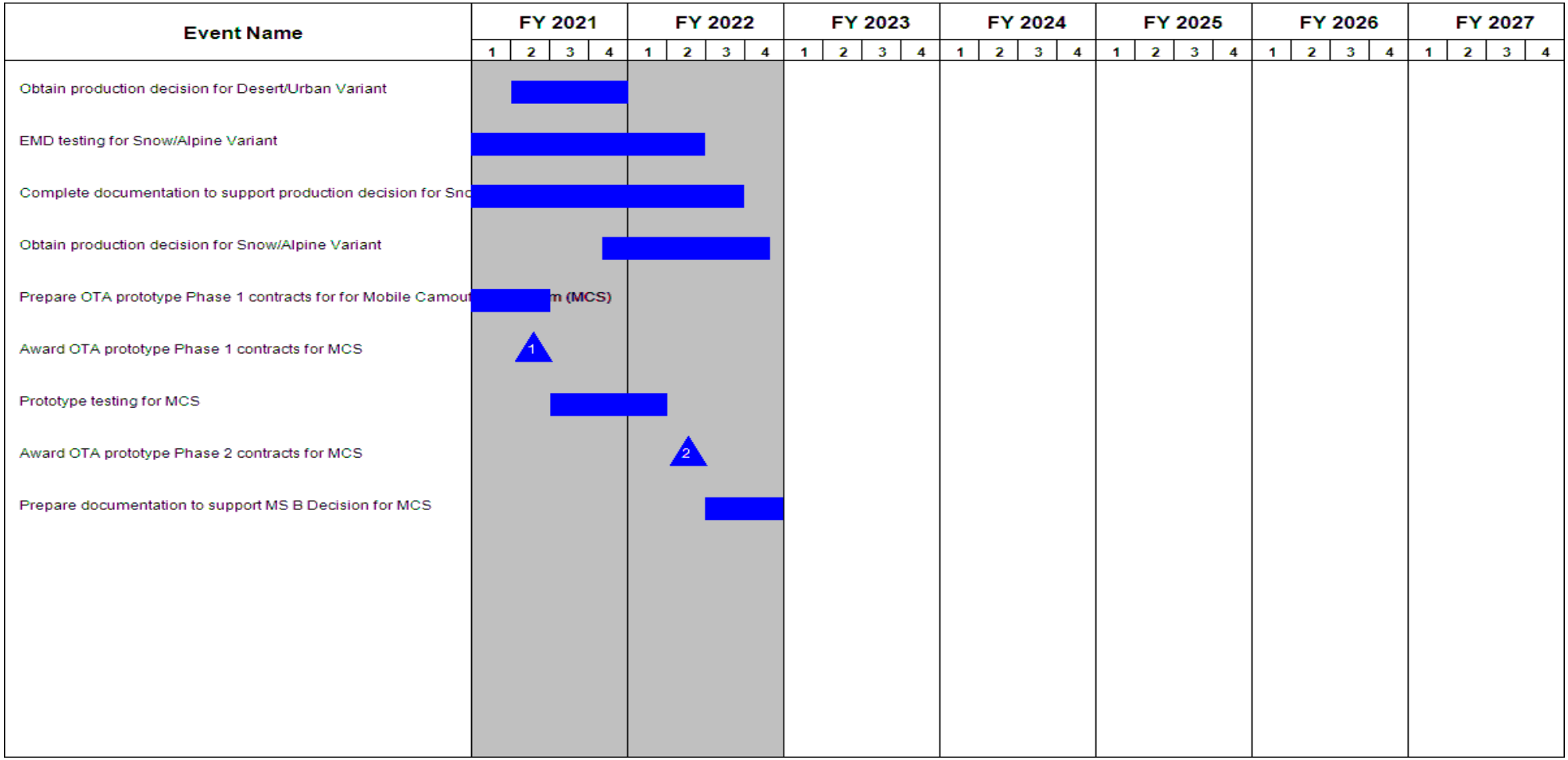

Exhibit R-4A, **RDT&E Schedule Details:** PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** FG4 / *Ultra-Lightweight Camouflage Net System (ULCANS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Obtain production decision for Desert/Urban Variant	2	2021	4	2021
EMD testing for Snow/Alpine Variant	3	2020	2	2022
Complete documentation to support production decision for Snow/Alpine Variant	3	2020	3	2022
Obtain production decision for Snow/Alpine Variant	4	2021	4	2022
Prepare OTA prototype Phase 1 contracts for for Mobile Camouflage System (MCS)	2	2020	2	2021
Award OTA prototype Phase 1 contracts for MCS	2	2021	2	2021
Prototype testing for MCS	3	2021	1	2022
Award OTA prototype Phase 2 contracts for MCS	2	2022	2	2022
Prepare documentation to support MS B Decision for MCS	3	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
H02: *Tactical Bridging - Engineering Development*	-	14.445	19.158	8.528	-	8.528	-	-	-	-	0.000	42.131
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports the engineering, prototyping, testing and manufacturing development of future force bridge systems and support equipment as well as improvements to existing systems within the Bridging Product Management portfolio.

Funding supports developmental and customer testing of the Line of Communication Bridge (LOCB), development, prototyping and testing of the Bridge Supplemental Set (BSS) and Bridge Protection Device (BPD), and funds multiple efforts to upgrade and modernize existing systems through the Family of Higher Military Load Classification Bridges (FoHMLC-B) program. Funding also supports development, test, and evaluation of upgrades / modernization of the Joint Assault Bridge (JAB) and Assault Breacher Vehicle (ABV) M1A1 base chassis to the standard Army M1A2 SEPv3 configuration (hereafter referred to as "M1A2 upgrade") in order to improve maintainability and supportability, minimize impacts of obsolescence, and establish commonality with the current Abrams Main Battle Tank (MBT) system. Funding also supports the development of new systems and modification of existing systems within the Bridging portfolio to enhance the Army's Engineering capabilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Line of Communication Bridge (LOCB) ***Description:*** Funding requested for development and testing of higher Military Load Classification (MLC) modular Line of Communication Bridging with the mobility to span fixed or float gaps spanning 50 to 800 meters wide. Actions include the purchase of test assets, bridge structural strength analysis, performance assessments, Production Qualification Testing (PQT) and Customer Testing (CT) of the Line of Communication Bridge (LOCB) system. ***FY 2022 Plans:*** Funding supports continuation of LOCB structural strength analysis, performance assessments, transportability testing and durability testing. Funding also supports LOCB customer testing (CT). ***FY 2023 Plans:*** Funding supports the continuation and close-out of LOCB testing. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2022 to FY 2023 funding decrease due to the fact that LOCB testing will be ramping down.	9.962	11.443	1.050
Title: Bridge Supplemental Set (BSS)	1.243	0.710	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Description: Funding to develop a multi-functional, consolidated engineering set consisting of an anchorage system, access/egress traction improvement matting, power generation, tools, and a float Bridge Protection Device (BPD). The BSS is targeted for use with multiple tactical bridging systems to include the Improved Ribbon Bridge (IRB). It will increase the capability of the Multi-Role Bridging Company (MRBC). ***FY 2022 Plans:*** Funding supports acceptance testing of the Bridge Protection Device (BPD) and supports testing/development of the BSS to meet program requirements. The BPD is a stand-alone component of the BSS and is held in APS storage until required for real-time operational employment. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2022 to FY 2023 funding decrease due to the fact that FY 2022 was the last year of RDTE funding required for the BSS program. No funding requested in FY 2023.			
Title: Family of Higher Military Load Classification Bridges (FoHMLC-B) ***Description:*** Funding provided to develop the Family of Higher Military Load Classification Bridges (FoHMLC-B). The FoHMLC-B program will upgrade current bridging systems and develop future bridging systems to support the increased weights of armored combat vehicles crossing Assault Fixed, Assault Float, Tactical Fixed and Tactical Float bridging systems. ***FY 2022 Plans:*** Funding supports durability testing of the Dry Support Bridge (DSB) and Heavy Assault Scissor Bridge (HASB) up-weight prototype production. ***FY 2023 Plans:*** Funding supports development and testing of product improvements and various operational configurations for increased MLC rating of the Improved Ribbon Bridge (IRB). ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2022 to FY 2023 funding decrease due to reduced number of anticipated FoHMLC-B initiatives.	0.740	3.607	2.250
Title: M1A2 Chassis Upgrade of Joint Assault Bridge (JAB) and Assault Breacher Vehicle (ABV) ***Description:*** Funding requested for Joint Assault Bridge (JAB) / Assault Breacher Vehicle (ABV) M1A2 Chassis modernization development. Efforts will focus on enhanced reliability, maintainability and chassis commonality with the Abrams M1A2 Main Battle Tank system. ***FY 2022 Plans:***	-	0.365	5.228

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Funding supports matrix program support and scope development of the M1A2 chassis modernization effort for JAB and ABV systems. ***FY 2023 Plans:*** Funding will support design engineering and prototype manufacturing of the M1A2 chassis modernization effort for JAB and ABV systems. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2022 to FY 2023 funding increase due to ramp-up of M1A2 chassis modernization effort for JAB and ABV systems.			
Title: Bridge Erection Boat (BEB) ***Description:*** Funding supports the development and testing of a weapon mount for the Bridge Erection Boat (BEB) in order to satisfy a user requirement for the BEB to safely and effectively conduct river patrols. ***FY 2022 Plans:*** Funding supports development and testing of a weapon mount for the Bridge Erection Boat (BEB). ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2022 to FY 2023 funding decrease due to the fact that no funding is required in FY 2023. FY 2022 funding will complete the effort.	-	0.400	-
Title: SBIR/STTR Transfer ***Description:*** SBIR/STTR Transfer ***FY 2022 Plans:*** Funding for SBIR/STTR costs. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding for FY 2022 SBIR/STTR costs.	-	0.633	-
Accomplishments/Planned Programs Subtotals	11.945	17.158	8.528

	FY 2021	FY 2022
Congressional Add: Program increase - health usage monitoring system	2.500	-
FY 2021 Accomplishments: Funding supports a simple acquisition-competitive demonstration to each respondent of a market survey for a health usage monitoring system for bridging systems. Funding also		

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

	FY 2021	FY 2022
supports research/engineering, software engineering/cyber support and program management support. The health usage monitoring system is currently being identified as the Automated Bridge Condition Device (ABCD).		
Congressional Add: Program increase - national hydrography dataset ***FY 2022 Plans:*** Funding supports the development of a national hydrography dataset.	-	2.000
Congressional Adds Subtotals	2.500	2.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• G06520: *BRIDGE SUPPLEMENTAL SET*	25.994	19.867	6.774	-	6.774	4.500	-	-	-	0.000	57.135
• G82404: *LINE OF COMMUNICATION BRIDGE LOCB*	60.945	9.625	13.785	-	13.785	-	-	-	-	0.000	84.355
• GZ3001: *Joint Assault Bridge*	-	110.773	36.990	-	36.990	202.772	184.260	186.109	186.368	0.000	907.272
• G84900: *ASSAULT BREACHER VEHICLE (ABV)*	-	16.454	3.852	-	3.852	-	-	10.361	10.362	0.000	41.029
• M27200: *BRIDGE, FLOAT-RIBBON, PROPULSION*	72.074	74.182	0.000	-	0.000	42.305	30.543	-	-	0.000	219.104

Remarks

D. Acquisition Strategy

The acquisition strategy is for Research, Development, Test & Evaluation efforts to support prototyping, testing and follow-on production efforts for future Bridging systems.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering and Program Management	MIPR	Various : Various	2.431	1.050	Oct 2020	1.090	Oct 2021	1.035	Oct 2022	-		1.035	Continuing	Continuing	-
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.633	Mar 2022	-		-		-	0.000	0.633	-
		Subtotal	2.431	1.050		1.723		1.035		-		1.035	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Line of Communication Bridge - 50m Fixed Load Plan Development - Acrow	SS/FFP	Acrow Corporation of America : Parsippany, NJ	-	0.639	Dec 2021	-		-		-		-	0.000	0.639	-
Line of Communication Bridge - 50m Fixed Load Plan Development - AGL	SS/FFP	Acrow Global Limited (AGL) (formerly Mabey Bridge Limited) : Lydney, UK	-	0.883	Dec 2021	-		-		-		-	0.000	0.883	-
Line of Communication Bridge - 130m Float Load Plan Development - Acrow	SS/FFP	Acrow Corporation of America : Parsippany, NJ	-	0.852	Jan 2022	-		-		-		-	0.000	0.852	-
Line of Communication Bridge - 130m Float Load Plan Development - AGL	SS/FFP	Acrow Global Limited (AGL) (formerly Mabey Bridge Limited) : Lydney, UK	-	1.118	Jan 2022	-		-		-		-	0.000	1.118	-
Line of Communication Bridge - 130m Float Bridge PQT System - AGL	SS/FFP	Acrow Global Limited (AGL) (formerly Mabey Bridge Limited) : Lydney, UK	-	-		6.765	Jan 2022	-		-		-	0.000	6.765	-
Family of High Military Load Class Bridges - HASB ECP Development / Product Improvements	MIPR	CCDC GVSC : SANGB, MI	2.300	0.264	Dec 2021	-		-		-		-	0.000	2.564	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Family of High Military Load Class Bridges - HASB MLC120 Prototypes	MIPR	Anniston Army Depot (ANAD) : Anniston, AL	-	-		1.100	Apr 2022	-		-		-	0.000	1.100	-
Program increase - health usage monitoring system	MIPR	Various : Various	-	0.650	Mar 2022	-		-		-		-	0.000	0.650	-
Bridge Supplemental Set - Design Engineering / Prototype Development	MIPR	Tobyhanna Army Depot (TYAD) : Tobyhanna, PA	2.500	0.465	Aug 2021	-		-		-		-	0.000	2.965	-
M1A2 JAB / ABV Chassis Upgrade - Design Development	MIPR	CCDC GVSC : Warren, MI	-	-		-		0.750	Oct 2022	-		0.750	3.500	4.250	Continuing
M1A2 JAB / ABV Chassis Upgrade - Prototype Manufacturing	C/CPFF	TBD : TBD	-	-		-		3.728	Jan 2023	-		3.728	20.500	24.228	Continuing
Bridge Erection Boat - Weapon Mount Development	C/TBD	TBD : TBD	-	-		0.200	Jul 2022	-		-		-	0.000	0.200	-
		Subtotal	4.800	4.871		8.065		4.478		-		4.478	24.000	46.214	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Bridge Test Lab	MIPR	CCDC GVSC - Bridge Test Lab : SANGB, MI	0.875	0.168	Nov 2020	0.185	Nov 2021	0.250	Nov 2022	-		0.250	Continuing	Continuing	-
Prototype/EMD Bridge Test Asset Transportation	TBD	TAC Code : TBD	0.256	0.010	Nov 2021	0.110	Jan 2022	0.215	Jan 2023	-		0.215	Continuing	Continuing	-
Program increase - national hydrography dataset	TBD	TBD : TBD	-	-		2.000	Jul 2022	-		-		-	0.000	2.000	-
		Subtotal	1.131	0.178		2.295		0.465		-		0.465	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Line of Communication Bridge - PQT Transportability Testing	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	1.247	1.307	Feb 2021	1.200	Apr 2022	1.050	Feb 2023	-		1.050	0.000	4.804	-
Line of Communication Bridge - PQT Durability Testing	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	1.187	1.118	Mar 2021	1.100	Apr 2022	-		-		-	0.000	3.405	-
Line of Communication Bridge - Modeling & Sim / Data Analysis	MIPR	CCDC Data Analysis Center (DAC) : Aberdeen Proving Ground, MD	-	0.260	Oct 2021	-		-		-		-	0.000	0.260	-
Line of Communication Bridge - Vendor Test Services - Acrow	SS/FFP	Acrow Corporation of America : Parsippany, NJ	-	1.417	Aug 2021	-		-		-		-	0.000	1.417	-
Line of Communication Bridge - Vendor Test Services - AGL	SS/FFP	Acrow Global Limited (AGL) (formerly Mabey Bridge Limited) : Lydney, UK	-	1.948	Aug 2021	-		-		-		-	0.000	1.948	-
Line of Communication Bridge - Customer Testing (CT)	MIPR	Operational Test Command (OTC) : Fort Hood, TX	-	-		2.000	Jul 2022	-		-		-	0.000	2.000	-
Family of High Military Load Class Bridges - DSB - Durability Testing	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	-	-		1.900	Jun 2022	-		-		-	0.000	1.900	-
Family of High Military Load Class Bridges - IRB Test & Evaluation	MIPR	US Army Corps of Engineers - Engineering Research and Development Center (ERDC) : Vicksburg, MS	-	-		-		1.500	Oct 2022	-		1.500	0.000	1.500	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Bridge Supplemental Set - BPD Test & Evaluation	MIPR	US Army Corps of Engineers - Engineering Research and Development Center (ERDC) : Vicksburg, MS	0.250	0.250	May 2021	0.675	May 2022	-		-		-	0.000	1.175	-
Bridge Supplemental Set - PQT Transportability Testing	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	-	0.196	Sep 2021	-		-		-		-	0.000	0.196	-
Bridge Erection Boat - Weapon Mount Testing	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	-	-		0.200	Sep 2022	-		-		-	0.000	0.200	-
Program increase - health usage monitoring system	C/FFP	TBD : TBD	-	1.850	Mar 2022	-		-		-		-	0.000	1.850	-
		Subtotal	2.684	8.346		7.075		2.550		-		2.550	0.000	20.655	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	11.046	14.445		19.158		8.528		-		8.528	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

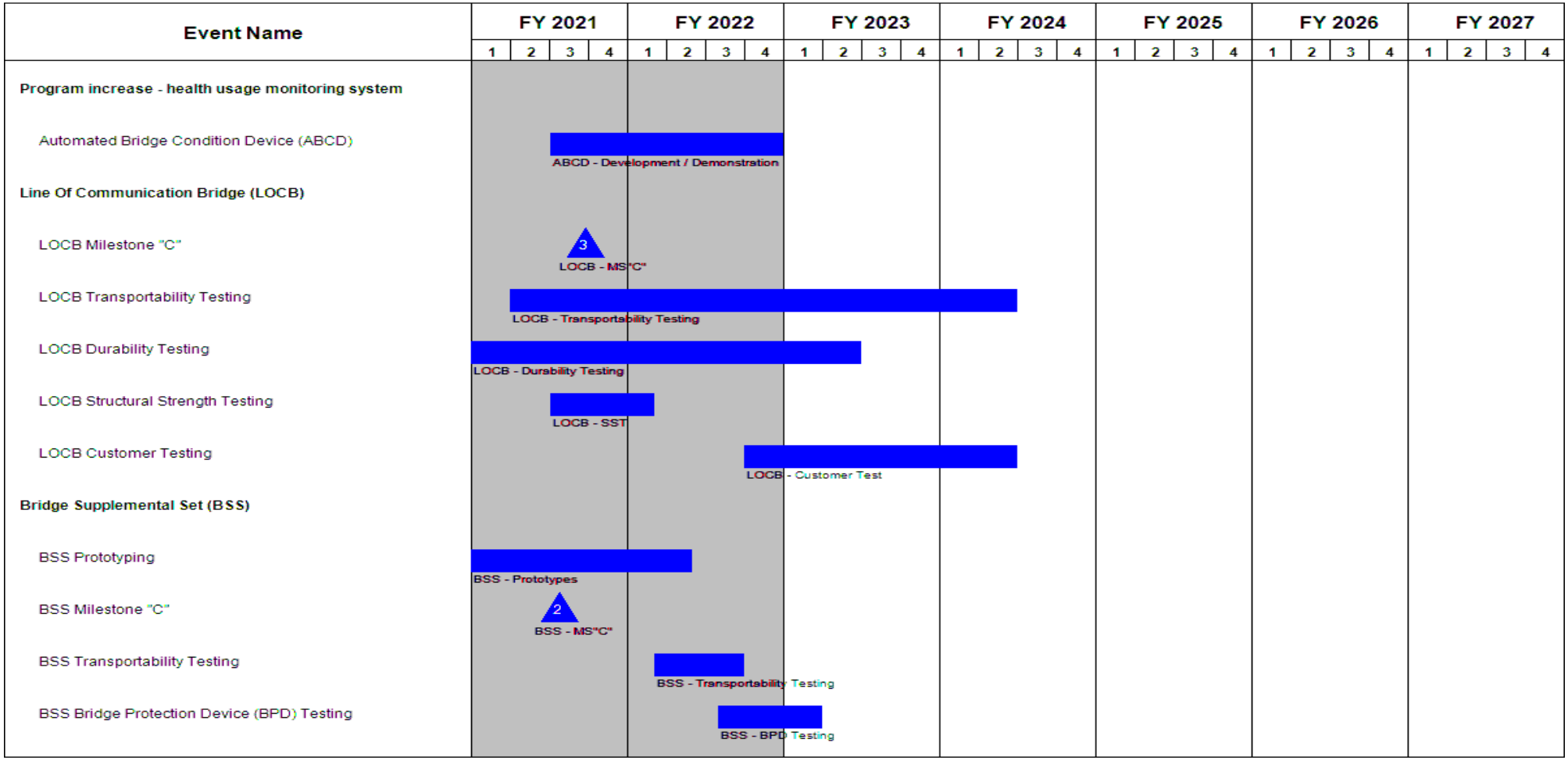

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

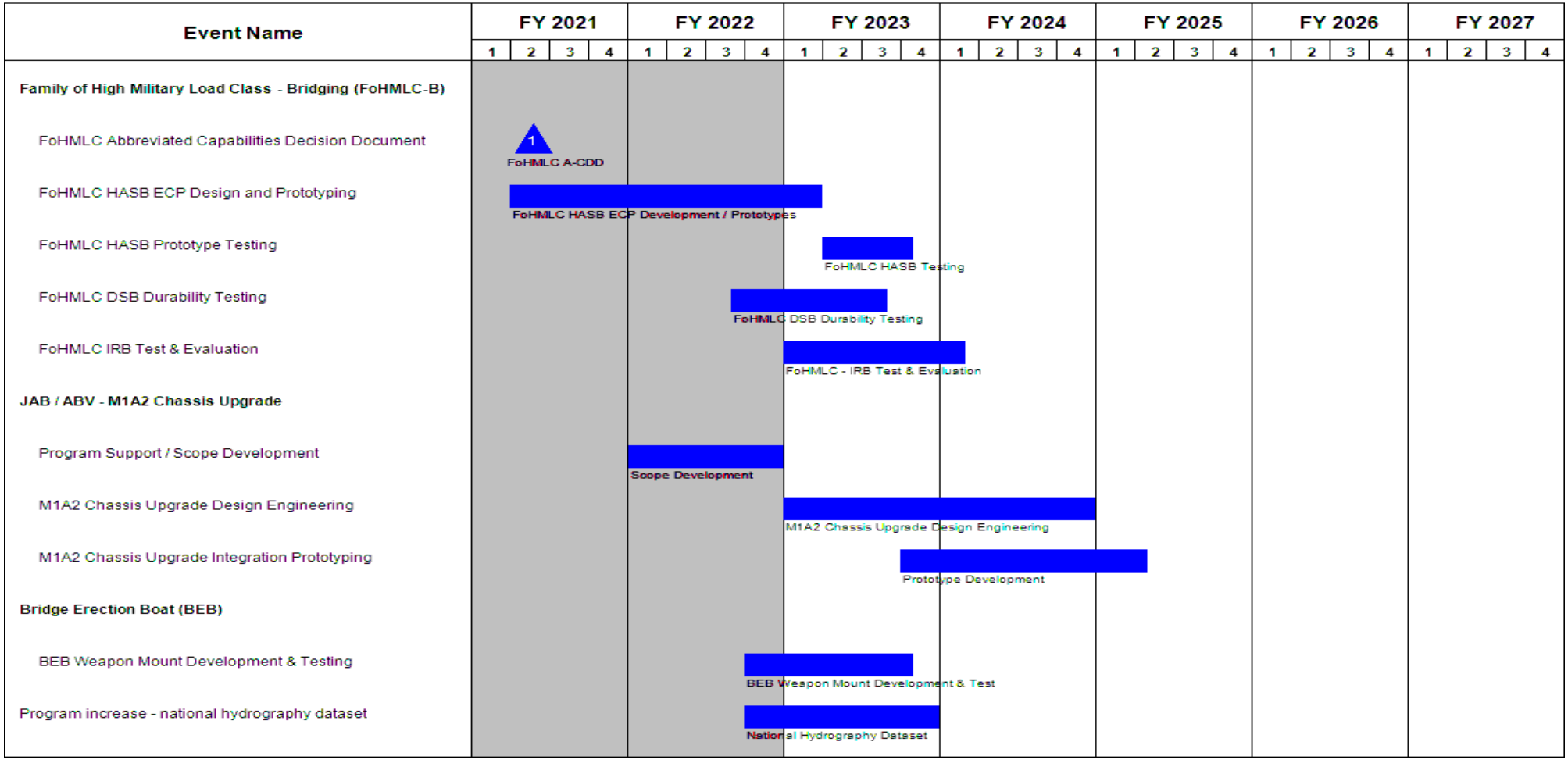

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Program increase - health usage monitoring system	3	2021	4	2022
Automated Bridge Condition Device (ABCD)	3	2021	4	2022
Line Of Communication Bridge (LOCB)	2	2012	4	2021
LOCB Milestone "C"	3	2021	3	2021
LOCB Transportability Testing	1	2020	2	2024
LOCB Durability Testing	2	2020	2	2023
LOCB Structural Strength Testing	3	2021	1	2022
LOCB Customer Testing	4	2022	2	2024
Bridge Supplemental Set (BSS)	2	2019	2	2026
BSS Prototyping	3	2020	2	2022
BSS Milestone "C"	3	2021	3	2021
BSS Transportability Testing	1	2022	3	2022
BSS Bridge Protection Device (BPD) Testing	3	2022	1	2023
Family of High Military Load Class - Bridging (FoHMLC-B)	1	2018	2	2022
FoHMLC Abbreviated Capabilities Decision Document	2	2021	2	2021
FoHMLC HASB ECP Design and Prototyping	1	2021	1	2023
FoHMLC HASB Prototype Testing	2	2023	4	2023
FoHMLC DSB Durability Testing	3	2022	3	2023
FoHMLC IRB Test & Evaluation	1	2023	1	2024
JAB / ABV - M1A2 Chassis Upgrade	1	2022	1	2026
Program Support / Scope Development	1	2022	4	2022
M1A2 Chassis Upgrade Design Engineering	1	2023	4	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
M1A2 Chassis Upgrade Integration Prototyping	4	2023	2	2025
Bridge Erection Boat (BEB)	4	2022	4	2023
BEB Weapon Mount Development & Testing	4	2022	4	2023
Program increase - national hydrography dataset	4	2022	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L39 / *Field Sustainment Support Ed*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
L39: *Field Sustainment Support Ed*	-	3.955	1.618	1.847	-	1.847	3.285	3.866	3.128	3.159	0.000	20.858
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports the Engineering and Manufacturing Development (EMD) of critical capabilities for cargo aerial delivery for identified theater distribution and services capability gaps, improve unit sustainability, and increase combat effectiveness. Project supports the demonstration of engineering development models and Type Classification of cargo parachutes, airdrop containers, sling load equipment, and other aerial delivery equipment to improve safety, effectiveness, and efficiency of airborne operations. This project develops critical enablers that support the Army in executing future movement and maneuver operations and distributed sustainment support and the Army's Modular Force Capabilities by maintaining readiness through fielding and integrating new equipment. This project also ensures Army Expeditionary Forces are capable of rapid deployment by providing 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.

Funding supports modernization of current cargo aerial delivery systems by investigating technology insertions that increase accuracy, collision avoidance, in flight communications, and reliability. Funding also supports developing initial prototypes to enable refinement of operational requirements and early user feedback to support future sustainment and operational movement concepts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Cargo Aerial Delivery	3.955	1.559	1.847
Description: Rapid Rigging and DeRigging Airdrop System (RRDAS) reduces rigging times while also providing the capability to rapidly de-rig loads on the drop zone. This will reduce the lead time to prepare Low Velocity Airdrop Load (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. Joint Precision Air Drop System (JPADS) provides autonomous guidance of payloads dropped from altitudes up to 25,000 feet at increments of 2,000 (2K) and 10,000 (10K) pounds. JPADS allows precise delivery of critical supplies to the Warfighter on the ground while allowing aircraft delivering payloads to fly at significantly safer altitudes. The JPADS 2K Block I Upgrade provides a GPS-denied capability, but the configuration only partially meets the GPS-denied requirement. The next configuration of JPADS must support the full GPS-denied capability, including hardware and software technologies such as night-vision, anti-jam technology, radio-based navigation, low-earth orbit satellites, and M-code.			
FY 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Complete Development Testing, initiate Operational Testing and continue development of logistics requirements and documentation to support Milestone C Production and Type Classification Standard decisions for RRDAS-Light in FY2023. ***FY 2023 Plans:*** Complete Operational Testing and development of logistics requirements and program documentation to support Milestone C Production and Type Classification Standard decisions for RRDAS-Light (RRDAS-L). ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Program increase for additional testing due to platform design change for ease of maintenance procedures.			
Title: SBIR/STTR Transfer ***FY 2022 Plans:*** Funding for SBIR/STTR costs. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding for SBIR/STTR costs.	-	0.059	-
Accomplishments/Planned Programs Subtotals	3.955	1.618	1.847

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• MA7806: *Precision Airdrop*	4.188	2.081	0.000	-	0.000	-	-	-	-	0.000	6.269

Remarks

D. Acquisition Strategy

The acquisition strategy is to accelerate product development and testing to transition into production.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L39 / *Field Sustainment Support Ed*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Support	Various	PM FSS : Natick, MA	6.179	0.337		0.406		0.597		-		0.597	0.000	7.519	Continuing
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.059		-		-		-	0.000	0.059	-
		Subtotal	6.179	0.337		0.465		0.597		-		0.597	0.000	7.578	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ALVADS-L&H	Various	Various : Various	17.152	-		-		-		-		-	0.000	17.152	Continuing
EHLSCDS	Various	Various : Various	0.715	-		-		-		-		-	0.000	0.715	-
JPADS	Various	Various : Various	1.853	1.202		-		-		-		-	0.000	3.055	-
RRDAS	Various	Various : Various	1.780	0.718		0.453		0.750		-		0.750	0.000	3.701	-
		Subtotal	21.500	1.920		0.453		0.750		-		0.750	0.000	24.623	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EHLSCDS	Various	Various : Various	0.424	-		-		-		-		-	0.000	0.424	-
ALVADS	Various	Various : Various	0.050	-		-		-		-		-	0.000	0.050	-
JPADS	Various	Various : Various	0.200	0.056		-		-		-		-	0.000	0.256	-
		Subtotal	0.674	0.056		-		-		-		-	0.000	0.730	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L39 / *Field Sustainment Support Ed*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EHLSCDS	Various	Yuma Proving Ground (YPG), AZ, AEC : AZ	11.040	-		-		-		-		-	0.000	11.040	Continuing
ALVADS-L&H	Various	Yuma Proving Ground (YPG), AZ/ OTC, NC : AZ	8.288	-		-		-		-		-	0.000	8.288	Continuing
JPADS	Various	Various : Various	1.432	0.742		-		-		-		-	0.000	2.174	-
RRDAS	Various	Various : Various	0.450	0.900		0.700		0.500		-		0.500	0.000	2.550	-
		Subtotal	21.210	1.642		0.700		0.500		-		0.500	0.000	24.052	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	49.563	3.955		1.618		1.847		-		1.847	0.000	56.983	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L39 / *Field Sustainment Support Ed*

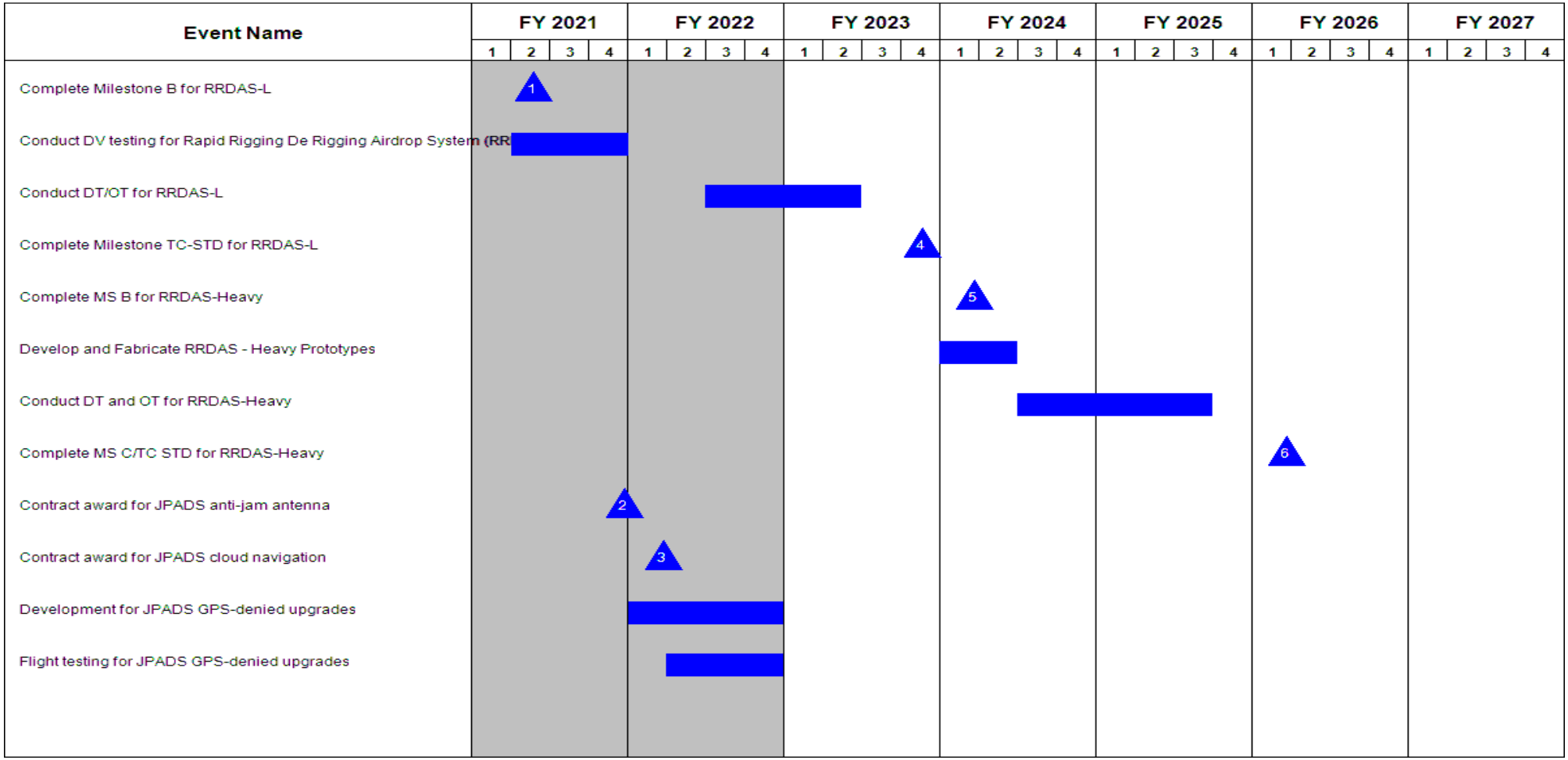

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L39 / *Field Sustainment Support Ed*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Complete Milestone B for RRDAS-L	2	2021	2	2021
Conduct DV testing for Rapid Rigging De Rigging Airdrop System (RRDAS)-L	2	2021	4	2021
Conduct DT/OT for RRDAS-L	3	2022	2	2023
Complete Milestone TC-STD for RRDAS-L	4	2023	4	2023
Complete MS B for RRDAS-Heavy	1	2024	1	2024
Develop and Fabricate RRDAS - Heavy Prototypes	1	2024	2	2024
Conduct DT and OT for RRDAS-Heavy	3	2024	3	2025
Complete MS C/TC STD for RRDAS-Heavy	1	2026	1	2026
Contract award for JPADS anti-jam antenna	4	2021	4	2021
Contract award for JPADS cloud navigation	1	2022	1	2022
Development for JPADS GPS-denied upgrades	1	2022	4	2022
Flight testing for JPADS GPS-denied upgrades	2	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
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COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
L41: *Water And Petroleum Distribution - Ed*	-	8.707	8.548	7.921	-	7.921	6.677	2.053	-	-	0.000	33.906
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports engineering and manufacturing development efforts as well as the Production Qualification Testing (PQT) and First Article Testing (FAT) efforts to provide all services with ample supply of clean fuel and water, supporting all types of missions. The Army has the mission to supply fuel for all land-based forces, including the Marines and the Air Force, and for supplying bulk drinking water to Soldiers. These programs enable the Army to improve maneuver sustainment operations to meet the demands of Army units and the Future Force. The mission includes receiving and transferring petroleum from trucks, ships, pipelines, and permanent and temporary storage facilities; moving petroleum from storage to and within corps and division areas; fuel quality surveillance testing; and dispensing in support of tactical operations, including rapid refueling of aircraft. This project also supports development and analysis of technologies designed to increase survivability of petroleum and water systems that may operate or be transported in hostile environments. The mission covers water purification and waste water treatment, reutilization, storage, distribution, alternative water source acquisition, disposal, and quality control. These research and development missions support the development and enhancement of rapidly deployed Petroleum and Water equipment, which enables the Army to achieve its vision by providing a highly mobile and self-sustaining systems in hostile joint operations areas. Programs funded on this Project includes: Tactical Fuel Distribution System (TFDS), Bulk Fuel Distribution System (BFDS), Petroleum Expeditionary Analysis Kit (PEAK), Water Bison and Water Bison Light, Water Storage and Distribution System (WSDS) , 3K Tactical Water Purification System (TWPS), Early Entry Fluid Distribution System (E2FDS) and Pipeline Trace Tool - Software Development, Modular Tactical Retail Refueling System (MTRRS), and Load Handling System (LHS) - Compatible Water Tank-rack System (HIPPO), Chemical Biological Radiological Nuclear (CBRN) Water Hauler (Camel).

This Project provides for the modernization of current Petroleum and Water System fleets by investigating technology insertions including, but not limited to: condition based maintenance, vetronics, Victory Architecture, autonomous operations and other emerging technologies. Funding also supports developing and testing initial prototypes, and production representative articles to enable refinement of Operational Requirements and early user feedback to support future sustainment and operational movement operating concepts. Funding supports non-traditional and middle tier acquisitions to include Other Transaction Authority (OTA) and 804.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Water Bison / Bison Lite	1.790	0.894	1.845
Description: The Unit Water Trailer (Water Bison) is a replacement for the 400 gallon Water Buffalo. A second variant, the Water Bison Lite, is also required. The Water Bison consists of a baffled, 500 gallon capacity tank and the Water Bison Lite consists of a baffled, 250 gallon capacity tank. They provide the modular force an efficient method of transporting a full day of supply (DOS) of bulk potable water. Both systems include freeze protection that are mounted on a trailer and include all hoses and fittings necessary to dispense water by means of gravity flow. The Water Bison and Water Bison Lite will be used by units at all echelons. The Family of Medium Tactical Vehicles (FMTV) shall be capable of towing this system.			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
FY 2022 Plans: Water Bison - Prototype Testing at Yuma Proving Grounds, AZ ***FY 2023 Plans:*** Bison - Production Qualification Testing, User Jury / Maint Demo / LUT ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding remains stable from FY22 to FY23. FY23 RDTE will fund Production Qualification Testing for the Bison 500g variant. PM is also conducting a maintenance demonstration and user jury.			
Title: Early Entry Fluid Distribution System (E2FDS) ***Description:*** The Early Entry Fluid Distribution System (E2FDS) is a new system that enhances the Inland Petroleum Distribution System (IPDS) pipeline and rapidly establishes new or extends existing pipeline traces. It is a high throughput flexible conduit system for the transport of bulk petroleum or water across the battlefield. It is rapidly-emplaced and capable of a throughput of 850,000 gallons of fuel or 650,000 gallons of raw non-potable water, per a 20 hour operational day through a trace up to 50 miles long. The E2FDS requires little to no engineer support to emplace the conduit or pump stations. Pump stations are fully automated and centrally controlled. ***FY 2022 Plans:*** Limited User Test (LUT), Material Release and final matrix testing support personnel costs before transitioning to Full Rate Production (FRP) ***FY 2022 to FY 2023 Increase/Decrease Statement:*** E2FDS does not require RDTE funding for FY23	0.477	0.497	-
Title: Modular Tactical Retail Refueling System (MTRRS) ***Description:*** The Mobile Tactical Retail Refueling System (MTRRS) will serve as a bulk fuel carrier and retail dispenser for military vehicles and ground support equipment, providing fuel in all operational environments. The MTRRS allows for different configurations or transport platforms including Medium Tactical Vehicle (MTV) cargo trucks, MTV Trailers, and the Palletized Load System (PLS) flat-racks. MTRRS ground operation is possible by using Material Handling Equipment (MHE) to remove the MTRRS from the transport platform. The MTRRS provides fuel storage (900 Gallons (T), 1200 Gallons (O)), filtration, and unit-level retail capabilities with the ability to refuel ground vehicles, ground equipment, and fuel containers. MTRRS includes an electric pump that will provide a minimum flow rate of 17 Gallons per Minute (GPM) of filtered fuel. The prime mover or a separate generator provides power using an included North Atlantic Treaty Organization (NATO) slave cable.	1.704	-	-
Title: Petroleum Expeditionary Analysis Kit (PEAK)	0.953	0.554	1.075

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Description: The Petroleum Expeditionary Analysis Kit (PEAK) replaces Aviation Fuels Contamination Test Kit (AFCTK) and provides fuel quality surveillance within all Brigade Combat Teams and Support Brigades. It is a stand-alone system that will rapidly verify petroleum products' suitability for use at point of consumption. The PEAK will evaluate all kerosene-based and diesel fuels used in ground systems and aircraft. It will provide the field with the capability to determine fuel type, grade, and additives. ***FY 2022 Plans:*** Complete Prototype Testing and conducting Production Qualification Testing, Customer Testing and Logistics User Test (LUT) ***FY 2023 Plans:*** PEAK requires funding to complete Production Qualification Testing, Customer Testing and Limited User Test (LUT) ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding will increase from FY22 to FY23 as PEAK completes PQT and moves into Customer Testing and Limited User Test (LUT). FY23 is the last year of RDTE funding for PEAK.			
Title: Tactical Fuel Distribution System (TFDS) ***Description:*** The Tactical Fuel Distribution System (TFDS) provides theater bulk petroleum distribution to maximize throughput in order to support early entry, buildup, and onward movement of forces. It replaces the M967 and M969 tanker trailers, which are nearing the end of its useful life. The TFDS consists of a 5,000 gallon armor kit compatible line haul tanker trailer, pulled primarily by the M1088 tractor. It shall be capable of retail fuel distribution and able to travel on unimproved roads and provides support from the Theater Army to Echelons Above Brigade (EAB). ***FY 2022 Plans:*** Start of Prototype Run-off testing for contractor down select and Ballistics Armor study/testing. ***FY 2023 Plans:*** Completion of Prototype Run-off testing for contractor down select, Milestone C decision and award of LRIP production. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decreases from FY22 to FY23 as PM focuses on completing FY22 funded Prototype Run-off testing, requests Milestone C approval and awards LRIP production contract to support FY24 Production Qualification Testing.	0.372	3.816	0.690
Title: Load Handling System (LHS) - Compatible Water Tankrack System (HIPPO) ***Description:*** Load Handling System (LHS) - Compatible Water Tank Rack System (HIPPO) replaces the Forward Area Water Point Supply system (FAWPSS) and Semi-Trailer Mounted Fabric Tank (SMFT). It provides capability to receive, store, transport, and distribute bulk and unit retail water to the warfighter. The HIPPO consists of a 2,000 gallon potable water tank in a 20' ISO	0.200	0.732	0.200

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
frame with integrated pump, engine, alternator, hose reel, freeze prevention, and fill stand. The HIPPO is critical for sustaining the soldier and accomplishing combat service support missions at all echelons. Legacy water distribution systems do not provide the mobility required to achieve unit distribution goals for the current and objective force. ***FY 2022 Plans:*** Complete Production qualification Testing (PQT) and Operational Test. ***FY 2023 Plans:*** Completion of HIPPO Customer Testing and Limited User Test (LUT) ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decreased from FY22 to FY23 as PM completes Customer Testing and Limited User Test (LUT). Full Rate Production decision 2nd Qtr FY23. FY23 is the last year of RDTE fund for HIPPO			
Title: Bulk Fuel Distribution System (BFDS) ***Description:*** The Bulk Fuel Distribution System (BFDS) provides theater bulk petroleum distribution to maximize throughput to support early entry, buildup, and onward movement of forces. The BFDS consists of a 7,500 gallon line haul tanker trailer, pulled primarily by the M915A3 or later version tractor. The BFDS provides bulk distribution between large fuel storage areas and will include a automated level gauge sensor for mission command reporting and providing asset and in-transit visibility. The BFDS will be used on improved roads.. ***FY 2022 Plans:*** Complete Production Qualification Testing, Complete Limited User Testing ***FY 2023 Plans:*** Completion of incrementally funded Production Qualification Testing started in FY22. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decreased from FY22 to FY23 as PM completed PQT. FY23 is the last year of RDTE funding for BFDS with Full Rate Production starting in FY24	1.718	0.585	1.035
Title: Water and Storage System (WSDS) ***Description:*** Water Storage Distribution System (WSDS) provides the large capacity capability that is tailorable in receiving, storing, and issuing to all bulk water systems in the Army inventory. The WSDS stores and issues potable water in support of individual consumption, medical treatment, Chemical, Biological, Radiological, and Nuclear (CBRN) decontamination. It is used in conjunction with the 1,500 gph Tactical Water Purification System (1.5K TWPS) or the 3,000 gph Reverse Osmosis Water Purification Unit (3K ROWPU). It is the only program of record that is designed to store bulk water in the quantities needed for	1.493	0.274	0.821

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
the Warfighter. The 100,000 gallon WSDS is containerized and will take the place of two 40K systems in the Composite Supply Companies. ***FY 2022 Plans:*** WSDS Pump Test Asset contract award and Pump-Off testing for contractor down select. ***FY 2023 Plans:*** Completion of Production Qualification Testing, Customer Testing and Limited User Test (LUT). ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decreased from FY22 to FY23 as program transitioned from buying and testing prototype pump assets in FY22 to Production Qualification Testing of LRIP assets in FY23.			
Title: Modular Fuel System (MFS) Tank Rack Module (TRM) - M107 40gpm Pump Modification Kit ***Description:*** The Modular Fuel System (MFS), Tank Rack Module (TRM) is a 2,500 gallon mobile storage and distribution platform. It is configured in a 20 foot ISO frame and is capable of being transported by a Heavy Expanded Mobility Tactical Truck-Load Handling System (HEMTT-LHS) and the Palletized Load Handling System (PLS). The MFS TRM has a Stand-Alone Retail Capability, utilizing its integrated continuous use electric pump, filter separator and flow meter. It can be operate mounted on the prime mover or trailer or on the ground. There are currently two fielded variants of the TRM (M107 & M107A1). The M107 TRM has a 20 GPM fuel pump as compared to the 40 GPM pump on the M107A1. Modification effort will install the M107A1 pump (and correlating Filter Separator) into the M107 with result in a 100% faster pumping time. ***FY 2022 Plans:*** Modification pump kit engineering development, purchase of test assets and kit testing prior to contract award. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decreased from FY22 to FY23 as FY22 was the last year of RDTE funding for M107 40gpm Pump Modification Kit development	-	0.825	-
Title: 3k Tactical Water Purification Sys. (3k TWPS) ***FY 2022 Plans:*** Funding will be used to start program, collect market research, start product design and packaging development. ***FY 2023 Plans:***	-	0.065	2.000

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Award of 3K TWPS prototype test assets ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 is the first year of RDT&E funding for 3k TWPS. FY23 increase required for 3K TWPS prototype test assets to support Production Qualification Testing in FY23.			
Title: Chemical Biological Radiological Nuclear (CBRN) Water Hauler ***Description:*** The Chemical Biological Radiological Nuclear (CBRN) Water Hauler consists of an 800-gallon capacity tank with integral freeze protection, mounted on the MTV 5 Ton Truck. Decontamination operations require bulk non-potable water in support of the Joint Force per ATP 3-11.32 of up to 450 gallons per vehicle. Decontamination capabilities are critical in Multi-Domain Operations (MDO) because the enemy will utilize multiple layers of Anti-Access and Area Denial (A2AD) capabilities to include CBRN threats to delay and to impose high cost to obstruct strategic objectives. ***FY 2023 Plans:*** Funding will be used to start program, collect market research, start product design and packaging development. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** CBRN is a new start project for FY23.	-	-	0.255
Title: SBIR/STTR Transfer ***FY 2022 Plans:*** SBIR/STTR Transfer ***FY 2022 to FY 2023 Increase/Decrease Statement:*** SBIR/STTR Transfer	-	0.306	-
Accomplishments/Planned Programs Subtotals	8.707	8.548	7.921

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• MA6000: *Distribution Systems, Petroleum & Water*	72.348	72.296	26.433	-	26.433	30.964	45.800	62.185	62.162	0.000	372.188
• D02001: *Semitrailers, tankers*	13.666	17.985	21.869	-	21.869	44.639	83.018	108.649	108.468	0.000	398.294
• MA4502: *INSTALLATION OF MODIFICATIONS*	6.969	5.574	6.957	-	6.957	5.948	8.510	5.807	5.805	Continuing	Continuing

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• MB6400: *QUALITY SURVEILLANCE EQUIPMENT*	-	0.744	2.845	-	2.845	3.049	3.002	7.800	7.797	0.000	25.237

Remarks

D. Acquisition Strategy

Develop engineering prototypes for the Petroleum Tankers, Early Entry Fluid Distribution System (E2FDS) and Load Handling System (LHS) - Compatible Water Tank Rack System (HIPPO) select Non-Development Item (NDI) based on market surveys and proposals from industry. Conduct industry days and based on additional market research will award either competitive or sole source contracts. Conduct Integrated Product Team (IPT's) and develop acquisition strategies for Water Bison and Water Bison Light, Petroleum Expeditionary Analysis Kit (PEAK), Tactical Fuel Distribution System (TFDS), Bulk Fuel Distribution System (BFDS) and Water Storage and Distribution System (WSDS), Mobile Tactical Retail Refueling System (MTRRS). Conduct developmental and operational testing where applicable for Water Bison and Water Bison Light, E2FDS, Petroleum Tankers, MTRRS, Water Storage and Distribution Systems (WSDS) 40,000 gallon and 100,000 gallon sets, PEAK, HIPPO. Conduct Source Selection Evaluation Boards (SSEBs) within the Petroleum and Water Systems portfolio. Develop documentation in support of Milestone Decisions. Will award Other Transactional Agreements (OTAs) or traditional Federal Acquisition Regulation (FAR) based contracts based on market research, industry capabilities and program risks.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PM Matrix Spt / GVSC Engineering Spt	MIPR	Various TACOM : Warren, MI	-	3.009	Jan 2021	3.057	Jan 2022	2.266	Jan 2023	-		2.266	0.000	8.332	-
SBIR/STTR Transfer	TBD	SBBR/STTR Transfer : SBBR/ STTR Transfer	-	-		0.306	Mar 2022	-		-		-	0.000	0.306	-
		Subtotal	-	3.009		3.363		2.266		-		2.266	0.000	8.638	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
E2FDS - Tech/Ops Manuals	C/FFP	DRS SUSTAINMENT SYSTEMS, INC. : Saint Louis, MO	-	0.073	Mar 2021	-		-		-		-	0.000	0.073	-
PEAK - Contract Prototype Award (OTA)	C/FFP	TBD - OTA - Mulitple Contractors : Multiple	-	0.236	Sep 2021	-		-		-		-	0.000	0.236	-
TFDS - Contract Prototype Award (OTA)	C/FFP	TBD - OTA - Mulitple Contractors : Multiple	-	0.372	Mar 2022	1.720	Mar 2022	-		-		-	0.000	2.092	-
WSDS - Tech Data Package - ECP Update	MIPR	GVSC : Warren, MI	-	0.140	Feb 2021	-		-		-		-	0.000	0.140	-
WSDS - Pump Test Assets	C/FP	TBD - Mulitple Contractors : Multiple Contractors	-	0.594	Nov 2021	-		-		-		-	0.000	0.594	-
Bison - Contract Prototype Award (OTA)	C/FFP	TBD - OTA - Mulitple Contractors : Multiple	-	1.381	Nov 2021	-		-		-		-	0.000	1.381	-
MFS TRM - Kit Int. Design/ Eng. Pump Modification Upgrade + Test Assets	SS/FFP	ISOMETRICS : Reidsville, NC	-	-		0.228	Aug 2022	-		-		-	0.000	0.228	-
TFDS - Ballistic Study	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	-		0.460	May 2022	-		-		-	0.000	0.460	-

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
3k TWPS - Prototype Test Assets	C/FP	ACC-Warren : Warren, MI	-	-		-		1.800	Mar 2023	-		1.800	0.000	1.800	-
BFDS - Prototype Design Update	C/FFP	OTA - Mulitple Contractors : Multiple	-	0.190	Apr 2021	-		-		-		-	0.000	0.190	-
		Subtotal	-	2.986		2.408		1.800		-		1.800	0.000	7.194	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
E2FDS - PQT/LUT Customer Event / Maint. Demos	MIPR	TACOM : Warren, MI	-	-		0.300	Apr 2022	-		-		-	0.000	0.300	-
HIPPO - User Jury / LUT	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	-		-		0.200	Nov 2022	-		0.200	0.000	0.200	-
Bison - User Jury / Maint Demo / LUT	MIPR	TBD : TBD	-	-		-		0.250	Aug 2023	-		0.250	0.000	0.250	-
		Subtotal	-	-		0.300		0.450		-		0.450	0.000	0.750	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MTRRS - Production Qualification Test	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	1.437	Feb 2021	-		-		-		-	0.000	1.437	-
MTRRS - HSL Test	MIPR	Aberdeen Test Center : Aberdeen Proving Ground, MD	-	0.021	Sep 2021	-		-		-		-	0.000	0.021	-

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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PEAK - Protoype Dev Test - Fly Off Testing	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	0.305	Sep 2021	0.016	Jun 2022	-		-		-	0.000	0.321	-
BFDS - APG - Prototype Testing	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	0.220	Feb 2021	-		-		-		-	0.000	0.220	-
TFDS - Prototype Run-Off Testing	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	-		0.990	Apr 2022	-		-		-	0.000	0.990	-
WSDS - Pump Off Test	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	0.529	Jan 2022	-		-		-		-	0.000	0.529	-
HIPPO - PQT / FAT / HSL / Transportability Testing	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	0.200	Aug 2021	0.401	May 2022	-		-		-	0.000	0.601	-
Bison - KRC - Prototype Testing	C/FFP	Keweenaw Research Center : Calumet, MI	-	-		0.570	Mar 2022	-		-		-	0.000	0.570	-
MFS TRM - Mod Kit Prototype Testing	MIPR	Army Test Center : Yuma, AZ	-	-		0.500	Nov 2022	-		-		-	0.000	0.500	-
BFDS - Production Qualification Test	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	-		-		0.755		-		0.755	0.000	0.755	-
PEAK - Production Qualification Testing / Cust. Test (LUT)	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	-		-		0.575	Nov 2022	-		0.575	0.000	0.575	-
WSDS - Production Qualification Testing / Cust. Test (LUT)	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	-		-		0.675	Dec 2022	-		0.675	0.000	0.675	-
Bison - Production Qualification Testing	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	-		-		1.400	Jun 2023	-		1.400	0.000	1.400	-
		Subtotal	-	2.712		2.477		3.405		-		3.405	0.000	8.594	N/A

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	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	8.707		8.548		7.921		-		7.921	0.000	25.176	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

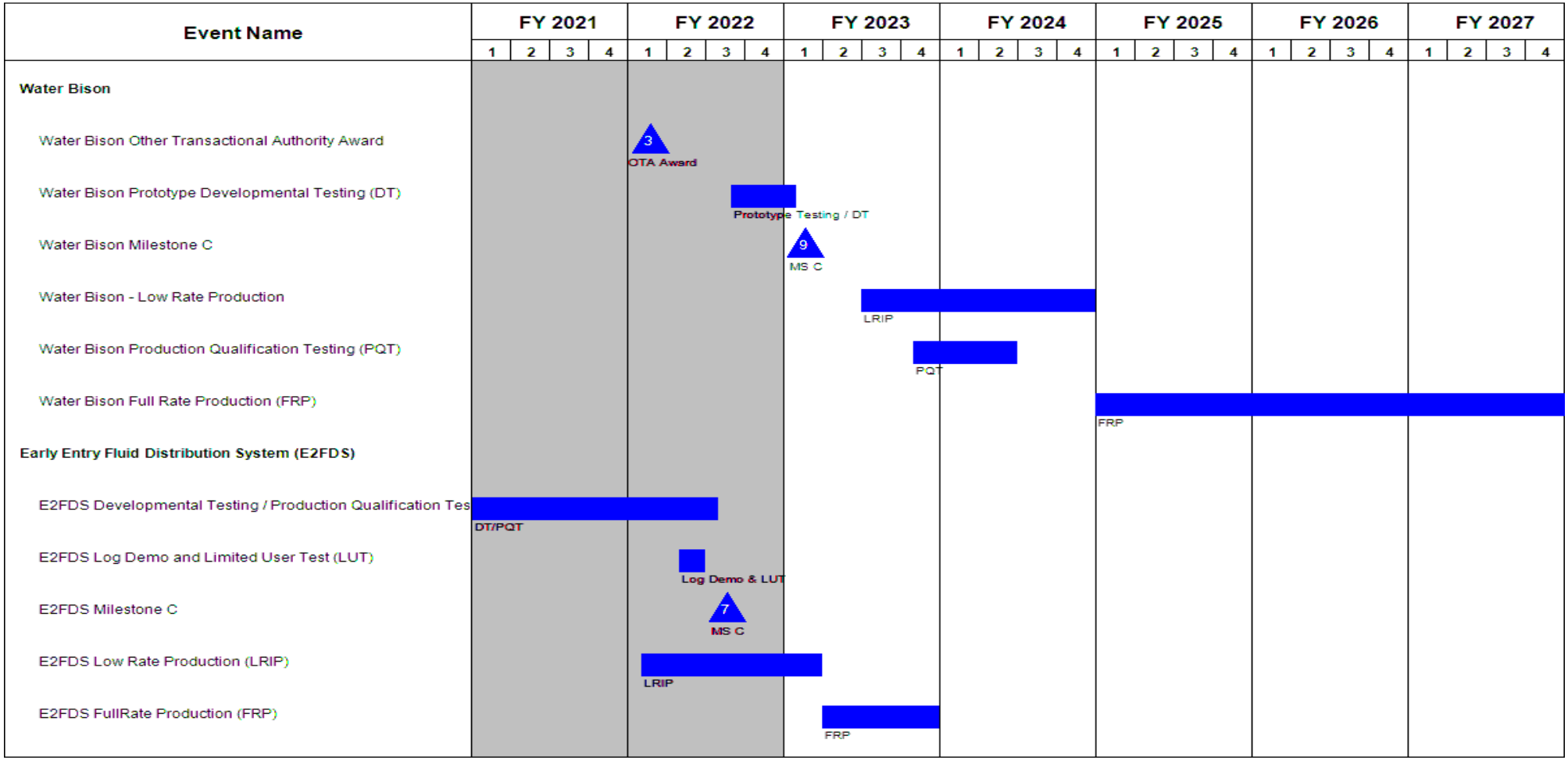

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

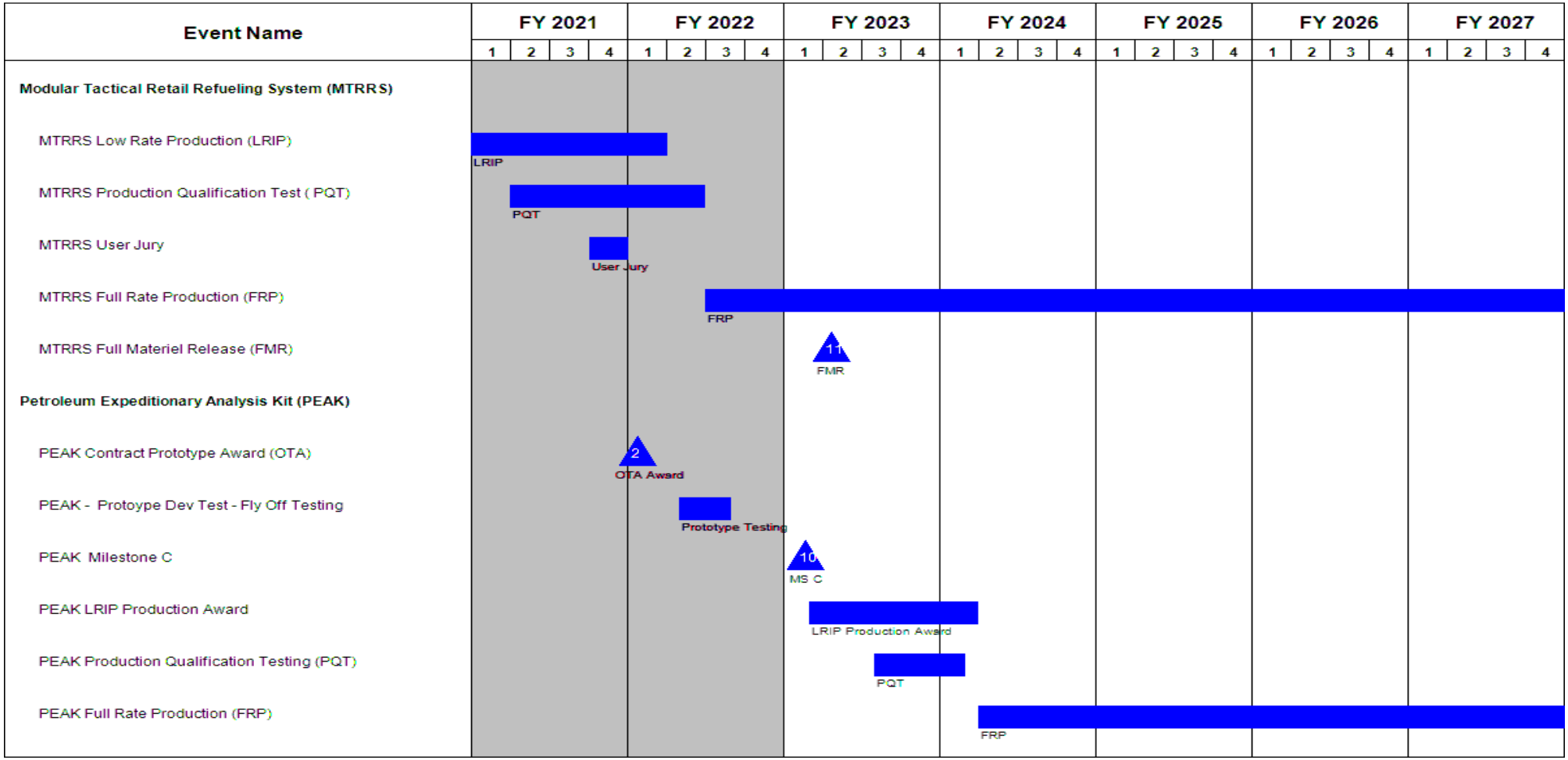

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

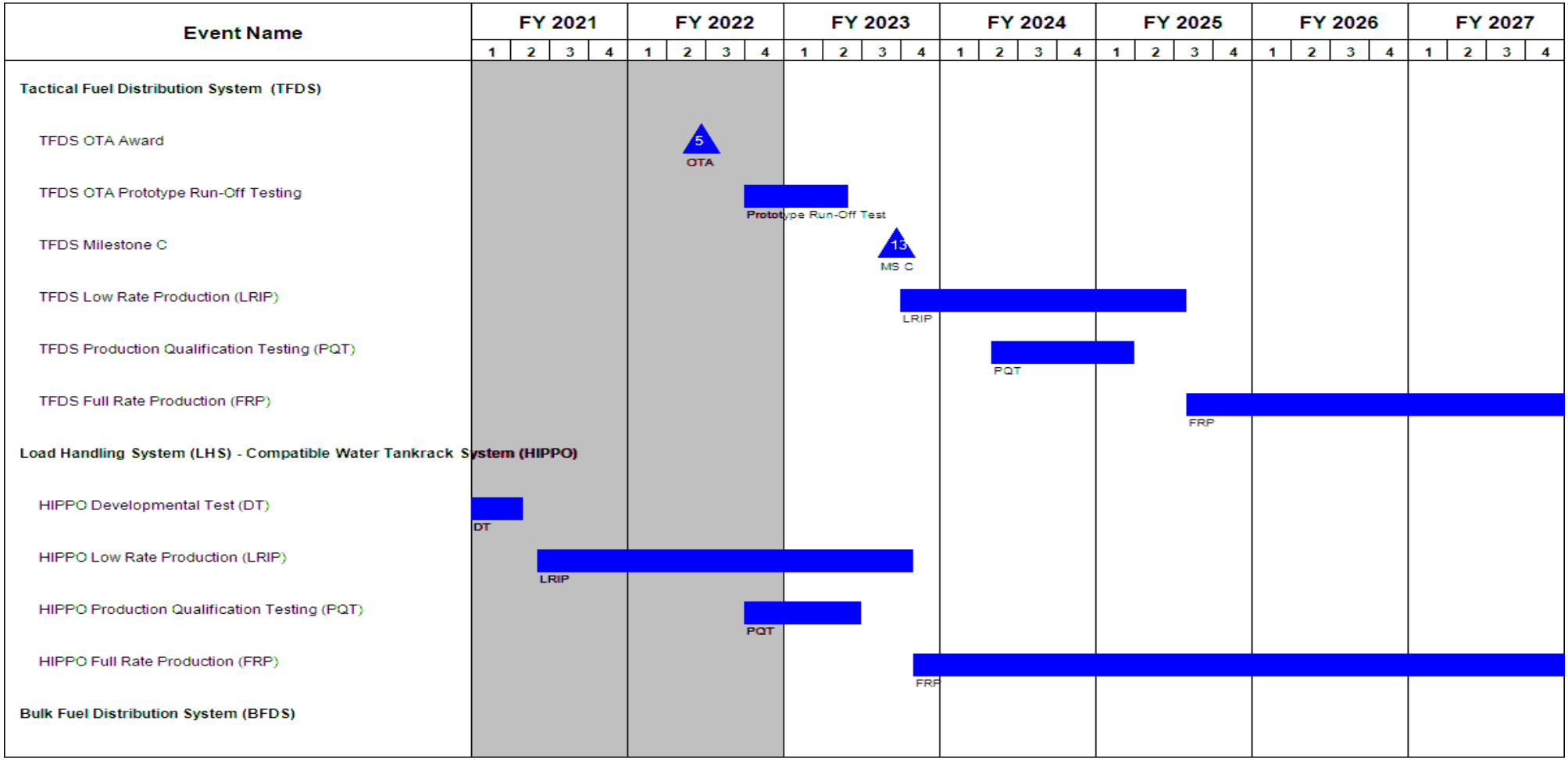

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

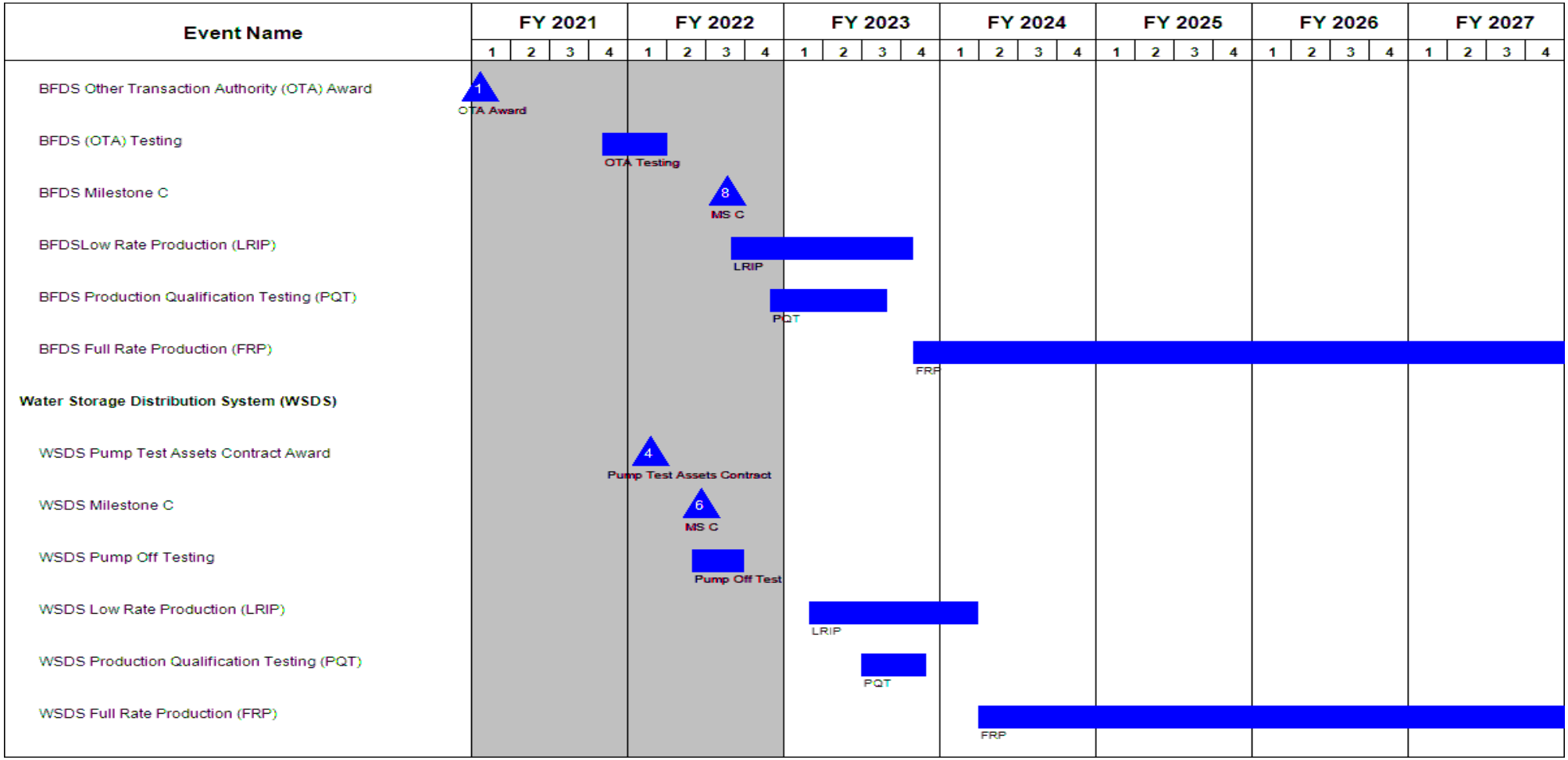

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

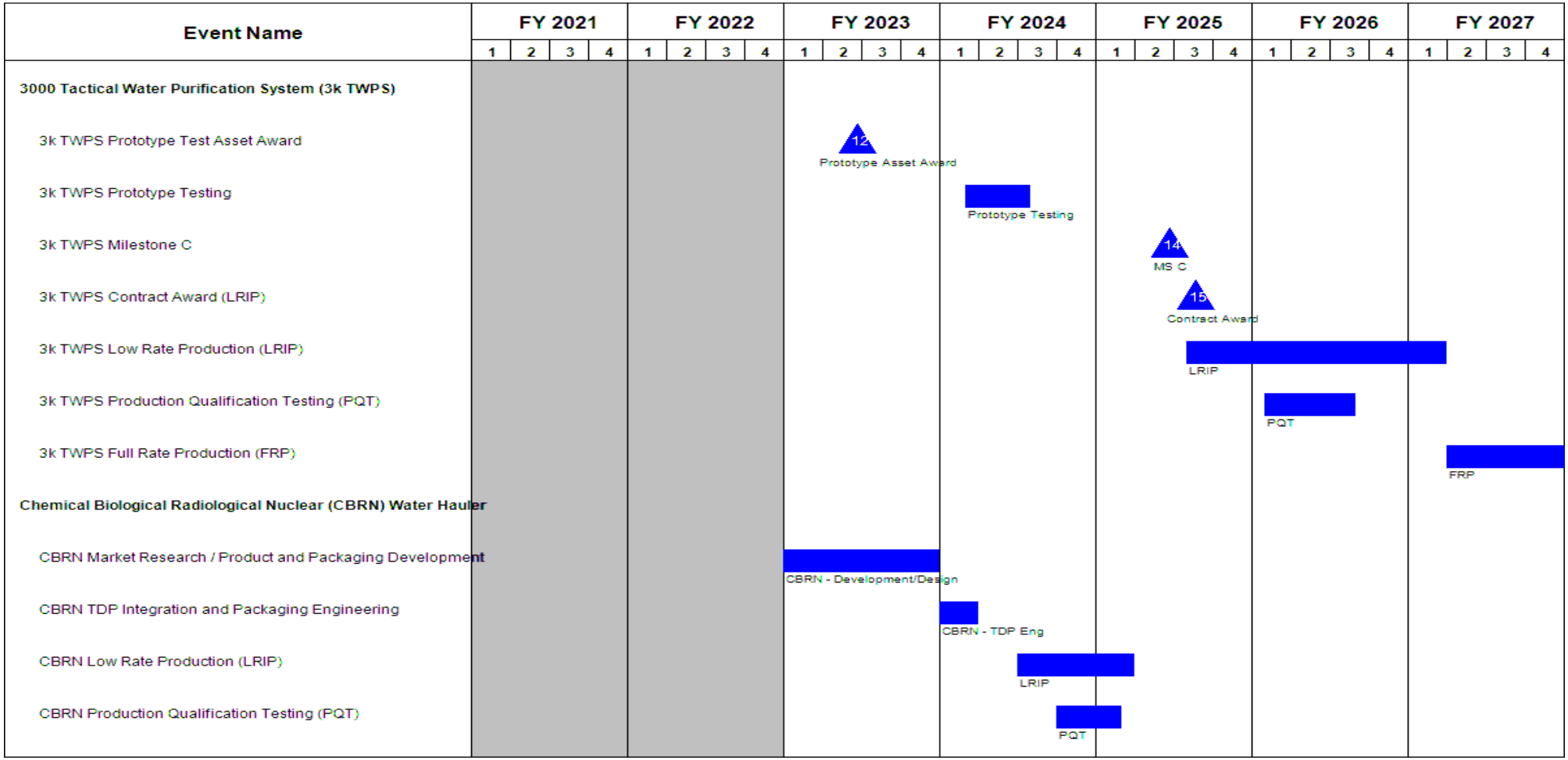

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

Event Name	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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
CBRN Full Rate Production (FRP)																	FRP											

Exhibit R-4A, **RDT&E Schedule Details:** PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Water Bison	1	2022	4	2025
Water Bison Other Transactional Authority Award	1	2022	1	2022
Water Bison Prototype Developmental Testing (DT)	3	2022	1	2023
Water Bison Milestone C	1	2023	1	2023
Water Bison - Low Rate Production	3	2023	4	2024
Water Bison Production Qualification Testing (PQT)	4	2023	2	2024
Water Bison Full Rate Production (FRP)	1	2025	4	2031
Early Entry Fluid Distribution System (E2FDS)	1	2018	4	2023
E2FDS Developmental Testing / Production Qualification Testing (DT/PQT)	1	2021	3	2022
E2FDS Log Demo and Limited User Test (LUT)	2	2022	2	2022
E2FDS Milestone C	3	2022	3	2022
E2FDS Low Rate Production (LRIP)	1	2022	1	2023
E2FDS FullRate Production (FRP)	2	2023	4	2023
Modular Tactical Retail Refueling System (MTRRS)	1	2017	4	2022
MTRRS Low Rate Production (LRIP)	3	2020	1	2022
MTRRS Production Qualification Test (PQT)	1	2021	2	2022
MTRRS User Jury	4	2021	4	2021
MTRRS Full Rate Production (FRP)	3	2022	1	2028
MTRRS Full Materiel Release (FMR)	2	2023	2	2023
Petroleum Expeditionary Analysis Kit (PEAK)	1	2021	3	2023
PEAK Contract Prototype Award (OTA)	1	2022	1	2022
PEAK - Protoype Dev Test - Fly Off Testing	2	2022	3	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
PEAK Milestone C	1	2023	1	2023
PEAK LRIP Production Award	1	2023	1	2024
PEAK Production Qualification Testing (PQT)	3	2023	1	2024
PEAK Full Rate Production (FRP)	2	2024	2	2029
Tactical Fuel Distribution System (TFDS)	1	2020	1	2025
TFDS OTA Award	2	2022	2	2022
TFDS OTA Prototype Run-Off Testing	4	2022	2	2023
TFDS Milestone C	3	2023	3	2023
TFDS Low Rate Production (LRIP)	4	2023	3	2025
TFDS Production Qualification Testing (PQT)	2	2024	1	2025
TFDS Full Rate Production (FRP)	3	2025	3	2035
Load Handling System (LHS) - Compatible Water Tankrack System (HIPPO)	3	2020	4	2025
HIPPO Developmental Test (DT)	4	2020	1	2021
HIPPO Low Rate Production (LRIP)	2	2021	4	2023
HIPPO Production Qualification Testing (PQT)	4	2022	2	2023
HIPPO Full Rate Production (FRP)	4	2023	4	2031
Bulk Fuel Distribution System (BFDS)	1	2020	2	2028
BFDS Other Transaction Authority (OTA) Award	1	2021	1	2021
BFDS (OTA) Testing	4	2021	1	2022
BFDS Milestone C	3	2022	3	2022
BFDSLow Rate Production (LRIP)	3	2022	4	2023
BFDS Production Qualification Testing (PQT)	4	2022	3	2023
BFDS Full Rate Production (FRP)	4	2023	4	2029
Water Storage Distribution System (WSDS)	4	2019	3	2028
WSDS Pump Test Assets Contract Award	1	2022	1	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
WSDS Milestone C	2	2022	2	2022
WSDS Pump Off Testing	2	2022	3	2022
WSDS Low Rate Production (LRIP)	1	2023	1	2024
WSDS Production Qualification Testing (PQT)	3	2023	4	2023
WSDS Full Rate Production (FRP)	2	2024	3	2032
3000 Tactical Water Purification System (3k TWPS)	1	2023	2	2030
3k TWPS Prototype Test Asset Award	2	2023	2	2023
3k TWPS Prototype Testing	1	2024	3	2024
3k TWPS Milestone C	2	2025	2	2025
3k TWPS Contract Award (LRIP)	3	2025	3	2025
3k TWPS Low Rate Production (LRIP)	3	2025	1	2027
3k TWPS Production Qualification Testing (PQT)	1	2026	3	2026
3k TWPS Full Rate Production (FRP)	2	2027	1	2038
Chemical Biological Radiological Nuclear (CBRN) Water Hauler	1	2023	2	2031
CBRN Market Research / Product and Packaging Development	1	2023	4	2023
CBRN TDP Integration and Packaging Engineering	1	2024	1	2024
CBRN Low Rate Production (LRIP)	3	2024	1	2025
CBRN Production Qualification Testing (PQT)	4	2024	1	2025
CBRN Full Rate Production (FRP)	1	2025	2	2031

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army												Date: April 2022
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*				Project (Number/Name) L46 / *Maintenance Support Equipment*			
COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
L46: *Maintenance Support Equipment*	-	1.300	0.766	0.972	-	0.972	-	-	-	-	0.000	3.038
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Mobile Maintenance Equipment provides state of the art, deployable, vehicle-mounted, Soldier portable and containerized shelter tool systems supporting the readiness of the Joint warfighter directly supporting Soldier Lethality, Next Generation Combat Vehicle (NGCV) and Long Range Precision Fires (LRPF), as well as, addressing GAPs 10 and 17. These systems are equipped with industrial quality tools required for Two Level Maintenance that reduce common tool redundancy, provide tool standardization, minimize transportation requirements, reduce logistical footprint, and are backed by a Lifetime Warranty/Replacement Program which reduces sustainment costs. This is accomplished by employing a system of systems approach to maintenance acquisition. The System of Systems approach builds a maintenance capability upon each system, allowing a logical and natural approach to the Army's overall two level maintenance strategy. These inter-connected systems distributed throughout the Army at multiple levels and echelons provide a holistic repair capability in all scenarios and environments. These systems provide the Maintenance and Combat Commanders an unprecedented capability to repair wheeled, tracked, aviation, ground support and weapons systems on site at one location at one time. This approach to maintenance acquisition increases efficiencies and supports the current force while providing modular configurations designed to meet the specific needs of the Army maintainer in today's complex transforming environment.

BUDGET ITEM JUSTIFICATION: The need to develop and maintain a System of System maintenance approach is critical for maintaining readiness due to the growing complexity of today's military equipment, operational tempo, modularity, and current and evolving Tactics Techniques and Procedures (TTPs). The individual maintenance systems are comprehensive, interconnected and capable of solving and repairing any maintenance problems. The System of Systems approach does not advocate specific tools, methods or practices; instead it seeks to promote a streamlined comprehensive set of systems for solving maintenance challenges where the interactions of doctrine, technology, time and tactics techniques and procedures are the primary drivers. Funding for projects shall include test article procurement and testing of Soldier portable maintenance Sets, Kits, and Outfits (SKOs), load banks and refrigeration tool kit; investigation of new technologies for next generation mobile maintenance equipment shop sets including the Shop Equipment Welding (SEW) and Shop Equipment Contact Maintenance (SECM); development of additional Standard Automotive Tool Set (SATS) maintenance modules, Armament Repair Shop Set (ARSS), Mobile Ammunition Processing Facility (MAPF), Forward Repair System (FRS), Special Tools initiatives, shelter mounted system development; packaging development; and technical support for emerging Joint Capabilities Integration and Development System (JCIDS) materiel requirements documents. Additive Manufacturing increased capabilities to the Metal Working and Machining Shop Set (MWMSS) to include a polymer and metal printing and associated digital library capability. Modernization upgrades increase effectiveness while improving efficiency, reliability and maintainability while supporting emerging Army systems as well as using lower cost set components.

Funding supports modernization of the current Ordnance equipment by investigating technology insertions due to but not limited to obsolescence and technology innovations. Funding also supports developing initial prototypes to enable refinement of Operational Requirements and early user feedback to support future sustainment and operational movement concepts.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L46 / *Maintenance Support Equipment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: MWMSS Additive Manufacturing ***Description:*** Develop Additive Manufacturing capability for Army systems, Limited User Experiment and Evaluation. ***FY 2022 Plans:*** Expeditionary Metal Additive Manufacturing options. ***FY 2023 Plans:*** Expeditionary Metal Additive Manufacturing options. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY22 to FY23 increase of $206K due to implementation on Wire Arc Additive Manufacturing (WAAM) into MWMSS Type II Configuration.	1.300	0.738	0.972
Title: SBIR/STTR Transfer ***FY 2022 Plans:*** SBIR/STTR Transfer ***FY 2022 to FY 2023 Increase/Decrease Statement:*** SBIR/STTR Transfer	-	0.028	-
Accomplishments/Planned Programs Subtotals	1.300	0.766	0.972

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• ML5345: *Items Less Than $5.0M (Maint Eq)*	5.570	-	0.000	-	0.000	-	-	-	-	0.000	5.570
• G05301: *Mobile Maintenance Equipment Systems*	168.106	134.756	3.936	-	3.936	11.772	4.316	3.669	3.667	0.000	330.222

Remarks

D. Acquisition Strategy

Programs will progress from pre Milestone Decision Document (MDD) activities through market research, market samples, Description for Purchase, development, production representative systems and testing. Modernization and Optimization of existing tools and testing of market samples will progress from Engineering and Manufacturing Development (EMD) and transition into production. All efforts will support the two level maintenance concept utilizing commercial technologies and incorporating them into SKOs to support next generation weapon and support systems.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L46 / *Maintenance Support Equipment*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	MIPR	PM SKOT : Warren, MI	0.337	0.035	Sep 2022	0.057	Sep 2023	0.037	Sep 2024	-		0.037	Continuing	Continuing	-
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.028	Apr 2022	-		-		-	0.000	0.028	-
		Subtotal	0.337	0.035		0.085		0.037		-		0.037	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Armament Repair Shop Set 2 design and development	MIPR	Tobyhanna Army Depot/TBD : Tobyhanna, PA	0.464	-		-		-		-		-	0.000	0.464	-
Develop Rapid Deployment Sets, Kits, & Outfits - Special Tool Initiative.	MIPR	CCDC : Rock Island, IL	0.300	-		-		-		-		-	0.000	0.300	-
Refrigeration Tool Kit (RTK) Logistics Demonstration	MIPR	CCDC : Rock Island, IL	0.394	-		-		-		-		-	0.000	0.394	-
Modernization/Redesign efforts of Truck/Trailer transported shelters for next generation systems	MIPR	CCDC : Rock Island, IL	2.025	-		-		-		-		-	0.000	2.025	-
Procure Ground Based Special Tools in support of Tactical Vehicles	MIPR	PM SKOT : Harrison, MI	0.343	-		-		-		-		-	0.000	0.343	-
Next Generation Shop Equipment Welding (SEW) concept design and development	MIPR	CCDC : Rock Island, IL	2.493	-		-		-		-		-	0.000	2.493	-
Additive Manufacturing Hardware	Various	TBD : TBD	-	1.098	Sep 2021	0.457	Apr 2022	0.541	Jan 2023	-		0.541	0.000	2.096	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L46 / *Maintenance Support Equipment*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Dev Next Generation Shop Equipment Contact Maintenance	MIPR	CCDC : Rock Island, IL	6.062	-		-		-		-		-	0.000	6.062	-
		Subtotal	12.081	1.098		0.457		0.541		-		0.541	0.000	14.177	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineer and Quality Assurance in support of SKOs	MIPR	CCDC : (IL, MI)	1.563	-		-		-		-		-	Continuing	Continuing	-
Packaging Support	MIPR	CCDC Armament Center : Rock Island, IL	0.231	-		-		-		-		-	Continuing	Continuing	-
Next Generation Shop Equipment Welding (SEW) support	MIPR	ECBC / ARDEC / PM SKOT : (IL, MI)	0.543	-		-		-		-		-	0.000	0.543	-
Refrigeration Tool Kit (RTK) support	MIPR	ECBC / ARDEC / PM SKOT : (IL, MI)	0.153	-		-		-		-		-	0.000	0.153	-
Armament Repair Shop Set 2 support	MIPR	ECBC / ARDEC / PM SKOT : (IL, MI)	0.332	-		-		-		-		-	0.000	0.332	-
Additive Manufacturing support	MIPR	ECBC : IL	0.300	0.167	Feb 2021	0.224	Dec 2021	0.194	Dec 2022	-		0.194	Continuing	Continuing	-
Fire Suppression Refill System (FSRS) support	MIPR	PM SKOT : MI	0.040	-		-		-		-		-	0.000	0.040	-
Next Generation Shop Equipment Contact Maintenance support	MIPR	ECBC/PM SKOT : (IL, MI)	0.195	-		-		-		-		-	0.000	0.195	-
Special Tools support	MIPR	ECBC : IL	0.015	-		-		-		-		-	0.000	0.015	-
		Subtotal	3.372	0.167		0.224		0.194		-		0.194	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L46 / *Maintenance Support Equipment*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ARSS 2 Testing	MIPR	ATEC : Aberdeen Test Center	0.318	-		-		-		-		-	0.000	0.318	-
Testing of the Next Generation Shop, Equipment Welding	MIPR	ATEC : Aberdeen Test Center	0.315	-		-		-		-		-	0.000	0.315	-
Fire Suppression Refill System (FSRS) testing	MIPR	ATEC : Aberdeen Test Center	0.287	-		-		-		-		-	0.000	0.287	-
Next Generation Shop Equipment Contact Maintenance test	MIPR	ATEC : Aberdeen Test Center	2.131	-		-		-		-		-	0.000	2.131	-
Additive Manufacturing testing	TBD	ATEC : Aberdeen Test Center	-	-		-		0.200	Mar 2023	-		0.200	0.000	0.200	-
		Subtotal	3.051	-		-		0.200		-		0.200	0.000	3.251	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	18.841	1.300		0.766		0.972		-		0.972	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L46 / *Maintenance Support Equipment*

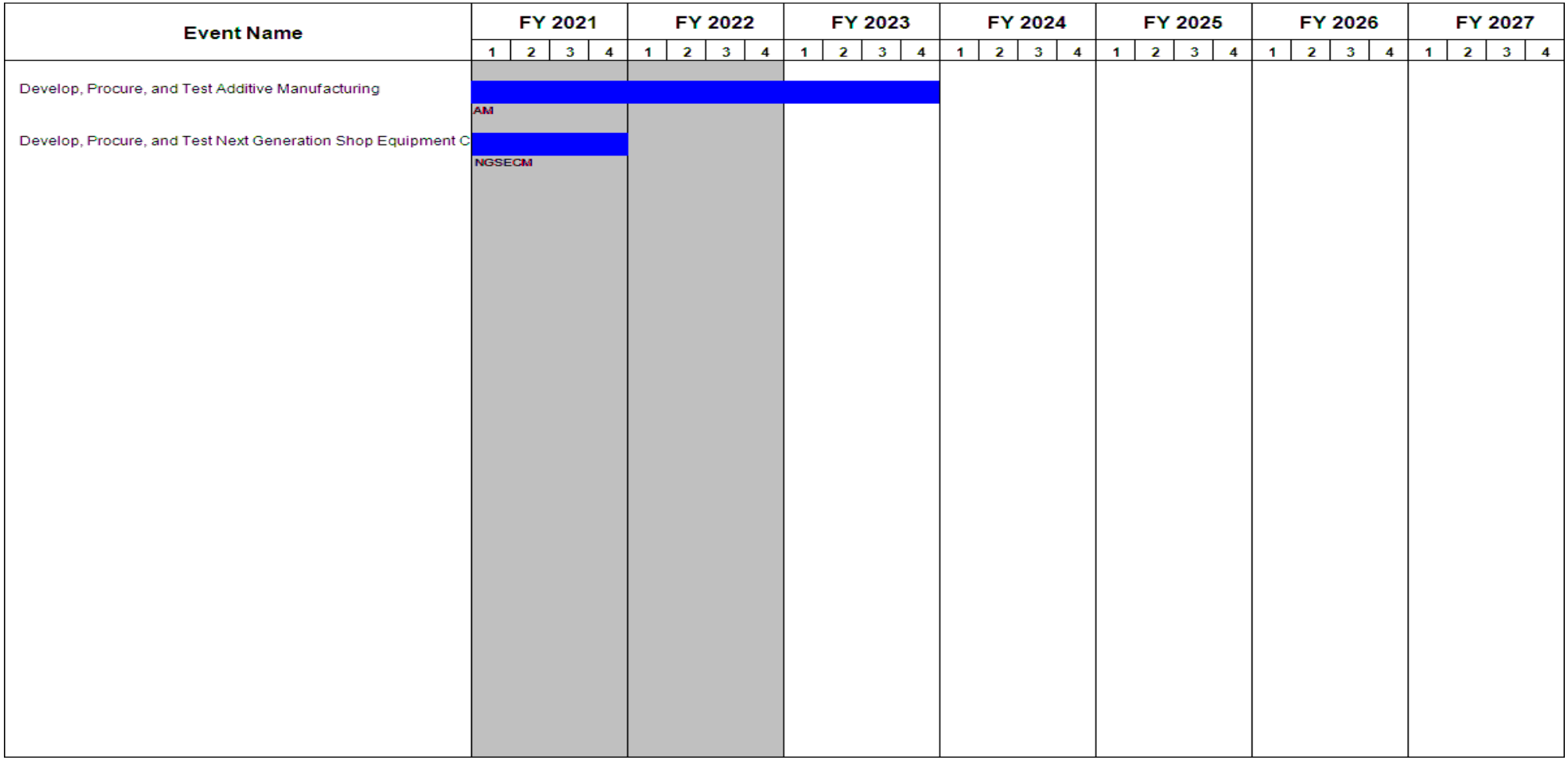

Exhibit R-4A, **RDT&E Schedule Details:** PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L46 / *Maintenance Support Equipment*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Develop, Procure, and Test Next Generation Shop, Equipment Welding (SEW)	4	2016	3	2020
Develop, Procure, and Test Additive Manufacturing	3	2016	4	2023
Develop, Procure, and Test Next Generation Shop Equipment Contact Maintenance	1	2019	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L47 / *Improved Environmental Control Units Ed*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
L47: *Improved Environmental Control Units Ed*	-	2.952	1.801	1.529	-	1.529	1.125	1.231	1.230	1.242	0.000	11.110
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This line supports the Army Network Modernization Strategy Line of Effort #4 (Command Post). Program develops/integrates Improved Environmental Control Units (IECUs) supporting existing and new requirements coming from the Command Post Integrated Infrastructure (CPI2) (including Towable Expeditionary Shelter System (TESS) and Trailer Mounted Support System (TMSS)), the Army Standard Family of Rigid Wall Shelters (ASFRWS) and other applications. In addition, it supports the development of critical Chemical Biological Radiological and Nuclear (CBRN) modifications required to support the Chemically Protected Deployable Medical System and other systems requiring this capability.

The Improved Environmental Control Units (IECU) program will provide updates to replace the current Military Standard Family of Environmental Control Units (ECUs) with the new generation IECUs using environmentally-suitable refrigerants to eliminate Ozone-Depleting Chemicals (ODCs) and reduce Global Warming Potential (GWP). The IECUs will provide improved cooling, heating and dehumidification to Soldiers and critical equipment systems in combat, combat support, combat service support units, and field hospitals. The IECUs are required to replace the currently fielded ECUs in order to comply with statutory and regulatory mandates on the use of Class II ODCs (such as HCFC-22) and address increasing restrictions on high GWP chemicals. Technical improvements over existing ECUs will yield significant fuel and weight savings, reduction in scheduled maintenance and increased reliability. Funding also provides applications engineering support to integration development for shelter/trailer platforms to assist users and help further standardize cooling units in the field. Funding also supports developing initial prototypes to enable refinement of operational requirements and technology refreshment, and design improvements to address issues and support future sustainment. Potential expansion of product variants will further accommodate various users.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Technology Development	1.267	0.800	0.454
Description: Development and integration of Improved Environmental Control Units (IECU) in the range of 9-60K BTUH to support integrated shelter and command post systems.			
FY 2022 Plans: Develop performance enhancements for 9/18/36K IECUs to improve capacity, carryover, efficiency, and in-rush characteristics in accordance with operational requirements.			
FY 2023 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L47 / *Improved Environmental Control Units Ed*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Identify and evaluate a near term drop in replacement refrigerant to provide a lower Global Warming Potential (GWP) alternative for existing and new production18K & 36K's as well as test 9K remediation developed in FY22 including near term refrigerant. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 decrease in funds reflect Technology Development effort nearing completion			
Title: Government System Test and Evaluation ***Description:*** Testing of prototype performance for multiple variants of the IECUs and soft wall shelter ECUs. ***FY 2022 Plans:*** Design and testing for potential product improvements to IECU family (Block II) and support User Engagements. ***FY 2023 Plans:*** Conduct testing to verify performance and reliability of 9/18/36K IECUs with interim drop in replacement refrigerant chemical to provide a lower Global Warming Potential alternative for existing and new production IECUs. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 increase in funds reflect contract focus moving into government test and evaluation.	0.250	0.500	0.600
Title: Other Contract and Government Agency ***Description:*** Support engineering, logistics, and testing efforts for multiple ECU variants, and integrated heating/cooling units. Match and right-size current IECU family to applications and/or develop and test new variants to provide the most efficient system solution. ***FY 2022 Plans:*** Concept development for IECU integration and/or new variants in support of IECU Data Interchange (DI) customers. ***FY 2023 Plans:*** Provide refrigeration technical expertise in support of alternative near term refrigerant development efforts and integration and/or adaptations for IECU user programs across the Army. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Shift of technical support from external to inhouse resources.	0.235	0.301	0.125
Title: Government Program Management	1.200	0.134	0.350

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Description: Provide oversight and management of engineering, logistics, contracts, and testing efforts for the IECU family and multiple user engagements in preparation for IECU variants to transition to production. Provide oversight and management of follow-on IECU variants. ***FY 2022 Plans:*** Continue to provide oversight and management of engineering, logistics, contracts, and testing efforts for next generation IECU system development efforts including 60K IECU CB 2 and 9/18/36K IECU programs. ***FY 2023 Plans:*** Continue to provide oversight and management of engineering, logistics, contracts, and testing efforts for product improvement and next generation IECU system development efforts including 9/18/36K and 60K IECU programs. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Shift of technical support from external to inhouse resources.			
Title: SBIR/STTR Transfer ***FY 2022 Plans:*** SBIR/STTR Transfer ***FY 2022 to FY 2023 Increase/Decrease Statement:*** SBIR/STTR Transfer	-	0.066	-
Accomplishments/Planned Programs Subtotals	2.952	1.801	1.529

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• MF9303: *IMPROVED ENVIRONMENTAL CONTROL UNITS*	8.570	6.116	7.672	-	7.672	7.712	7.500	7.504	7.502	Continuing	Continuing

Remarks

D. Acquisition Strategy

Support modernization and technology insertions required to adapt ECUs future integrated system heating and cooling requirements in support of Force 2025 and the Command Post Integrated Infrastructure (CPI2) and chemically protected deployable medical system. Evaluate requirements versus existing ECU Fleet and develop/

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test initial prototypes of ECUs in support of future integrated system heating and cooling requirements. This effort will support the development of Purchase Descriptions (PDs) and Technical Data Packages (TDPs) for eventual competitive procurement.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L47 / *Improved Environmental Control Units Ed*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
9,18 and 36K Improved Environmental Control Unit (IECU)	Various	PM E2S2 : various	1.428	0.150		0.067		0.350		-		0.350	0.000	1.995	Continuing
60K IECU	Various	PM E2S2 : various	0.523	0.150		0.067		-		-		-	0.000	0.740	-
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.066		-		-		-	0.000	0.066	-
		Subtotal	1.951	0.300		0.200		0.350		-		0.350	0.000	2.801	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
9 ,18 and 36K Improved Environmental Control Unit (IECU)	MIPR	NSSC : Natick, MA	2.193	1.140		0.800		0.454		-		0.454	0.000	4.587	Continuing
60K IECU	MIPR	ARDEC PIF : Huntsville. AL	4.462	0.127		-		-		-		-	0.000	4.589	-
		Subtotal	6.655	1.267		0.800		0.454		-		0.454	0.000	9.176	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
9, 18 and 36K Improved Environmental Control Unit (IECU)	MIPR	CERDEC : Ft. Belvoir, VA	2.829	0.900		0.301		0.125		-		0.125	0.000	4.155	-
60K IECU	Various	CERDEC : Fort Belvoir, VA	4.407	0.235		-		-		-		-	0.000	4.642	-
		Subtotal	7.236	1.135		0.301		0.125		-		0.125	0.000	8.797	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		**Date:** April 2022
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
9,18 and 36K Improved Environmental Control Unit (IECU)	MIPR	ETL : Dallas, TX	0.528	-		0.500		0.600		-		0.600	0.000	1.628	-
60K IECU	MIPR	ATEC : APG, MD	0.912	0.250		-		-		-		-	0.000	1.162	-
		Subtotal	1.440	0.250		0.500		0.600		-		0.600	0.000	2.790	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	17.282	2.952		1.801		1.529		-		1.529	0.000	23.564	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L47 / *Improved Environmental Control Units Ed*

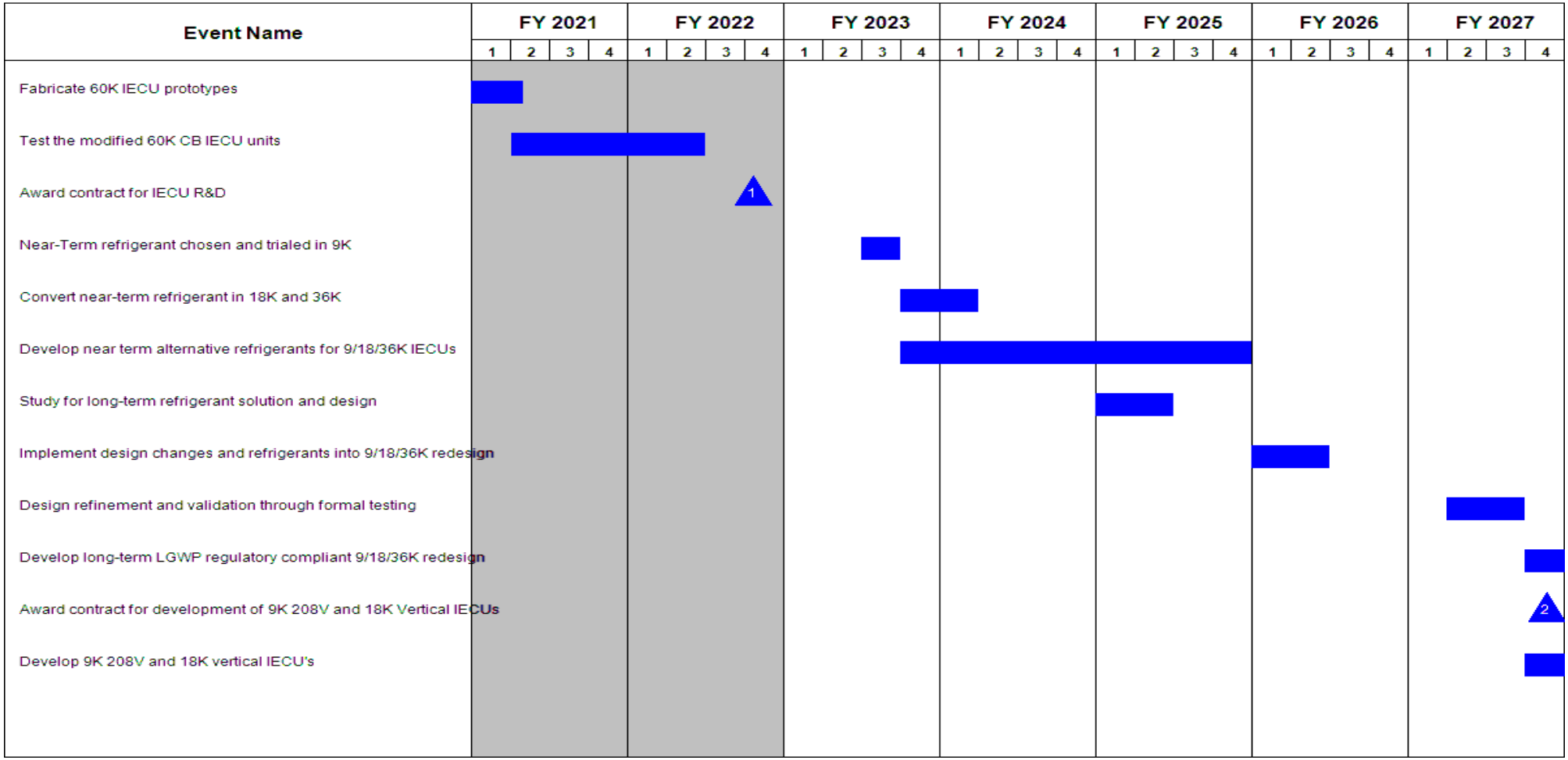

Exhibit R-4A, **RDT&E Schedule Details:** PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L47 / *Improved Environmental Control Units Ed*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Fabricate 60K IECU prototypes	2	2020	1	2021
Test the modified 60K CB IECU units	2	2021	2	2022
Award contract for IECU R&D	4	2022	4	2022
Near-Term refrigerant chosen and trialed in 9K	3	2023	3	2023
Convert near-term refrigerant in 18K and 36K	4	2023	1	2024
Develop near term alternative refrigerants for 9/18/36K IECUs	4	2023	4	2025
Study for long-term refrigerant solution and design	1	2025	2	2025
Implement design changes and refrigerants into 9/18/36K redesign	1	2026	2	2026
Design refinement and validation through formal testing	2	2027	3	2027
Develop long-term LGWP regulatory compliant 9/18/36K redesign	4	2027	3	2028
Award contract for development of 9K 208V and 18K Vertical IECUs	4	2027	4	2027
Develop 9K 208V and 18K vertical IECU's	4	2027	4	2029

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army												Date: April 2022
Appropriation/Budget Activity 2040 / 5					**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*				**Project (Number/Name)** VR7 / *Combat Service Support Systems*			
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
VR7: *Combat Service Support Systems*	-	-	2.101	3.376	-	3.376	2.054	2.360	1.231	1.243	0.000	12.365
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports Engineering and Manufacturing Development (EMD) 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 highly mobile 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 safety, improve unit sustainability, improve resource and energy efficiency; address environmental impacts, and increase combat effectiveness. This project supports Engineering and Manufacturing Development (EMD), Prototyping, and testing of critical tactical support systems that allow mobile Joint Service command and control, as well as medical, force projection, and maintenance platforms. This project develops critical enablers that support a number of strategic initiatives, including the Army Campaign Plan, the Army Modernization Strategy, the Army Climate Strategy, and the Army Arctic Strategy. This project ensures Army Expeditionary Forces are capable of rapid deployment while reducing sustainment requirements, related Combat Support/Combat Service Support (CS/CSS) demands in lift, combat zone footprint, and costs for logistical support. Specifically, shelters developed under these efforts will be better insulated and more energy efficient, thus reducing environmental control requirements, energy demand, and fuel usage. Therefore, they will reduce the Army's logistics and carbon footprint and lengthen the resupply interval in contested, support-constrained environments. Additionally, better insulated shelter systems allow for operational viability in extreme environments such as the Arctic.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Title: Army Standard Family of Rigid Wall Shelters (ASF-RWS)	-	2.025	3.376
Description: The ASF-RWS program conducts formal development to modernize and standardize three variants of Army rigid wall shelters by incorporating the latest material and manufacturing technologies. Doing so will reduce the proliferation of non-standard shelters and their associated logistics burden across the Services. The program produces approved and tested standard shelter designs to support procurements by materiel developers and Program Managers (PMs) requiring rigid wall shelters. Once developed and formally type-classified, ASF-RWS shelter procurements are customer-funded by PMs as a cost under their program(s). The ASF-RWS program is structured as three sub-programs, each focused on a shelter variant: Phase One (P1) ? Expandable/Non-Expandable Variant Phase Two (P2) ? Vehicle Mounted Variant Phase Three (P3) ? Panelized Variant ***FY 2022 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Obtain Development Decision, award development contract and initiate design development for ASF-RWS Phase 2 - Vehicle Mounted Variant. ***FY 2023 Plans:*** Award performance specification based development contract with production options, conduct design development build and test PQT units, conduct Test Readiness Review (TRR) and initiate logistics development for ASF-RWS P1 (Expandable/Non-expandable ISO Variant). Conduct market strategy, develop performance specification, build performance specification based RFP with production options for ASF-RWS P2 (Vehicle Mounted Variant). ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Program increase to support PQT build and initial logistics development			
Title: SBIR/STTR Transfer ***FY 2022 Plans:*** SBIR/STTR Transfer ***FY 2022 to FY 2023 Increase/Decrease Statement:*** SBIR/STTR Transfer	-	0.076	-
Accomplishments/Planned Programs Subtotals	-	2.101	3.376

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The acquisition strategy is to accelerate product development and testing to transition into production.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Support	Various	PM Force Sustainment Systems : Natick, MA	2.609	-		0.225		0.876		-		0.876	0.000	3.710	-
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.076		-		-		-	0.000	0.076	-
		Subtotal	2.609	-		0.301		0.876		-		0.876	0.000	3.786	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Army Standard Family of Rigid Wall Shelters (ASF-RWS)	Various	Various : Various	2.000	-		1.800		2.250		-		2.250	0.000	6.050	-
		Subtotal	2.000	-		1.800		2.250		-		2.250	0.000	6.050	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Army Standard Family of Rigid Wall Shelters (ASF-RWS)	Various	Various : Various	0.582	-		-		0.250		-		0.250	0.000	0.832	-
		Subtotal	0.582	-		-		0.250		-		0.250	0.000	0.832	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.191	-		2.101		3.376		-		3.376	0.000	10.668	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
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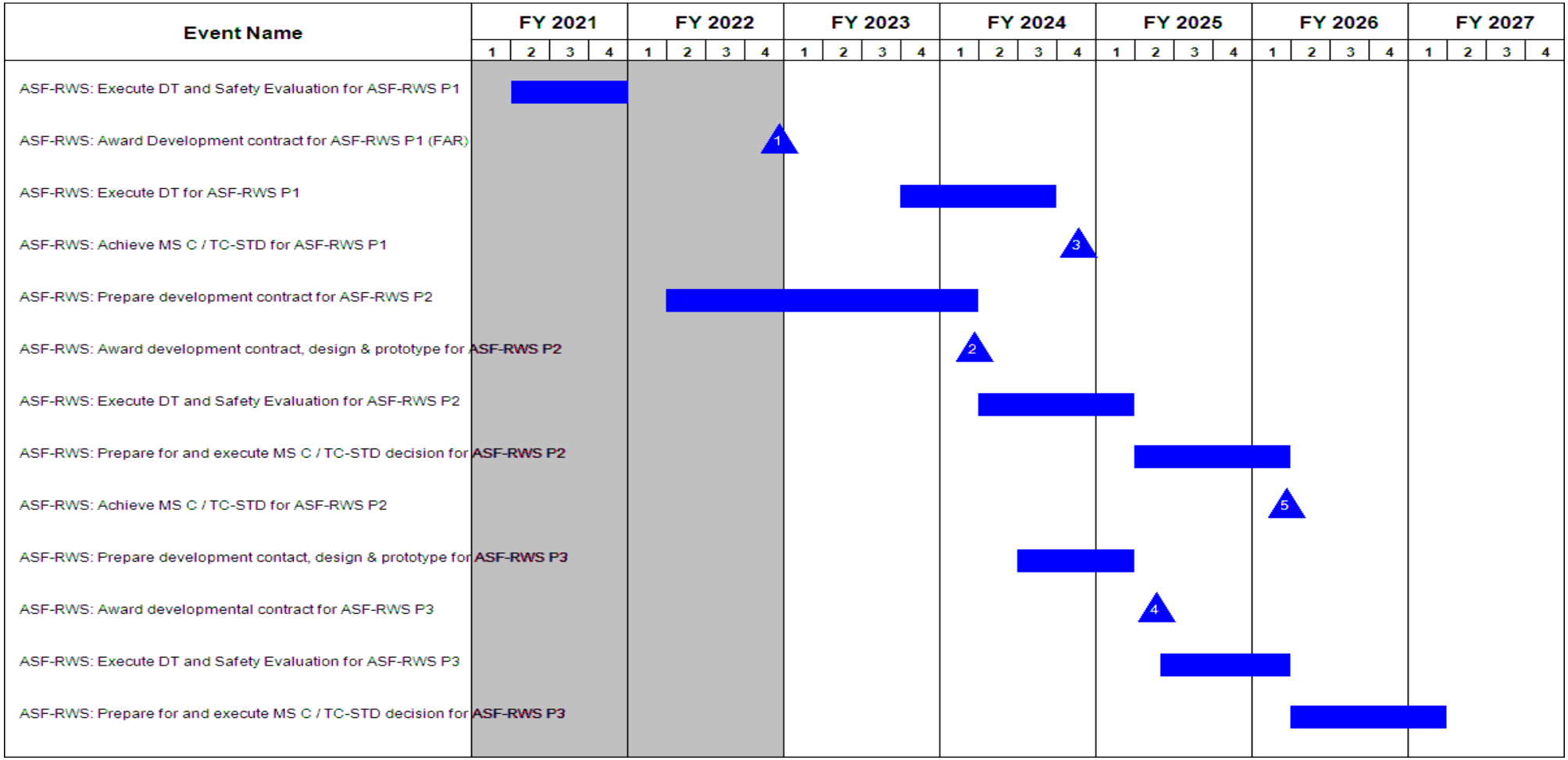

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		**Date:** April 2022
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Event Name	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ASF-RWS: Achieve MS C / TC-STD for ASF-RWS P3																									6			

Exhibit R-4A, **RDT&E Schedule Details:** PB 2023 Army		**Date:** April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** VR7 / *Combat Service Support Systems*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ASF-RWS: Execute DT and Safety Evaluation for ASF-RWS P1	2	2021	4	2021
ASF-RWS: Award Development contract for ASF-RWS P1 (FAR)	4	2022	4	2022
ASF-RWS: Execute DT for ASF-RWS P1	4	2023	3	2024
ASF-RWS: Achieve MS C / TC-STD for ASF-RWS P1	4	2024	4	2024
ASF-RWS: Prepare development contract for ASF-RWS P2	2	2022	1	2024
ASF-RWS: Award development contract, design & prototype for ASF-RWS P2	1	2024	1	2024
ASF-RWS: Execute DT and Safety Evaluation for ASF-RWS P2	2	2024	1	2025
ASF-RWS: Prepare for and execute MS C / TC-STD decision for ASF-RWS P2	2	2025	1	2026
ASF-RWS: Achieve MS C / TC-STD for ASF-RWS P2	1	2026	1	2026
ASF-RWS: Prepare development contact, design & prototype for ASF-RWS P3	3	2024	1	2025
ASF-RWS: Award developmental contract for ASF-RWS P3	2	2025	2	2025
ASF-RWS: Execute DT and Safety Evaluation for ASF-RWS P3	2	2025	1	2026
ASF-RWS: Prepare for and execute MS C / TC-STD decision for ASF-RWS P3	2	2026	1	2027
ASF-RWS: Achieve MS C / TC-STD for ASF-RWS P3	1	2027	1	2027