Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604804A *I Logistics and Engineer Equipment - Eng Dev*							
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
Total Program Element	-	105.668	53.676	59.261	-	59.261	-	-	-	-	-	-
194: *Engine Driven Gen Ed*	-	8.050	8.916	17.217	-	17.217	-	-	-	-	-	-
EJ9: *Maneuver Support Vessel (MSV)*	-	25.933	9.591	4.333	-	4.333	-	-	-	-	-	-
FG4: *Ultra-Lightweight Camouflage Net System (ULCANS)*	-	11.219	8.000	-	-	-	-	-	-	-	-	-
H02: *Tactical Bridging - Engineering Development*	-	39.663	14.445	22.058	-	22.058	-	-	-	-	-	-
L39: *Field Sustainment Support Ed*	-	1.607	1.655	1.618	-	1.618	-	-	-	-	-	-
L41: *Water And Petroleum Distribution - Ed*	-	8.755	8.707	9.367	-	9.367	-	-	-	-	-	-
L43: *ENGINEER SUPPORT EQUIPMENT - ED*	-	1.191	-	-	-	-	-	-	-	-	-	-
L46: *Maintenance Support Equipment*	-	8.218	1.300	0.766	-	0.766	-	-	-	-	-	-
L47: *Improved Environmental Control Units Ed*	-	1.032	1.062	1.801	-	1.801	-	-	-	-	-	-
VR7: *Combat Service Support Systems*	-	-	-	2.101	-	2.101	-	-	-	-	-	-

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 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 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604804A *I Logistics and Engineer Equipment - Eng Dev*

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	107.826	49.694	52.808	-	52.808
Current President's Budget	105.668	53.676	59.261	-	59.261
Total Adjustments	-2.158	3.982	6.453	-	6.453
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-4.704			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.783	-			
• SBIR/STTR Transfer	-3.941	-1.814			
• Adjustments to Budget Years	-	-	6.453	-	6.453

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: FG4: *Ultra-Lightweight Camouflage Net System (ULCANS)*		
Congressional Add: *Mobile Camouflage System (MCS)*	7.000	8.000
Congressional Add Subtotals for Project: FG4	7.000	8.000
Project: H02: *Tactical Bridging - Engineering Development*		
Congressional Add: *Program increase - health usage monitoring system*	-	2.500
Congressional Add Subtotals for Project: H02	-	2.500
Project: L46: *Maintenance Support Equipment*		
Congressional Add: *Next Generation High Mobility Multipurpose Wheeled Vehicle (HMMWV) Shop Equipment Contact Maintenance (SECM)*	5.000	-
Congressional Add Subtotals for Project: L46	5.000	-
Congressional Add Totals for all Projects	12.000	10.500

Change Summary Explanation

The increase is due to:

Project 194 - Increase is due to the testing and evaluation of STEP Lightweight, development of STEP 3kW and PDISE Expansion FY22 prototype build contract award.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604804A *I Logistics and Engineer Equipment - Eng Dev*

Project VR7 - RDT&E funding reinstated in FY22 to resume ASF-RWS program development.

Project EJ9 - Increase is the result of more substantial efforts consisting of Ship to Shore / Over the Shore Logistics Vessel (SSLV) market research along with affordability and feasibility studies to inform the SSLV Analysis of Alternatives (AoA) and requirements development process.

Project L41 - Increase is for development and testing requirements for multiple Petroleum and Water System's programs.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
194: *Engine Driven Gen Ed*	-	8.050	8.916	17.217	-	17.217	-	-	-	-	-	-
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. This line develops the capabilities to improve power generation and distribution across the Army Modernization priorities IAW the Army Futures Command Power and Battery Strategy. The main efforts are supporting modernizations within the Army Command Posts which in turn reduces Command Post sustainment requirements.

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 IAW the Power and Battery Strategy, 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.

PDISE provides reliable, modular design power distribution equipment that is critical to deploying power networks. PDISE Expansion will add power distribution > 60kW. The equipment developed will provide an interface for Large Power Distribution Systems (LPDS) and Prime Power Distribution Systems (PPDS) as well as future Onboard Vehicle Power systems, Hybrid and Storage power systems.

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 Function Team (CFT) and Network CFT. It will be power sources for Soldier borne sensors, lasers and optics.

FY 2022 funds will support prototyping and engineering, manufacturing and development efforts for the STEP Lightweight System, STEP 3kW and the PDISE Expansion power distribution solution.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Power Distribution Illumination Systems Electrical (PDISE) expansion	2.715	0.528	4.529
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.			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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 2020	FY 2021	FY 2022
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. 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. ***FY 2021 Plans:*** LPDS MEPDS-800 risk mitigation. ***FY 2022 Plans:*** FY22 PDISE Expansion Large and Prime prototype build contract award. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase for FY22 PDISE Expansion prototype build 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 2021 Plans:*** Small Tactical Electric Power (STEP) enters into MS B in 4Q FY 2021 beginning with the STEP 3kW system. The development contract for STEP Lightweight 2kW system was awarded in 1QFY21 and will continue through 3QFY22. ***FY 2022 Plans:*** STEP 3kW EMD contract will begin 2QFY22, and the STEP-LW 2kW OTA will finish in 3QFY22. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase is due to the testing and evaluation of STEP Lightweight and development of the STEP 3kW.	-	8.388	12.688
Title: Small Power Sources	5.335	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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 2020	FY 2021	FY 2022
Description: Supports Tactical Electric Power in the 2kW-3kW range. Focuses on modernizing small power with hybrid and battery storage capabilities.			
Accomplishments/Planned Programs Subtotals	8.050	8.916	17.217

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• G11: *Adv Elec Energy Con Ad*	3.200	4.000	-	-	-	-	-	-	-	-	-
• MA9800: *Generators And Associated Equip*	115.912	101.239	47.606	-	47.606	-	-	-	-	-	-

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 FY22. STEP 3kW system will
enter development at MS B in FY21.

Power Distribution Illumination Systems Electrical (PDISE) Expansion is a modernization effort to improve power distribution for generators greater than 60kW. The Large Power Distribution Systems (LPDS) MEPDS-800 will interface with 100kW generators and improve Field Hospital operations. Prime Power Distribution Systems (PPDS) will interface with the Deployable Power Generation and Distribution System Power Unit.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PDISE Prime	Various	PM E2S2 : Ft. Belvoir	1.275	-		-		-		-		-	Continuing	Continuing	Continuing
Small Power Sources	Various	PM E2S2 Ft. Belvior : Ft. Belvior	1.132	0.876		1.250		-		-		-	0.000	3.258	-
STEP	TBD	PM E2S2 Ft. Belvior : PM E2S2 Ft. Belvior	-	-		-		1.700		-		1.700	0.000	1.700	-
		Subtotal	2.407	0.876		1.250		1.700		-		1.700	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PDISE Prime	C/CPFF	TBD : TBD	2.506	-		-		-		-		-	Continuing	Continuing	Continuing
AMMPS HYBRID	TBD	AMMPS HYBRID : FT. BELVOIR	1.743	1.607		-		-		-		-	0.000	3.350	-
Small Power Sources	TBD	STEP : TBD	-	2.719		4.338		-		-		-	0.000	7.057	-
STEP	TBD	PM E2S2 Ft. Belvior : PM E2S2 Ft. Belvior	-	-		-		10.086		-		10.086	0.000	10.086	-
PDISE LPDS/PPDS	TBD	Prototyping and engineering, manufacturing and development efforts : TBD	-	-		-		4.529	Jun 2022	-		4.529	0.000	4.529	-
		Subtotal	4.249	4.326		4.338		14.615		-		14.615	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Small Power Sources	TBD	STEP : TBD	-	0.282		1.100		-		-		-	0.000	1.382	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
STEP	TBD	PM E2S2 Ft. Belvior : PM E2S2 Ft. Belvior	-	-		-		0.400		-		0.400	0.000	0.400	-
		Subtotal	-	0.282		1.100		0.400		-		0.400	0.000	1.782	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PDISE LPDS	MIPR	Army Test & Evaluation Ctr (ATEC) : APG, MD	1.310	1.108		0.528	Jan 2021	-		-		-	0.000	2.946	-
Small Power Sources	TBD	STEP : TBD	-	1.458		1.700		-		-		-	0.000	3.158	-
STEP	TBD	PM E2S2 Ft. Belvior : PM E2S2 Ft. Belvior	-	-		-		0.502		-		0.502	0.000	0.502	-
		Subtotal	1.310	2.566		2.228		0.502		-		0.502	0.000	6.606	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.966	8.050		8.916		17.217		-		17.217	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
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*

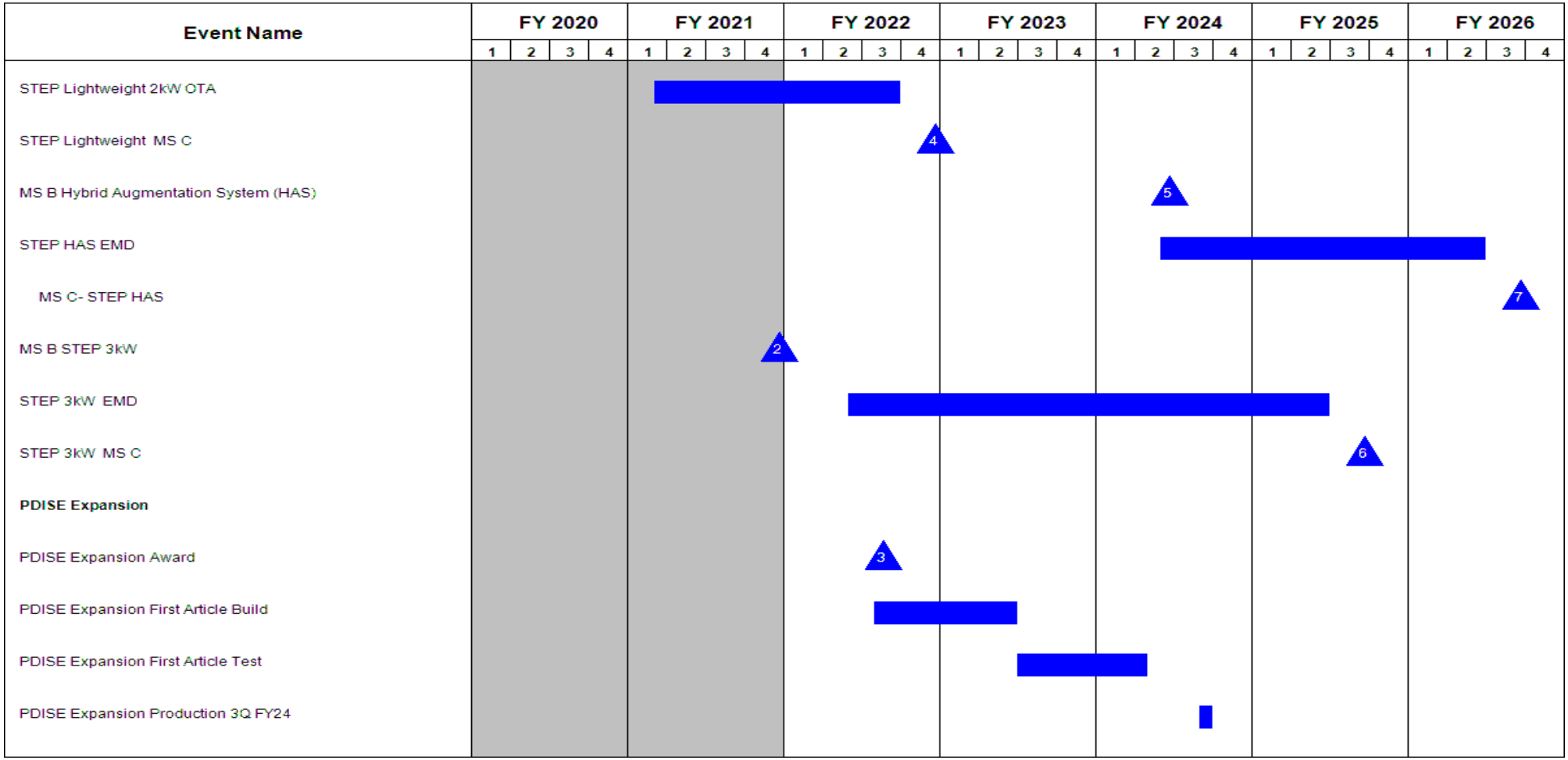

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** 194 / *Engine Driven Gen Ed*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
STEP Lightweight 2kW OTA	1	2021	3	2022
STEP Lightweight MS C	4	2022	4	2022
MS B Hybrid Augmentation System (HAS)	2	2024	2	2024
STEP HAS EMD	2	2024	2	2026
MS C- STEP HAS	3	2026	3	2026
MS B STEP 3kW	4	2021	4	2021
STEP 3kW EMD	2	2022	2	2025
STEP 3kW MS C	3	2025	3	2025
PDISE Expansion	2	2021	2	2021
PDISE Expansion Award	3	2022	3	2022
PDISE Expansion First Article Build	3	2022	2	2023
PDISE Expansion First Article Test	3	2023	2	2024
PDISE Expansion Production 3Q FY24	3	2024	3	2024

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EJ9: *Maneuver Support Vessel (MSV)*	-	25.933	9.591	4.333	-	4.333	-	-	-	-	-	-
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.

In order to meet the accelerated MSV(L) development, get this much needed capability into the hands of our soldiers sooner, and mitigate schedule risk, the Milestone Decision Authority (MDA) has authorized the execution of FY20/FY21 Other Procurement Army (OPA) funding (PE 8211R01001) ahead of milestone C for Logistics Development Products (LPD), statutory and regulatory documentation in support of milestone C, and Maritime Intermodal Training System (MITS) training development. Upon successful 1QFY21 MSV(L) program review, the MDA will authorize the Early Order Activities (EOA) IAW DoDI 5000.02, Section 5. (PROCEDURES), paragraph d.9. (g)2. [p.28] for the Original Equipment Manufacturer (OEM) to order low risk materials (engines, generators, and aluminum with associated labor costs for material handling). EOA minimizes the production gap between the prototype and LRIP vessels. EOA is planned to be exercised in 2QFY21 and MS C in 4QFY21 (LRIP start authorization).

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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)*

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.

FY22 funds are used to conduct market research, affordability and feasibility studies to inform the SSLV Analysis of Alternatives (AoA) and inform requirements development process.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Engineering and Manufacturing Development (EMD) Contract	20.027	6.842	-
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). ***FY 2021 Plans:*** Completion of the MSV(L) prototype vessel production and testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** MSV(L) EMD contract completed funding in FY21.			
Title: Government Test and Evaluation Support	0.020	0.950	-
Description: Government test support. ***FY 2021 Plans:*** Testing evaluation activities to include contractor prototype extended acceptance trials and follow on government testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** MSV(L) has moved to Production.			
Title: Government Furnished Equipment (GFE)	0.020	0.200	-
Description: GFE for prototype vessel consists of Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR). ***FY 2021 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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 2020	FY 2021	FY 2022
GFE is required to support the full size prototype vessel and base station for testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** MSV(L) has moved to production, no GFE for SSLV.			
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 2021. ***FY 2021 Plans:*** Funds will cover matrix salaries for program management, logistics, and engineering support to include contract execution and contractor oversight for the MSV(L) and MSV (Next) programs. ***FY 2022 Plans:*** Funds will cover matrix salaries for Engineers supporting SSLV program. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding only for SSLV program. Funding decrease is due to MSV(L) Support is moving to OPA funding.	4.668	0.456	0.500
Title: Program Management Support Contract ***Description:*** Program Management and Contract Support for MSV(L) thru FY21 and SSLV program starting in FY21. ***FY 2021 Plans:*** Program Management Support to end the EMD phase of MSV(L) and start of concept design for MSV (Next) in Cyber Security, Contract Data Requirement List (CDRL) management, IMS support, C4ISR expertise, and Milestone C program documentation. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding decrease is due to MSV(L) Contract Support transitioned to OPA funding.	0.934	1.143	-
Title: MSV(N) Affordability and Feasibility Studies ***Description:*** Conduct Affordability and Feasibility Studies for future watercraft modernization. ***FY 2022 Plans:*** Funding needed to conduct feasibility studies and conduct Affordability Analysis/Cost Analysis in support of AoA. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	0.264	-	3.833

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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 2020	FY 2021	FY 2022
FY22 funds are used to conduct market research, affordability and feasibility studies to inform the SSLV Analysis of Alternatives (AoA) and inform requirements development process.			
Accomplishments/Planned Programs Subtotals	25.933	9.591	4.333

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• R03050: *Maneuver Support Vessel (Light) (MSV-L)*	14.185	76.576	76.660	-	76.660	-	-	-	-	-	-

Remarks

Significant Accomplishments:
- CDR 2 Closeout 19 Dec 2019
- Prototype Construction began 1 Oct 2019
- 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.

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 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): FY22 funds are used to conduct market research, 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 2022 Army			Date: May 2021
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)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Manufacturing Development (EMD)	C/FFP	Vigor Works, LLC : Clackamas, OR	50.886	20.027	Nov 2019	6.842	Nov 2020	-		-		-	0.000	77.755	77.822
Government Furnished Equipment (GFE)	Reqn	Various : Various	2.297	0.020	Jan 2020	0.200	Jan 2021	-		-		-	0.000	2.517	-
Trade Studies and Business Analysis SSLV	TBD	Various : Various	-	0.264	Sep 2020	-		3.833	Nov 2021	-		3.833	Continuing	Continuing	-
		Subtotal	53.183	20.311		7.042		3.833		-		3.833	Continuing	Continuing	N/A

Remarks

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

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	16.096	4.668	Nov 2019	0.456	Dec 2020	0.500	Dec 2021	-		0.500	0.000	21.720	-
Salaries / Travel for Program Management Support Contracts	C/CPFF	Picatinny Arsenal, New Jersey 07806-5000 : Warren, MI 48397-5000	3.747	0.934	Feb 2020	1.143	Dec 2020	-		-		-	0.000	5.824	-
		Subtotal	19.843	5.602		1.599		0.500		-		0.500	0.000	27.544	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation - Government	MIPR	ATEC: APG : APG, MD	1.026	0.020	Nov 2019	0.950	Nov 2020	-		-		-	0.000	1.996	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	1.026	0.020		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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	74.052	25.933		9.591		4.333		-		4.333	Continuing	Continuing	N/A

Remarks

FY22 funds are used to conduct market research, 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 2022 Army		Date: May 2021
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)*

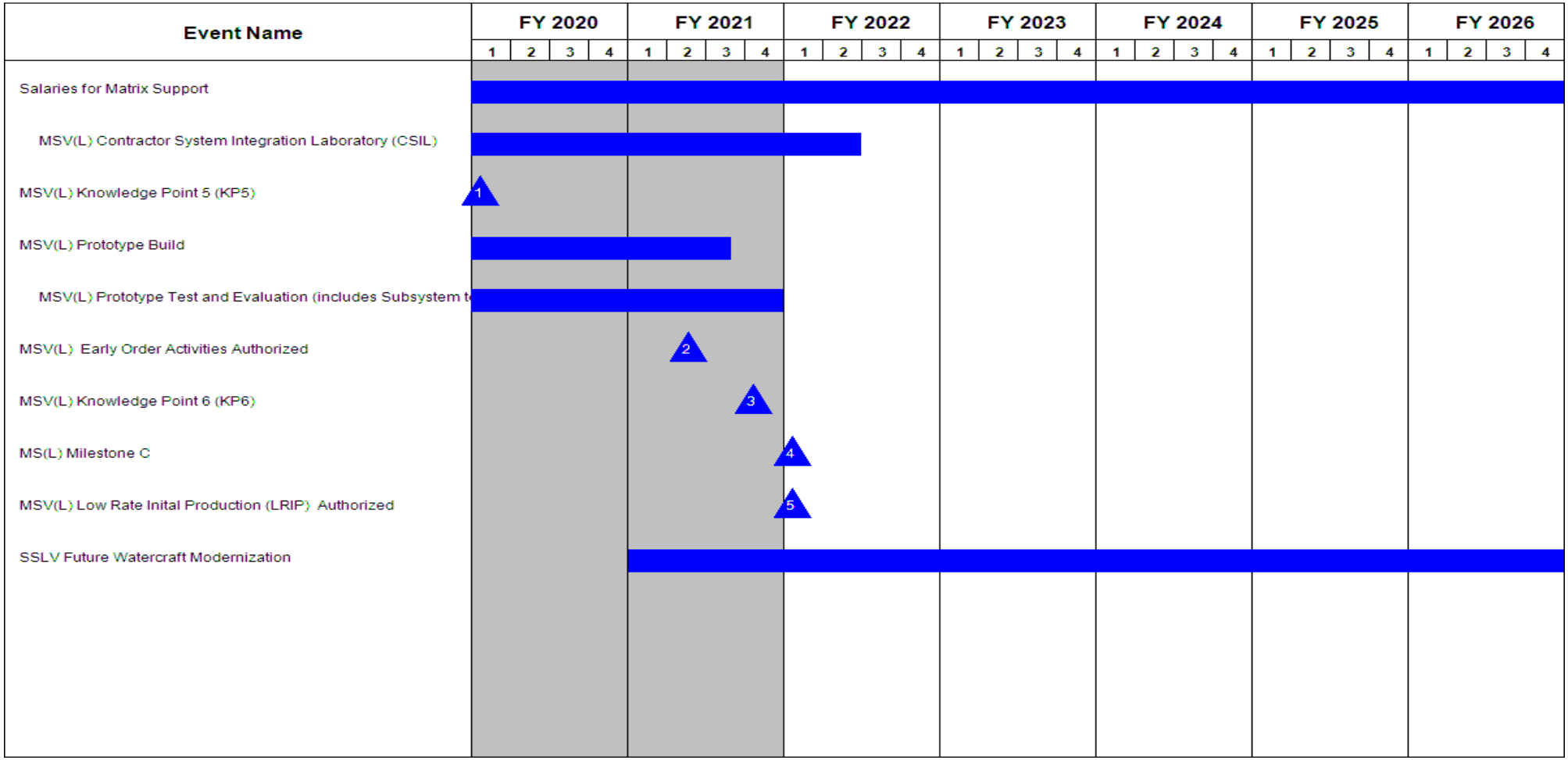

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** EJ9 / *Maneuver Support Vessel (MSV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Salaries for Matrix Support	4	2016	4	2026
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	3	2021
MSV(L) Prototype Test and Evaluation (includes Subsystem tests)	4	2019	4	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
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	1	2022	1	2022
MSV(L) Low Rate Inital Production (LRIP) Authorized	1	2022	1	2022
SSLV Future Watercraft Modernization	1	2021	4	2026

Note

FY22 funds are used to conduct market research, 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 2022 Army											Date: May 2021	
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 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
FG4: *Ultra-Lightweight Camouflage Net System (ULCANS)*	-	11.219	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 2020**	**FY 2021**	**FY 2022**
Title: Ultra-lightweight Camouflage Net System (ULCANS)	4.219	-	-
Description: ULCANS is durable, robust, snag resistant state of the art camouflage system that provides increased survivability against multi-spectral visual, infrared and radar threats, thermal signature suppression and significant thermal/solar reduction capability. ULCANS utilizes a snag-free design and is capable of use in all types of weather and climatic conditions except in heavy snow and winds. ULCANS variants are integrated systems that are very lightweight, easily deployable, versatile, user friendly and tailored to the equipment meeting the requirements of operations for combat systems, command and control equipment, logistic support sites, tactical facilities, and fixed facilities. RDT&E funding for ULCANS Increment I program supports formal development for necessary technology/signature enhancements of three ULCANS Increment I variants (Woodland, Snow/ Alpine, Desert/Urban) to replace current legacy ULCANS variants (Woodland and Desert).			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Accomplishments/Planned Programs Subtotals	4.219	-	-

	FY 2020	FY 2021
Congressional Add: Mobile Camouflage System (MCS)	7.000	8.000
FY 2020 Accomplishments: Prepared and solicited a Request for Prototype proposals under a DEVCOM-SC Other Transactional Authority (OTA) contract. Reviewed multiple white papers and down-selected to five full proposals for Gov?t evaluation. Four proposals were selected for award with contract paperwork and approval in process to support final OTA contract awards in 2QFY21. ***FY 2021 Plans:*** 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.		
Congressional Adds Subtotals	7.000	8.000

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 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ULCANS	Various	PMFSS : Natick, MA	2.749	1.011		-		-		-		-	0.000	3.760	-
Mobile Camouflage System	TBD	PMFSS : Natick, MA	-	0.972		1.430		-		-		-	0.000	2.402	-
		Subtotal	2.749	1.983		1.430		-		-		-	0.000	6.162	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	6.939	0.872		-		-		-		-	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	13.546	6.656		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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	5.888	2.580		2.000		-		-		-	0.000	10.468	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	22.183	11.219		8.000		-		-		-	0.000	41.402	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
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)*

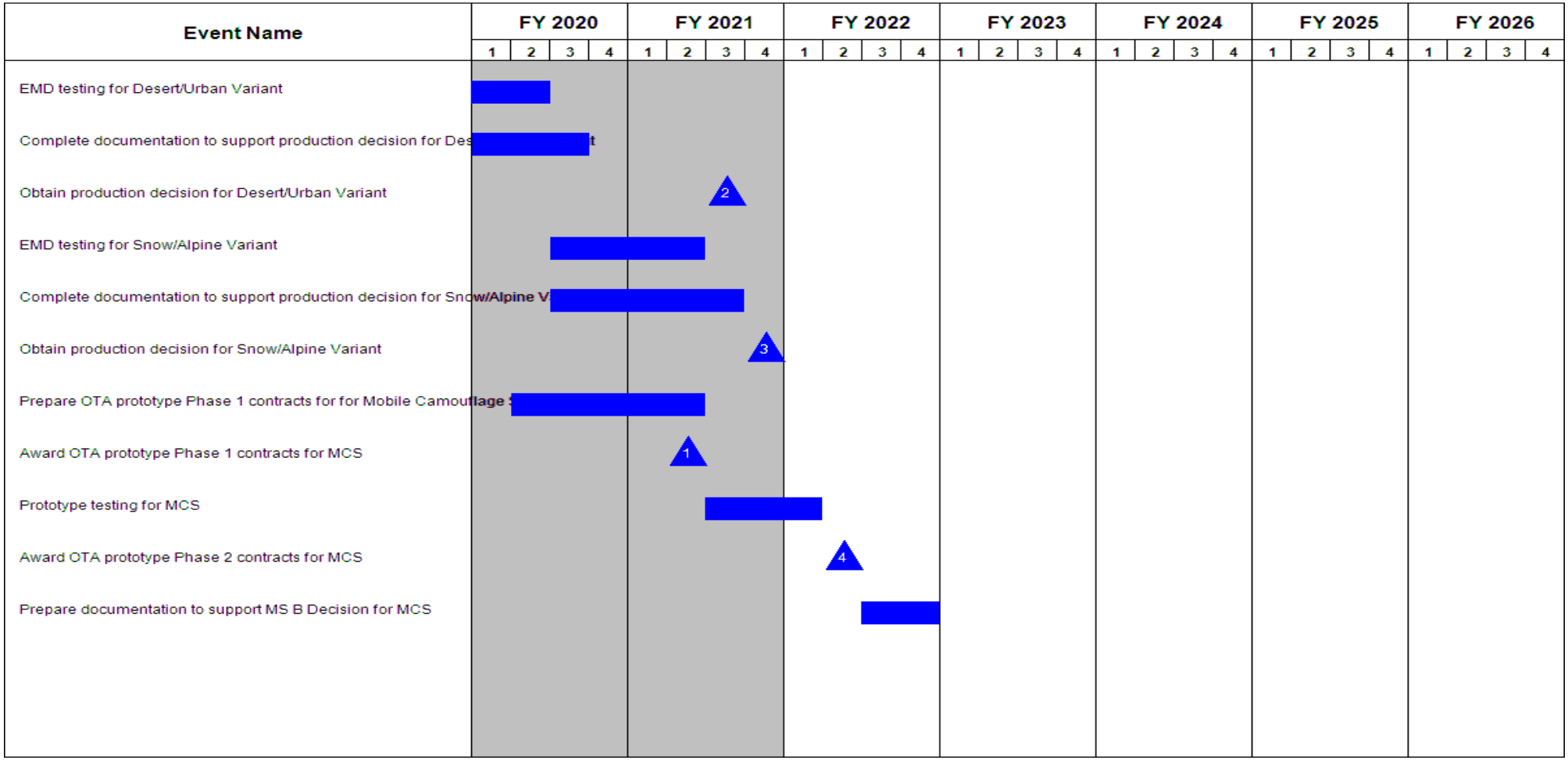

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** FG4 / *Ultra-Lightweight Camouflage Net System (ULCANS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
EMD testing for Desert/Urban Variant	4	2019	2	2020
Complete documentation to support production decision for Desert/Urban Variant	1	2020	3	2020
Obtain production decision for Desert/Urban Variant	3	2021	3	2021
EMD testing for Snow/Alpine Variant	3	2020	2	2021
Complete documentation to support production decision for Snow/Alpine Variant	3	2020	3	2021
Obtain production decision for Snow/Alpine Variant	4	2021	4	2021
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 2022 Army			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
H02: *Tactical Bridging - Engineering Development*	-	39.663	14.445	22.058	-	22.058	-	-	-	-	-	-
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 operational testing of the Line of Communication Bridge (LOCB), development, prototyping and testing of the Bridge Supplemental Set (BSS), operational testing of the Joint Assault Bridge (JAB), 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 the development of new systems and capabilities such as the Assault Float Bridging System and the Bridge Health Monitoring System (also known as Automated Bridge Condition Device (ABCD)). 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 in order to improve maintainability and supportability, minimize impacts of obsolescence, and establish commonality with the current Abrams Main Battle Tank system.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Line of Communication Bridge (LOCB)	10.990	7.175	7.275
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 Operational Testing (OT) of the Line of Communication Bridge (LOCB) system.			
FY 2021 Plans: Funding supports LOCB modeling and simulation, performance assessments, bridge structural strength testing, transportability testing, durability testing and Production Qualification Testing (PQT).			
FY 2022 Plans: Funding supports LOCB structural strength analysis, performance assessments, transportability testing, durability testing and continuation of PQT. Funding also supports temperature / corrosion testing and Operational Testing (OT).			
FY 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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 2020	FY 2021	FY 2022
FY 2022 funding will increase slightly from FY 2021 due to the beginning Operational Testing (OT) as well as the continuation of transportability testing.			
Title: Bridge Supplemental Set (BSS) ***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 2021 Plans:*** FY 2021 funding will support differential berm and uneven bank heights testing as well as BSS transportability testing. ***FY 2022 Plans:*** Funding supports Production Qualification Testing (PQT) of the Bridge Protection Device (BPD) component of the BSS. The BPD is a stand-alone component of the BSS and is held in APS storage until required for real-time operational employment. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 decrease due to completion of testing of the major components of the BSS, with only the Bridge Protection Device remaining to test.	2.750	0.810	0.400
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 replace the Heavy Assault Scissor Bridge (HASB) carried on the Joint Assault Bridge (JAB) launcher, Dry Support Bridge (DSB), Improved Ribbon Bridge (IRB) and Assault Float Bridge sections/components to support the heavier weights of armored combat vehicles. ***FY 2021 Plans:*** Funding supports the development of potential upgrades to increase the MLC rating of the HASB and the fabrication of an increased MLC HASB prototype. ***FY 2022 Plans:*** Funding supports acquisition of DSB test assets and DSB test asset max weight test-to-fail analysis, Heavy Assault Scissor Bridge (HASB) up-weight prototype production and the design development of Assault Float bridging. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	12.990	3.960	12.883

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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 2020	FY 2021	FY 2022
FY 2022 funding will increase over FY 2021 due to two separate prototyping efforts for up-weight HASB, DSB baseline testing and also the development of Assault Float bridging.			
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 SEPv3 Main Battle Tank system. ***FY 2022 Plans:*** Funding will support matrix program support, scope development and design engineering of the M1A2 chassis modernization effort for JAB and ABV systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2021 to FY 2022 increase due to initiation of the M1A2 SEPv3 chassis modernization effort for the JAB and ABV systems in order to maintain consistency with the standard Army configuration of the M1A2 SEPv3 Abrams Main Battle Tank chassis.	-	-	1.500
Title: Joint Assault Bridge (JAB)	5.533	-	-
Title: Pending Reprogramming ***Description:*** $7.400 million directed cut by ASA(ALT) on 22 July 2020 for higher priority program requirements. Funds remain on the FY 2020 H02 project line pending reprogramming.	7.400	-	-
Accomplishments/Planned Programs Subtotals	39.663	11.945	22.058

	FY 2020	FY 2021
Congressional Add: Program increase - health usage monitoring system	-	2.500
FY 2021 Plans: 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 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 Adds Subtotals	-	2.500

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• G06520: *BRIDGE SUPPLEMENTAL SET*	14.373	32.493	19.867	-	19.867	-	-	-	-	-	-
• G82404: *LINE OF COMMUNICATION BRIDGE LOCB*	64.705	60.945	9.625	-	9.625	-	-	-	-	-	-
• GZ3001: *Joint Assault Bridge*	151.123	-	110.773	-	110.773	-	-	-	-	-	-

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 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering and Program Management	MIPR	Various : Various	-	2.431	Oct 2019	2.650	Oct 2020	2.700	Oct 2021	-		2.700	Continuing	Continuing	-
Pending Reprogramming	TBD	TBD : TBD	-	7.400	Jul 2020	-		-		-		-	0.000	7.400	-
		Subtotal	-	9.831		2.650		2.700		-		2.700	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Line of Communication Bridge - Acrow MLC 80/110 130M Type 1 EMD Wet Gap	SS/FFP	Acrow Corporation of America : Parsippany, NJ	-	3.800	Mar 2021	-		-		-		-	0.000	3.800	-
Line of Communication Bridge - AGL MLC 80/110 130M Type 1 EMD Wet Gap	SS/FFP	Acrow Global Limited (AGL) (formerly Mabey Bridge Limited) : Lydney, UK	-	3.500	Mar 2021	-		-		-		-	0.000	3.500	-
Line of Communication Bridge - Acrow/AGL Type 2 Interface Kit Development / Prototypes	SS/FFP	Acrow Corporation of America / Acrow Global Limited (AGL) : Parsippany, NJ / Lydney, UK	-	-		0.725	Jun 2021	-		-		-	0.000	0.725	-
Family of High Military Load Class Bridges - IRB - ERDC Modeling, Simulation and Analysis	MIPR	US Army Corps of Engineers - Engineering Research and Development Center (ERDC) : Vicksburg, MS	-	7.000	Aug 2020	-		-		-		-	0.000	7.000	-
Family of High Military Load Class Bridges - HASB ECP Development / Product Improvements	MIPR	CCDC GVSC : SANGB, MI	-	2.300	Dec 2020	1.300	Dec 2021	-		-		-	0.000	3.600	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-	-		0.825	Mar 2021	0.825	Dec 2021	-		0.825	0.000	1.650	-
Family of High Military Load Class Bridges - DSB Test Assets	MIPR	GVSC CCDC - Bridge Test Lab : TBD	-	-		-		1.200	Dec 2021	-		1.200	0.000	1.200	-
Family of High Military Load Class Bridges - Assault Float Bridging - Design Development	MIPR	Various : Various	-	-		-		5.058	Oct 2021	-		5.058	0.000	5.058	-
Program increase - health usage monitoring system	MIPR	Various : Various	-	-		0.650	Apr 2021	-		-		-	0.000	0.650	-
Bridge Supplemental Set - Design Engineering / Prototype Development	MIPR	Tobyhanna Army Depot (TYAD) : Tobyhanna, PA	-	2.500	Dec 2020	0.210	Jan 2021	-		-		-	0.000	2.710	-
M1A2 JAB / ABV Chassis Upgrade - Design Development	MIPR	CCDC GVSC : Warren, MI	-	-		-		1.500	Oct 2021	-		1.500	27.000	28.500	Continuing
		Subtotal	-	19.100		3.710		8.583		-		8.583	27.000	58.393	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Bridge Test Lab	MIPR	CCDC GVSC - Bridge Test Lab : SANGB, MI	-	0.875	Oct 2019	0.875	Nov 2020	0.850	Nov 2021	-		0.850	Continuing	Continuing	-
Prototype/EMD Bridge Test Asset Transportation	TBD	TAC Code : TBD	-	0.256	Oct 2019	0.310	Jan 2021	0.325	Jan 2022	-		0.325	Continuing	Continuing	-
		Subtotal	-	1.131		1.185		1.175		-		1.175	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	Dec 2019	1.800	Feb 2021	1.950	Feb 2022	-		1.950	0.000	4.997	-
Line of Communication Bridge - PQT Durability Testing	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	-	1.187	Mar 2020	1.650	Mar 2021	-		-		-	0.000	2.837	-
Line of Communication Bridge - Type I Structural Strength Testing (SST)	MIPR	CCDC Data Analysis Center (DAC) : Aberdeen Proving Ground, MD	-	-		0.750	Apr 2021	-		-		-	0.000	0.750	-
Line of Communication Bridge - Operational Testing (OT)	MIPR	Operational Test Command (OTC) : Fort Hood, TX	-	-		0.250	Sep 2021	4.000	Mar 2022	-		4.000	0.000	4.250	-
Family of High Military Load Class Bridges - HASB Max Weight - Test to Fail	MIPR	CCDC GVSC - Bridge Test Lab : SANGB, MI	-	1.384	Jul 2020	-		-		-		-	0.000	1.384	-
Family of High Military Load Class Bridges - DSB - Baseline Testing - Max Weight - Test to Fail	MIPR	CCDC GVSC - Bridge Test Lab : SANGB, MI	-	-		-		1.650	Jan 2022	-		1.650	0.000	1.650	-
Family of High Military Load Class Bridges - HASB Upweight Prototype Testing	MIPR	CCDC GVSC - Bridge Test Lab : SANGB, MI	-	-		-		1.600	Jul 2022	-		1.600	0.000	1.600	-
Bridge Supplemental Set - Test & Evaluation	MIPR	US Army Corps of Engineers - Engineering Research and Development Center (ERDC) : Vicksburg, MS	-	0.250	Jan 2021	0.600	May 2021	0.400	Dec 2021	-		0.400	0.000	1.250	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Joint Assault Bridge - Operational Test and Evaluation	MIPR	Various : Fort Riley, KS	-	5.533	Jun 2019	-		-		-		-	0.000	5.533	-
Program increase - health usage monitoring system	C/FFP	TBD : TBD	-	-		1.850	Jun 2021	-		-		-	0.000	1.850	-
		Subtotal	-	9.601		6.900		9.600		-		9.600	0.000	26.101	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	39.663		14.445		22.058		-		22.058	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
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*

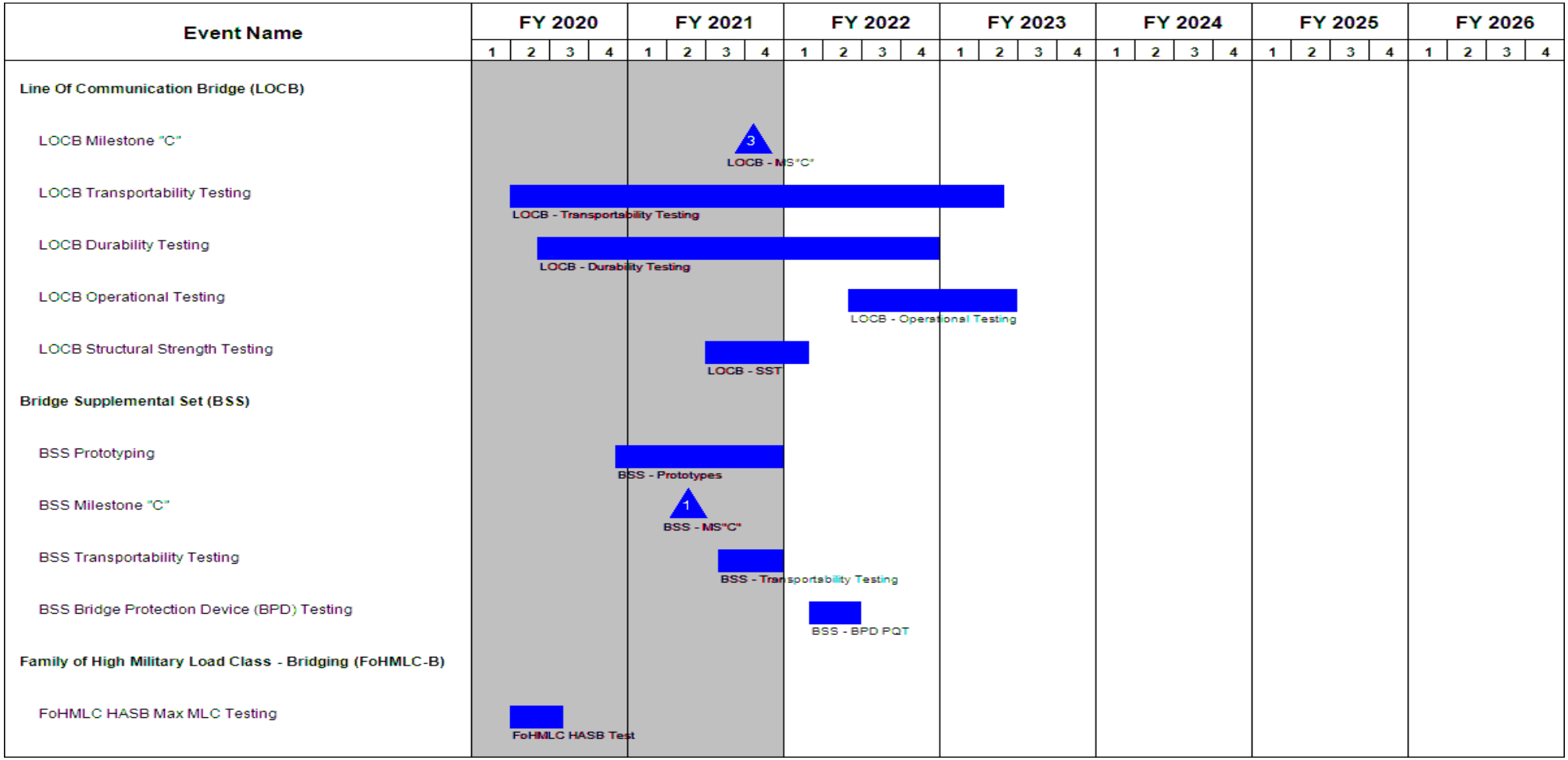

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

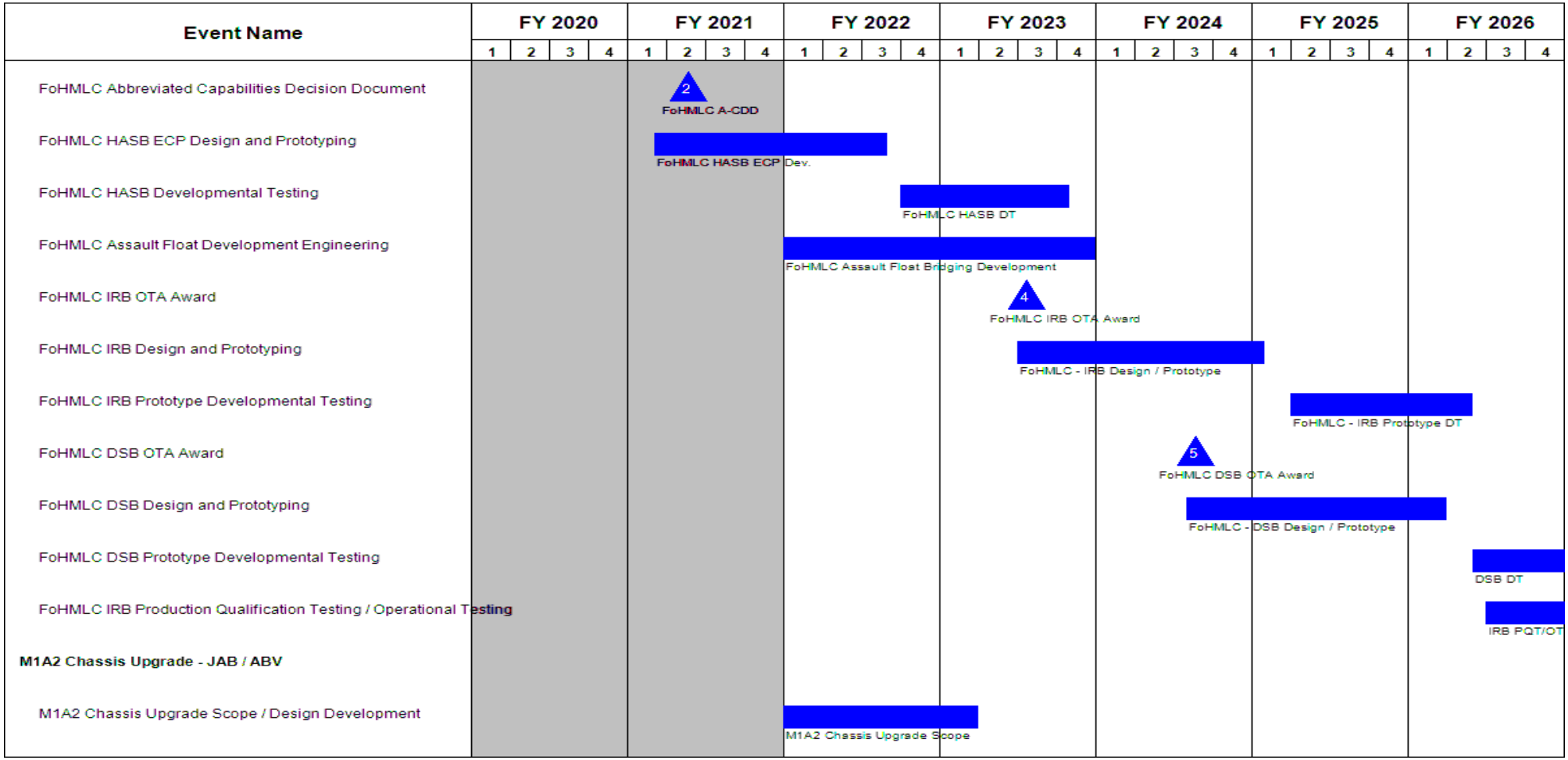

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

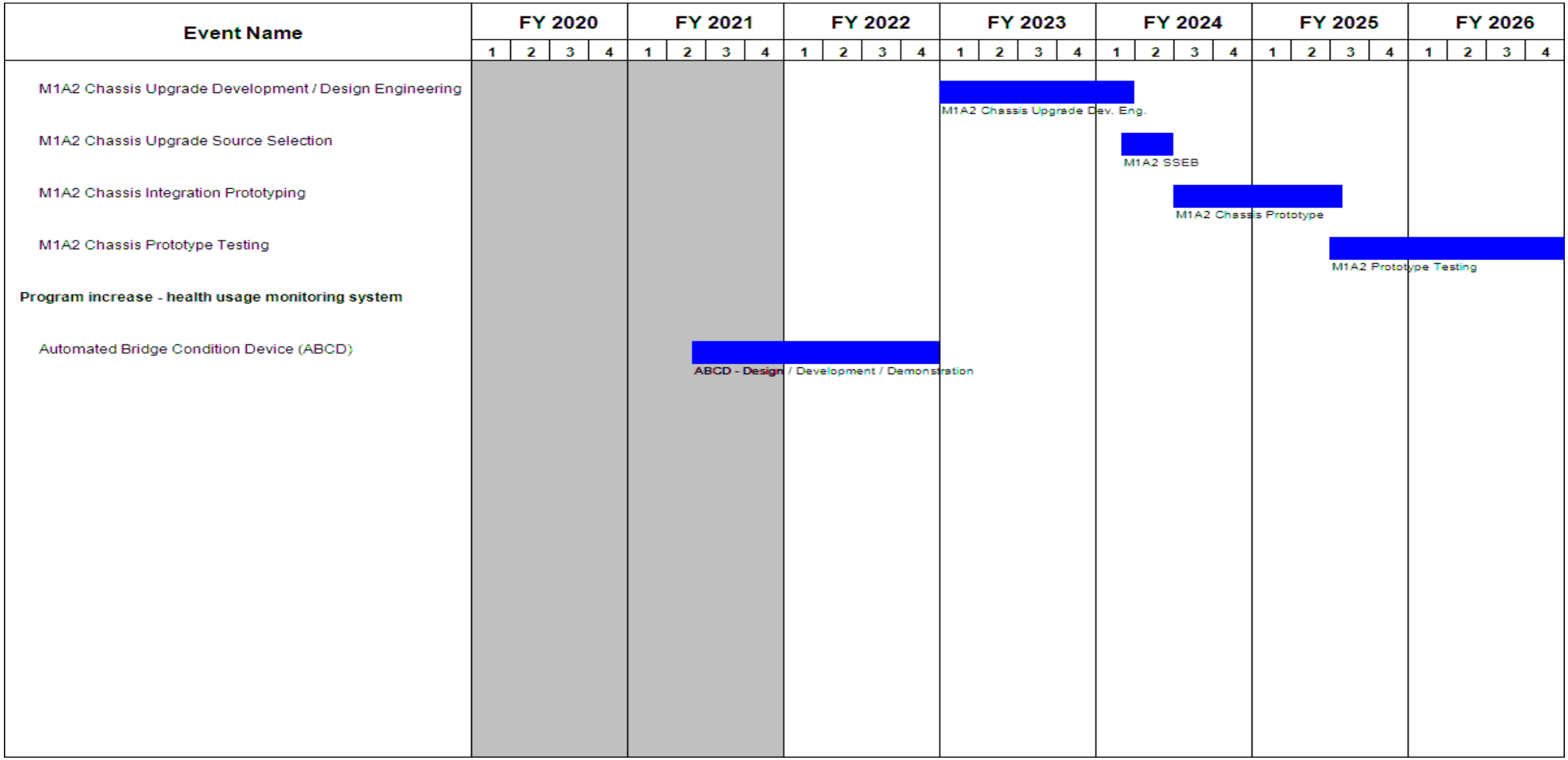

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** H02 / *Tactical Bridging - Engineering Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Line Of Communication Bridge (LOCB)	2	2012	4	2021
LOCB Milestone "C"	4	2021	4	2021
LOCB Transportability Testing	1	2020	2	2023
LOCB Durability Testing	2	2020	4	2022
LOCB Operational Testing	2	2022	2	2023
LOCB Structural Strength Testing	3	2021	1	2022
Bridge Supplemental Set (BSS)	2	2019	2	2026
BSS Prototyping	4	2020	4	2021
BSS Milestone "C"	2	2021	2	2021
BSS Transportability Testing	3	2021	4	2021
BSS Bridge Protection Device (BPD) Testing	1	2022	2	2022
Family of High Military Load Class - Bridging (FoHMLC-B)	1	2018	2	2022
FoHMLC HASB Max MLC Testing	1	2020	3	2020
FoHMLC Abbreviated Capabilities Decision Document	2	2021	2	2021
FoHMLC HASB ECP Design and Prototyping	1	2021	3	2022
FoHMLC HASB Developmental Testing	4	2022	4	2023
FoHMLC Assault Float Development Engineering	1	2022	4	2023
FoHMLC IRB OTA Award	3	2023	3	2023
FoHMLC IRB Design and Prototyping	3	2023	1	2025
FoHMLC IRB Prototype Developmental Testing	2	2025	2	2026
FoHMLC DSB OTA Award	3	2024	3	2024
FoHMLC DSB Design and Prototyping	3	2024	1	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
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**
FoHMLC DSB Prototype Developmental Testing	2	2026	2	2027
FoHMLC IRB Production Qualification Testing / Operational Testing	3	2026	3	2027
M1A2 Chassis Upgrade - JAB / ABV	1	2022	1	2026
M1A2 Chassis Upgrade Scope / Design Development	1	2022	1	2023
M1A2 Chassis Upgrade Development / Design Engineering	1	2023	1	2024
M1A2 Chassis Upgrade Source Selection	1	2024	2	2024
M1A2 Chassis Integration Prototyping	3	2024	3	2025
M1A2 Chassis Prototype Testing	3	2025	1	2027
Program increase - health usage monitoring system	3	2021	4	2022
Automated Bridge Condition Device (ABCD)	2	2021	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
L39: *Field Sustainment Support Ed*	-	1.607	1.655	1.618	-	1.618	-	-	-	-	-	-
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 2020	FY 2021	FY 2022
Title: Rapid Rigging and DeRigging Airdrop System (RRDAS)	1.607	1.655	1.618
Description: Reduces rigging times while also providing the capability to rapidly de-rig loads on the drop zone. This will reduce the lead time to prepare Low Velocity Airdrop 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.			
FY 2021 Plans: Conduct down selection, limited user evaluation and initiate Developmental Testing.(DT).			
FY 2022 Plans: 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 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Increased funds to complete MS C production.			
Accomplishments/Planned Programs Subtotals	1.607	1.655	1.618

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• MA7806: *Precision Airdrop*	2.040	2.040	2.081	-	2.081	-	-	-	-	-	-

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 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Support	Various	PM FSS : Natick, MA	5.854	0.325		0.337		0.465		-		0.465	0.000	6.981	Continuing
		Subtotal	5.854	0.325		0.337		0.465		-		0.465	0.000	6.981	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-		-		-		-		-	0.000	1.853	-
RRDAS	Various	Various : Various	0.948	0.832		0.418		0.453		-		0.453	0.000	2.651	-
		Subtotal	20.668	0.832		0.418		0.453		-		0.453	0.000	22.371	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-		-		-		-		-	0.000	0.200	-
		Subtotal	0.674	-		-		-		-		-	0.000	0.674	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
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	-		-		-		-		-	0.000	1.432	-
RRDAS	Various	Various : Various	-	0.450		0.900		0.700		-		0.700	0.000	2.050	-
		Subtotal	20.760	0.450		0.900		0.700		-		0.700	0.000	22.810	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	47.956	1.607		1.655		1.618		-		1.618	0.000	52.836	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
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*

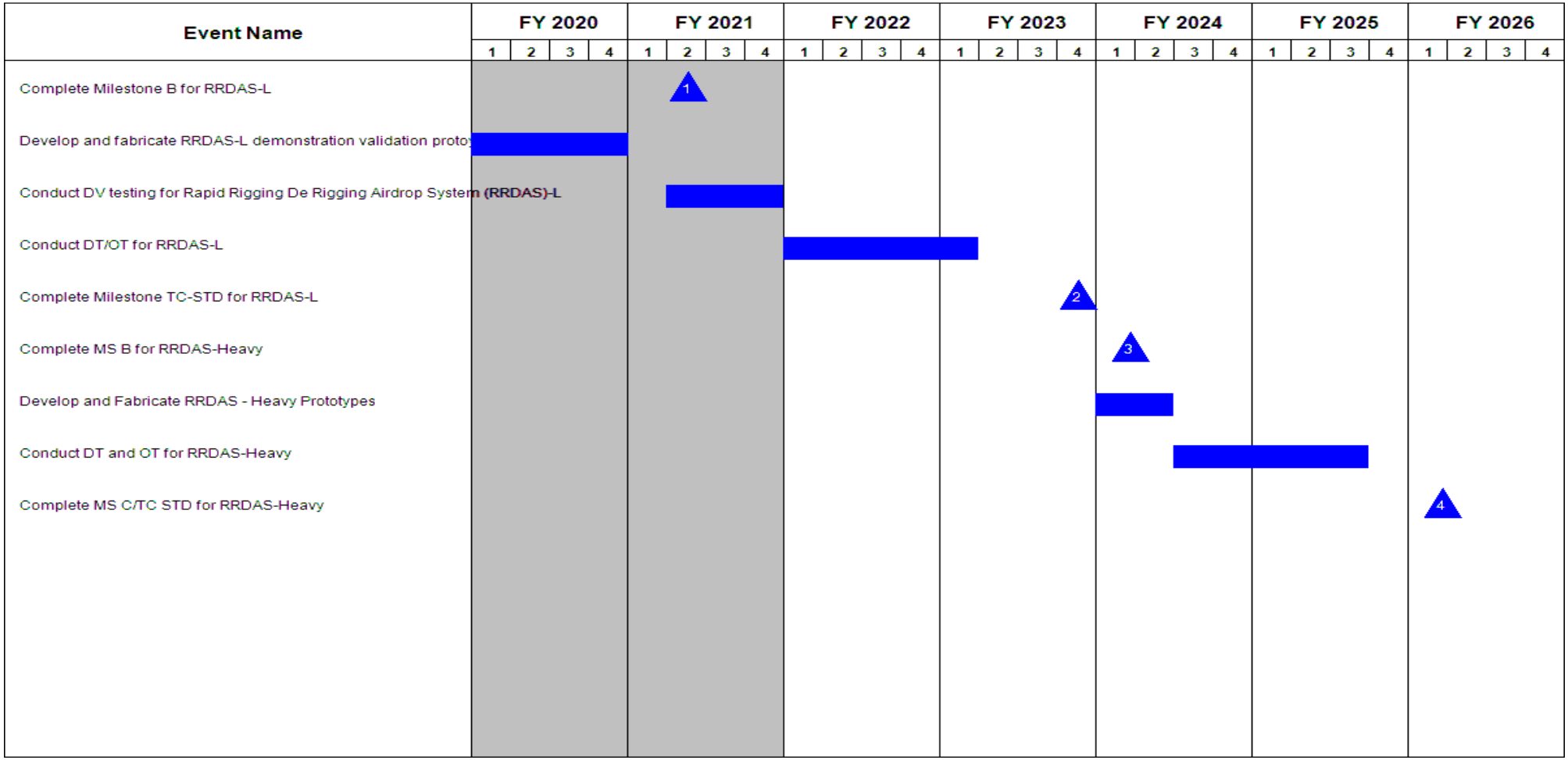

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L39 / *Field Sustainment Support Ed*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Complete Milestone B for RRDAS-L	2	2021	2	2021
Develop and fabricate RRDAS-L demonstration validation protoypes	3	2019	4	2020
Conduct DV testing for Rapid Rigging De Rigging Airdrop System (RRDAS)-L	2	2021	4	2021
Conduct DT/OT for RRDAS-L	1	2022	1	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

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
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*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
L41: *Water And Petroleum Distribution - Ed*	-	8.755	8.707	9.367	-	9.367	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Modular Fuel System (MFS) Tank Rack Module (TRM) - M107 Pump Modification Kit Development is a new start for FY22

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 2020	FY 2021	FY 2022
Title: Water Bison / Bison Lite	-	1.991	2.053
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)			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
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. ***FY 2021 Plans:*** Water Bison - Award Other Transaction Authority (OTA) prototype contract ***FY 2022 Plans:*** Water Bison - Prototype Testing at Yuma Proving Grounds, AZ Bison Lite - System design and engineering development for prototyping ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increases in FY22 to complete Water Bison prototype testing and begins second variant Bison Lite prototype design engineering.			
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 2021 Plans:*** Limited User Test (LUT), Material Release documentation and Full Rate Production (FRP). ***FY 2022 Plans:*** Completion of Limited User Test (LUT), Material Release and final matrix testing support personnel costs before transitioning to Full Rate Production (FRP) ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding decreases for E2FDS as final testing is completed and program transitions to transitioning to Full Rate Production (FRP).	3.752	0.557	0.150
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	0.472	1.832	-

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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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
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. ***FY 2021 Plans:*** Conduct Production Qualification Testing (PQT) , Helicopter Sling Load (HSL) Testing,Technical Manual (TM) and provisioning development. Program transitions to Full Rate Production (FRP). ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease in FY22 funding due to program transitioning to Full Rate Production (FRP).			
Title: Petroleum Expeditionary Analysis Kit (PEAK) ***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 2021 Plans:*** Award of PEAK Other Transaction Authority (OTA) contract and beginning of prototype Run-off down select testing. ***FY 2022 Plans:*** Complete Prototype Testing and conducting Production Qualification Testing, Customer Testing and Logistics User Test (LUT) ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding decreases in FY22 due to completion of prototype testing and the beginning of LRIP production.	0.150	1.966	0.550
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 2021 Plans:***	-	1.575	1.536

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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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Award of TFDS Other Transactional Authority (OTA) contract for prototypes ***FY 2022 Plans:*** Start of Prototype Run-off testing for contractor down select and Ballistics Armor study/testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in FY22 funding due to prototype testing and ballistics study.			
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 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 2021 Plans:*** Funds are required to conduct testing on three prototypes and Request for Production Proposal (RFP) and evaluation. ***FY 2022 Plans:*** Complete Production qualification Testing (PQT) and Operational Test. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increased due to completing testing and moving into production qualification testing (PQT).	2.764	0.300	1.393
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 is not capable of off-road or retail operations. ***FY 2021 Plans:*** Developmental Testing (DT). ***FY 2022 Plans:***	1.315	0.356	1.342

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Complete Production Qualification Testing, Complete Limited User Testing ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in FY22 funding due to testing costs.			
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 the Warfighter. The 100,000 gallon WSDS is containerized and will take the place of two 40K systems in the Composite Supply Companies. ***FY 2021 Plans:*** WSDS Technical Data Package / Engineering Development ***FY 2022 Plans:*** WSDS Pump Test Asset contract award and Pump-Off testing for contractor down select. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY22 funding increases to fund purchased of Pump Test assets and Pump-Off testing	0.302	0.130	1.543
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:***	-	-	0.800

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Modification pump kit engineering development, purchase of test assets and kit testing prior to contract award. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increased in FY22 due to start of modification program development			
Accomplishments/Planned Programs Subtotals	8.755	8.707	9.367

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• MA6000: *Distribution Systems, Petroleum & Water*	84.527	76.722	72.296	-	72.296	-	-	-	-	-	-
• D02001: *Semitrailers, tankers*	-	17.082	17.985	-	17.985	-	-	-	-	-	-
• MA4502: *INSTALLATION OF MODIFICATIONS*	14.109	5.251	5.574	-	5.574	-	-	-	-	-	-
• MB6400: *QUALITY SURVEILLANCE EQUIPMENT*	-	-	0.744	-	0.744	-	-	-	-	-	-

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 2022 Army			Date: May 2021
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*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PM Matrix Spt / GVSC Engineering Spt	MIPR	Various TACOM : Warren, MI	-	2.815	Jan 2020	1.963	Jan 2021	2.264	Jan 2022	-		2.264	0.000	7.042	-
		Subtotal	-	2.815		1.963		2.264		-		2.264	0.000	7.042	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
E2FDS - Tech/Ops Manuals	C/FFP	DRS SUSTAINMENT SYSTEMS, INC. : Saint Louis, MO	-	0.525	Aug 2020	0.107	Mar 2021	-		-		-	0.000	0.632	-
PEAK - Contract Prototype Award (OTA)	C/FFP	TBD - OTA - Mulitple Contractors : Multiple	-	-		0.900	Aug 2021	-		-		-	0.000	0.900	-
BFDS - Contract Prototype Award (OTA)	C/FFP	TBD - OTA - Mulitple Contractors : Multiple	-	0.902	Aug 2020	-		-		-		-	0.000	0.902	-
TFDS - Contract Prototype Award (OTA)	C/FFP	TBD - OTA - Mulitple Contractors : Multiple	-	-		1.184	Sep 2021	-		-		-	0.000	1.184	-
WSDS - Tech Data Package - ECP Update	MIPR	GVSC : Warren, MI	-	0.061	Jan 2020	0.030	Feb 2021	-		-		-	0.000	0.091	-
WSDS - Pump Test Assets	C/FP	TBD - Mulitple Contractors : Multiple Contractors	-	-		-		0.750	Dec 2021	-		0.750	0.000	0.750	-
HIPPO - Contract Prototype Award (OTA)	C/FFP	OTA - Mulitple Contractors : Multiple	-	1.804	Feb 2020	-		-		-		-	0.000	1.804	-
Bison - Contract Prototype Award (OTA)	C/FFP	TBD - OTA - Mulitple Contractors : Multiple	-	-		1.600	Jun 2021	-		-		-	0.000	1.600	-
MFS TRM - Kit Int. Design/ Eng. Pump Modification Upgrade + Test Assets	SS/FFP	ISOMETRICS : Reidsville, NC	-	-		-		0.200	Dec 2021	-		0.200	0.000	0.200	-
TFDS - Balistic Study	MIPR	TBD : TBD	-	-		-		0.120	Jan 2022	-		0.120	0.000	0.120	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Bison Lite - Design Eng. Development / Prototyping	TBD	TBD : TBD	-	-		-		0.810	Apr 2022	-		0.810	0.000	0.810	-
		Subtotal	-	3.292		3.821		1.880		-		1.880	0.000	8.993	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
E2FDS - LUT Customer Event / Maint. Demos	MIPR	TACOM : Warren, MI	-	-		0.350	Jun 2021	0.050	Nov 2021	-		0.050	0.000	0.400	-
		Subtotal	-	-		0.350		0.050		-		0.050	0.000	0.400	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MTRRS - Production Qualification Test	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	0.249	Jul 2020	1.276	Feb 2021	-		-		-	0.000	1.525	-
MTRRS - User Jury Test	MIPR	Aberdeen Test Center : Aberdeen Proving Ground, MD	-	-		0.140	Jul 2021	-		-		-	0.000	0.140	-
MTRRS - HSL Test	MIPR	Aberdeen Test Center : Aberdeen Proving Ground, MD	-	-		0.025	Mar 2021	-		-		-	0.000	0.025	-
E2FDS - Production Qualification Test	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	1.434	Mar 2020	-		-		-		-	0.000	1.434	-
E2FDS - HSL Test	MIPR	Aberdeen Test Center : Aberdeen Proving Ground, MD	-	0.265	Mar 2020	-		-		-		-	0.000	0.265	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PEAK - Protoype Dev Test - Fly Off Testing	C/FFP	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	-		0.676	Sep 2021	-		-		-	0.000	0.676	-
BFDS - APG - Prototype Testing	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	-		0.256	Feb 2021	-		-		-	0.000	0.256	-
TFDS - Prototype Run-Off Testing	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	-		-		1.023	Jun 2022	-		1.023	0.000	1.023	-
WSDS - Pump Off Test	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	-		-		0.400	Jun 2022	-		0.400	0.000	0.400	-
HIPPO - Prototype Proveout Testing PPT	SS/FFP	MICHIGAN TECHNOLOGICAL UNIVERSITY : Houghton, MI	-	0.700	Feb 2020	-		-		-		-	0.000	0.700	-
HIPPO - PQT / FAT / HSL / Transportability	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	-		0.200	Aug 2021	1.000	Dec 2021	-		1.000	0.000	1.200	-
Bison - Yuma - Prototype Testing	MIPR	Army Test Center : Yuma, AZ	-	-		-		0.850	Dec 2021	-		0.850	0.000	0.850	-
MFS TRM - Mod Kit Prototype Testing	TBD	TBD : TBD	-	-		-		0.500	Jun 2022	-		0.500	0.000	0.500	-
BFDS - Production Qualification Test	MIPR	Aberdeen Proving Ground : Aberdeen Proving Ground, MD	-	-		-		0.950	May 2022	-		0.950	0.000	0.950	-
PEAK - Production Qualification Testing / Cust. Test (LUT)	MIPR	GVSC : Warren, MI	-	-		-		0.450	Aug 2022	-		0.450	0.000	0.450	-
		Subtotal	-	2.648		2.573		5.173		-		5.173	0.000	10.394	N/A

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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*	

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	8.755		8.707		9.367		-		9.367	0.000	26.829	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
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*

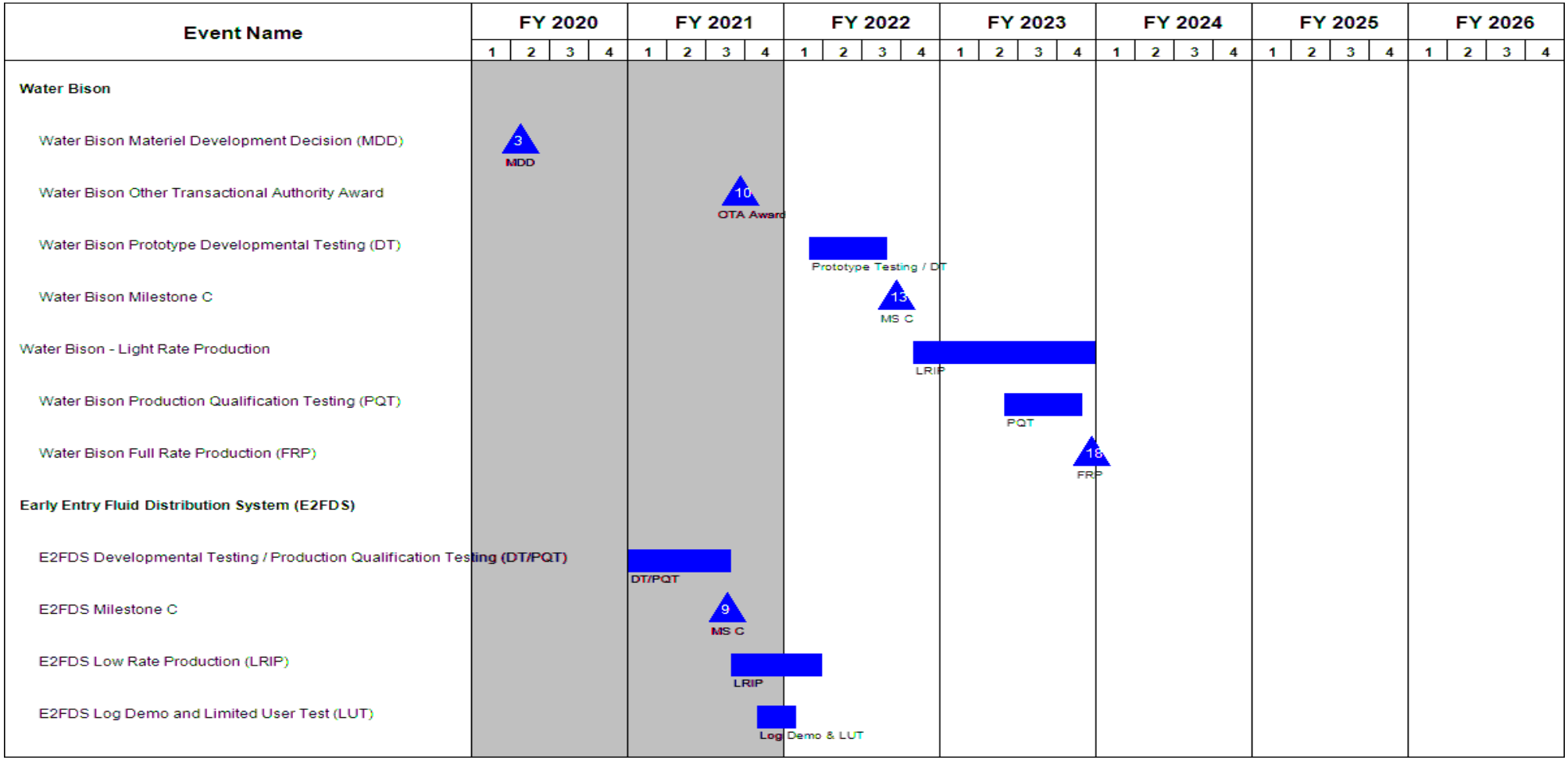

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

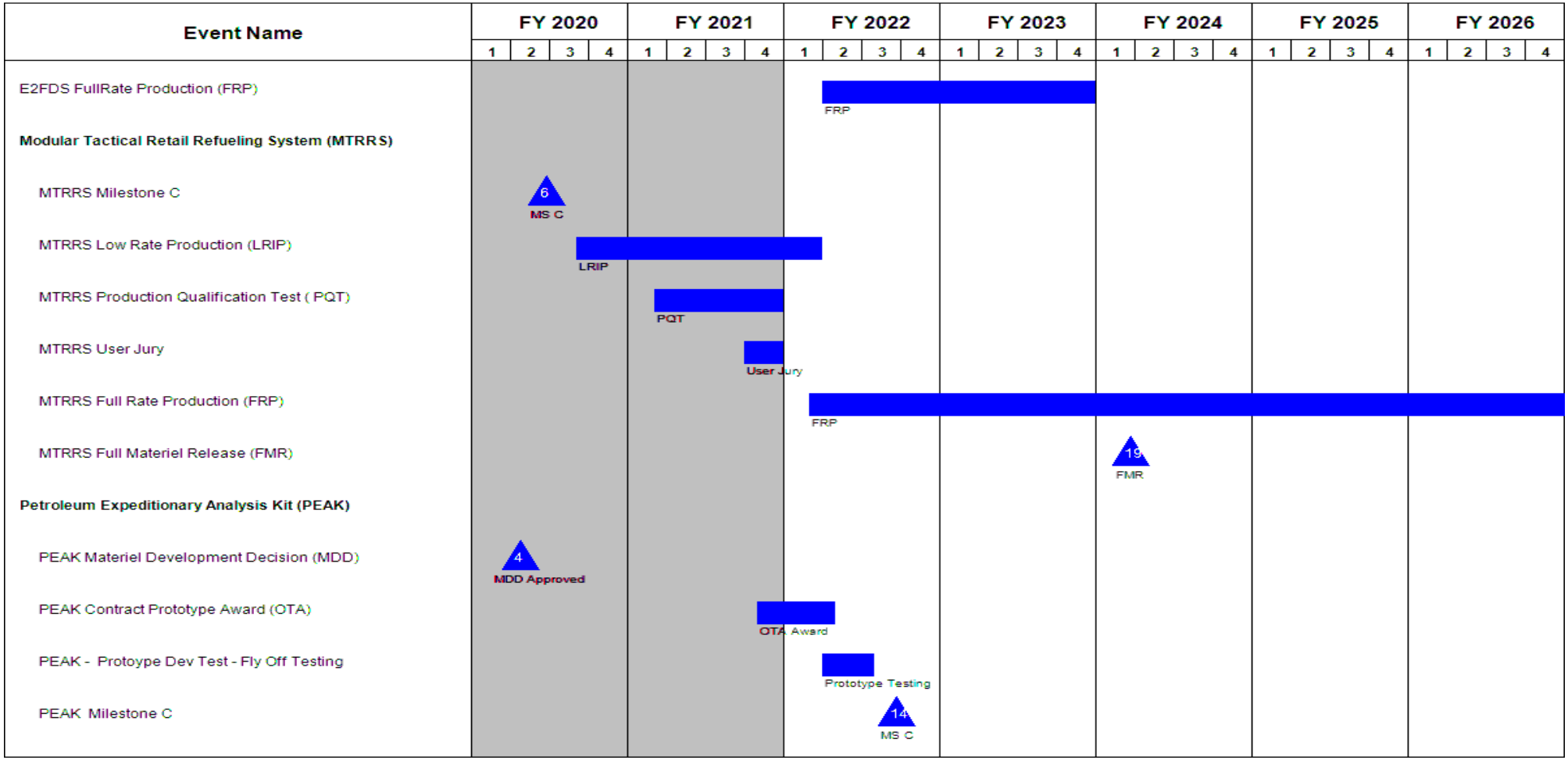

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

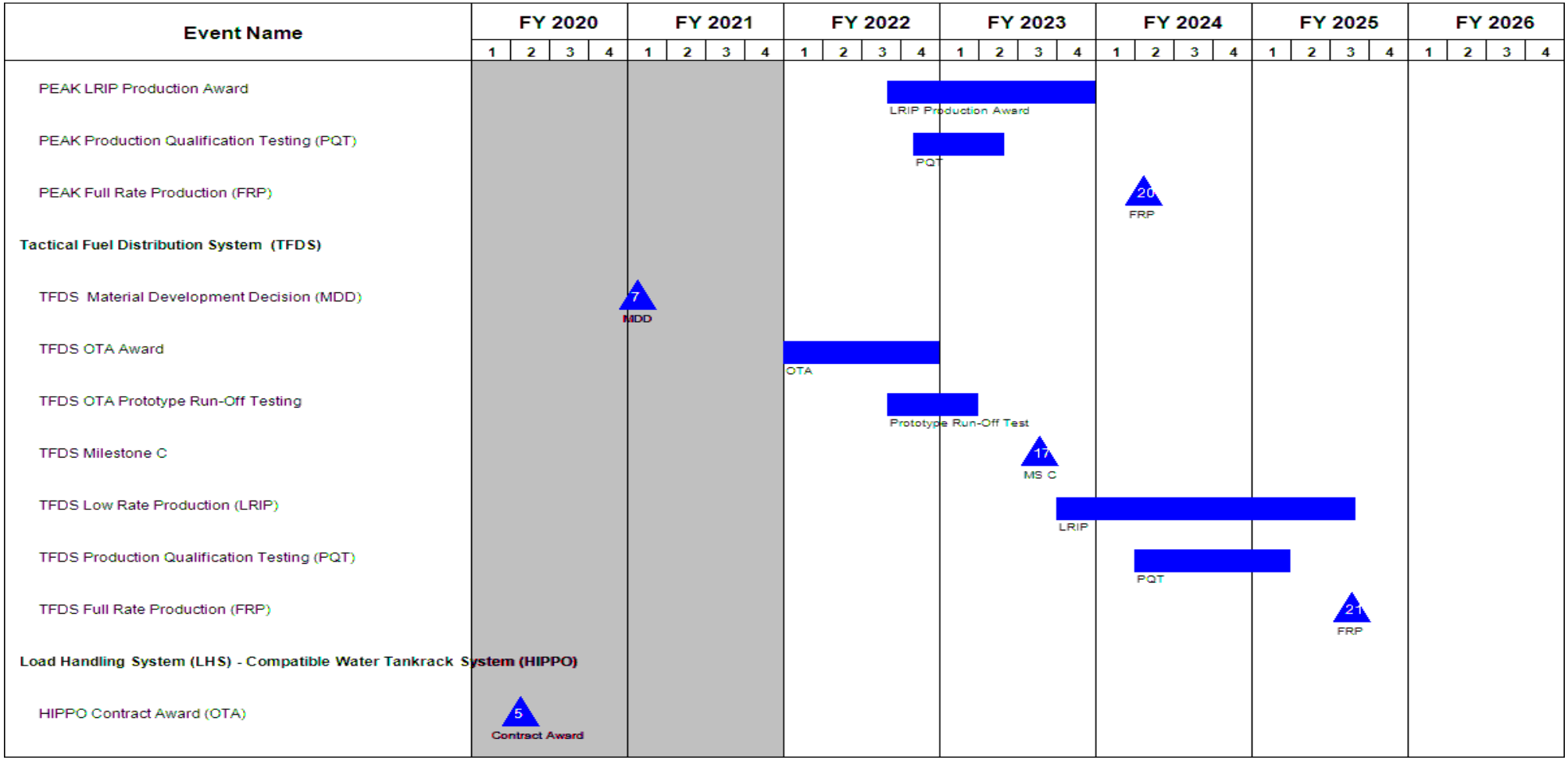

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

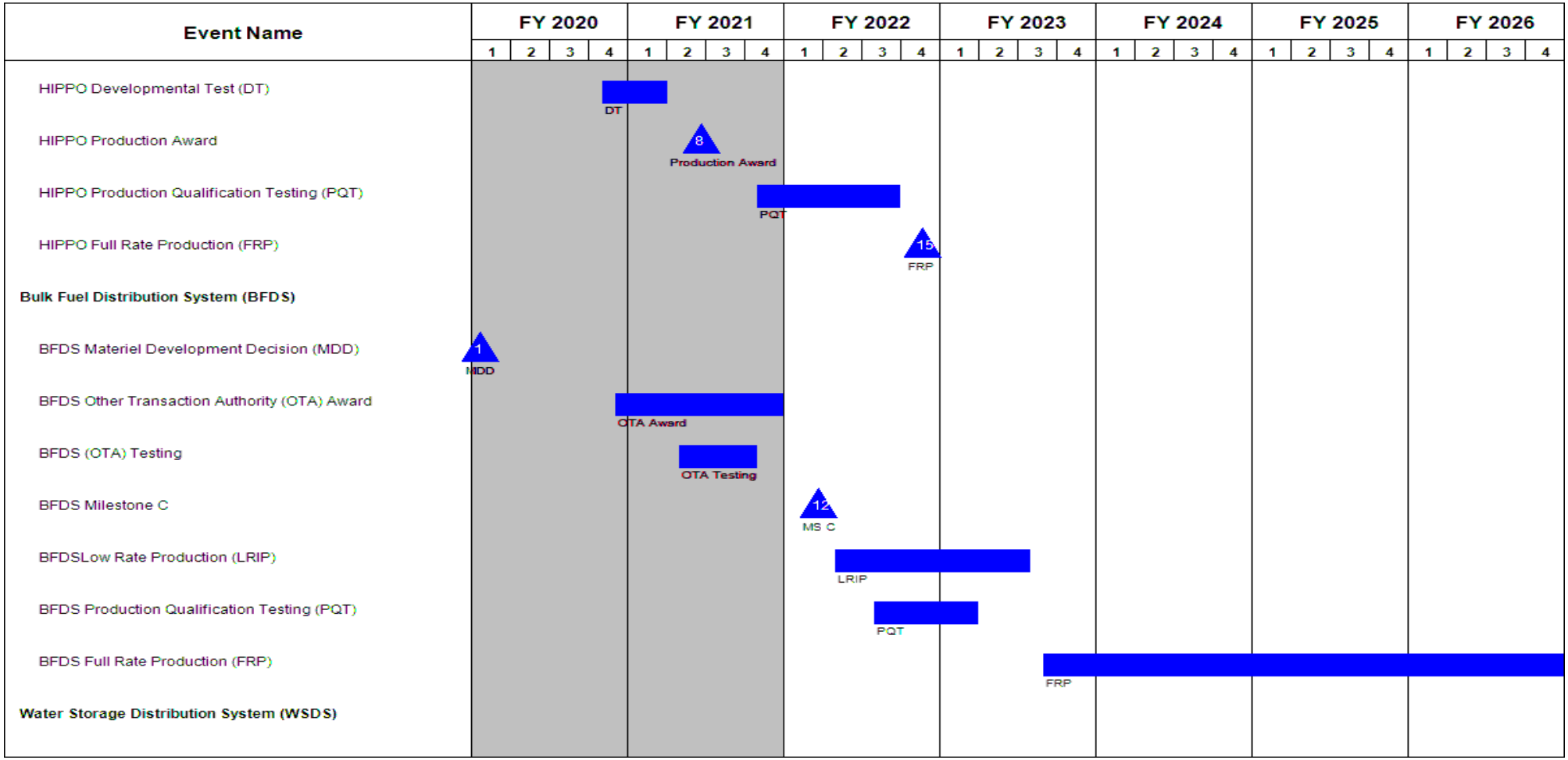

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

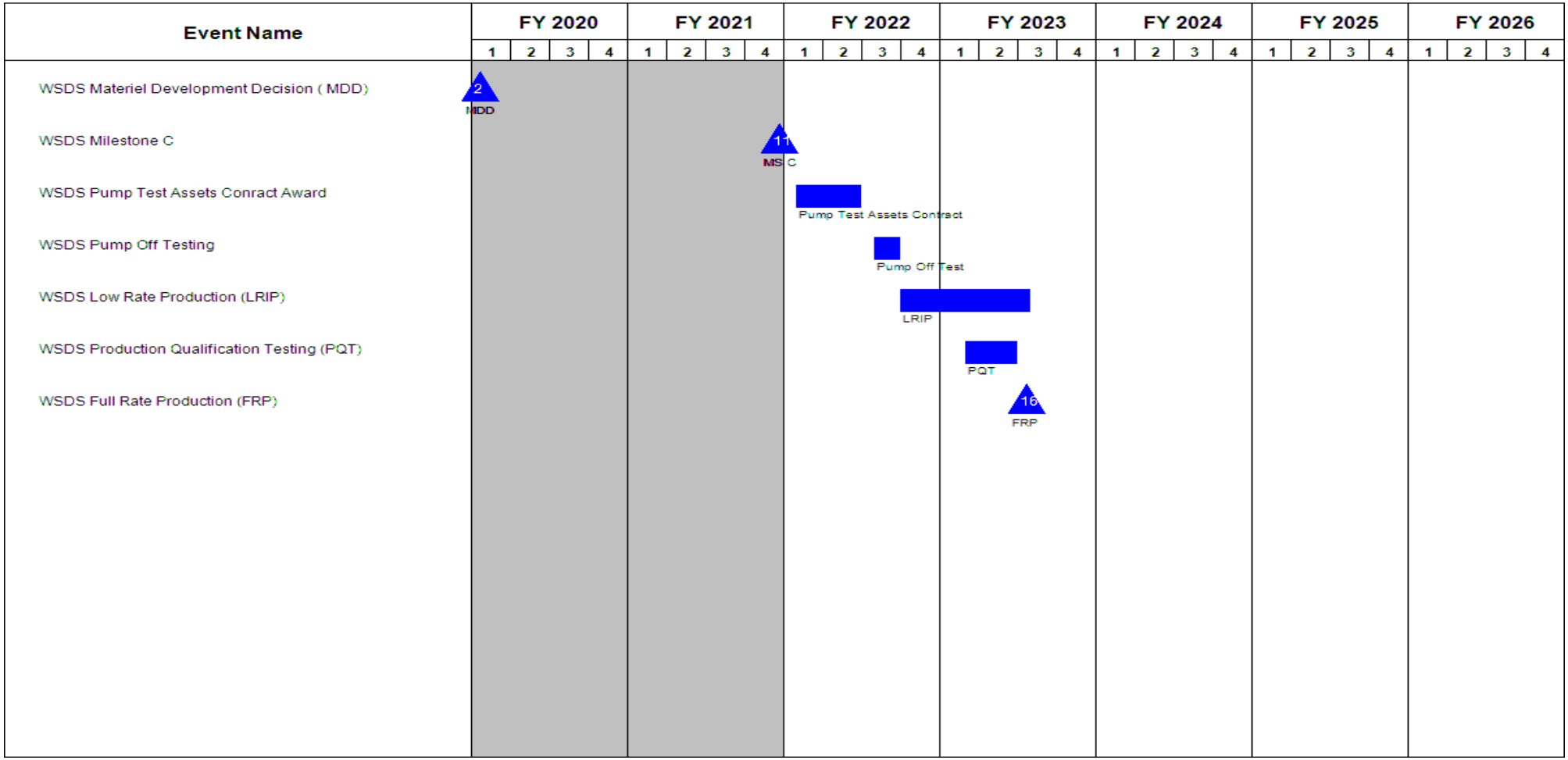

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L41 / *Water And Petroleum Distribution - Ed*

Schedule Details

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

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
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 Materiel Development Decision (MDD)	2	2020	2	2020
PEAK Contract Prototype Award (OTA)	4	2021	2	2022
PEAK - Protoype Dev Test - Fly Off Testing	2	2022	3	2022
PEAK Milestone C	3	2022	3	2022
PEAK LRIP Production Award	3	2022	4	2023
PEAK Production Qualification Testing (PQT)	4	2022	2	2023
PEAK Full Rate Production (FRP)	2	2024	2	2024
Tactical Fuel Distribution System (TFDS)	1	2020	1	2025
TFDS Material Development Decision (MDD)	1	2021	1	2021
TFDS OTA Award	1	2022	4	2022
TFDS OTA Prototype Run-Off Testing	3	2022	1	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	2025
Load Handling System (LHS) - Compatible Water Tankrack System (HIPPO)	3	2020	4	2025
HIPPO Contract Award (OTA)	2	2020	2	2020
HIPPO Developmental Test (DT)	4	2020	1	2021
HIPPO Production Award	2	2021	2	2021
HIPPO Production Qualification Testing (PQT)	4	2021	3	2022
HIPPO Full Rate Production (FRP)	4	2022	4	2022
Bulk Fuel Distribution System (BFDS)	1	2020	2	2028
BFDS Materiel Development Decision (MDD)	1	2020	1	2020
BFDS Other Transaction Authority (OTA) Award	4	2020	4	2021
BFDS (OTA) Testing	2	2021	4	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
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**
BFDS Milestone C	1	2022	1	2022
BFDSLow Rate Production (LRIP)	2	2022	3	2023
BFDS Production Qualification Testing (PQT)	3	2022	1	2023
BFDS Full Rate Production (FRP)	3	2023	4	2026
Water Storage Distribution System (WSDS)	4	2019	3	2028
WSDS Materiel Development Decision (MDD)	1	2020	1	2020
WSDS Milestone C	4	2021	4	2021
WSDS Pump Test Assets Conract Award	1	2022	2	2022
WSDS Pump Off Testing	3	2022	3	2022
WSDS Low Rate Production (LRIP)	4	2022	3	2023
WSDS Production Qualification Testing (PQT)	1	2023	2	2023
WSDS Full Rate Production (FRP)	3	2023	3	2023

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	Project (Number/Name) L43 / *ENGINEER SUPPORT EQUIPMENT - ED*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
L43: *ENGINEER SUPPORT EQUIPMENT - ED*	-	1.191	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

These systems provide state-of-the-art deployable, combat engineer and construction equipment and critical life support along with engineer safety and special unit support equipment supporting the joint warfighter. These programs enhance combat and military operations minimize transportation requirements and reduce the logistical footprint by eliminating obsolete equipment and reducing the number of programs. The Combat Engineer and Construction equipment consists of the Surveying, Firefighting Individual Requirements Equipment Support (FIRES), Fire Protection Equipment Type I, II and III, Tactical Fire Fighting Truck Tools (TFTT), Family of Power Utility Kits (FoPUK), and Soldier Portable Kits, Lineman's Tool Kit, Concrete and Masonry, Electricians, Plumbers, Pipefitters, Family of Light Sets (FoLS), Airfield Damage Repair Kit (ADRK), Diving Equipment, Surface Swimmer Support Sets, Surface Supplied Diving Set, procurement of new Technical/Special Tools, Pioneer Support Set, and the Pioneer Land Clearing and Building Erection Set. Project will explore Additive Manufacturing for Engineer systems. Funding will support the procurement of market samples and testing for Soldier Portable Sets, Kits, and Outfits (SKO), Special Tools initiative, and critical life support equipment such as the Deep Sea Set, Underwater Construction Set, Photo Support Set, Diver Supplemental Issue Set, Closed Circuit Scuba Set, Supervisor Propulsion Emergency and Recovery SCUBA (SPEaRS), Divers' Supplemental Issue Set(DSIS), Vertical Skills Engineer Construction Kit (VSECK), and Family of Boats and Motors (FOBAM).

BUDGET ITEM JUSTIFICATION: This project supports development, demonstration, testing and evaluation within the Combat Engineer and Construction Support Equipment arena. These items include critical life support equipment such as diving, firefighting, fire suppression, urban and dense urban operations, subterranean operations, breathable air compressors, and emergency and recovery sets along with engineer safety and special unit support equipment and photo support sets. Funding shall allow for development of dual use systems that support wartime use by Soldiers to include Special Forces and peacetime operations that include national disaster relief and homeland security operations. Much of this equipment has an inherent short Economic Useful Life (EUL). Investments used to revise, update and obtain equipment within this portfolio has resulted in increased readiness, safety, and effectiveness and reductions in footprint.

No FY22 funding for this project. Funding supports modernization of the current Ordnance/Engineer 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 operating concepts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Family of Power Utility Kits (FoPUK) ***Description:*** Conduct Market Research, Develop, and Initiate procurement activities for Family of Power Utility Kits (FoPUK).	0.308	-	-
Title: Supervisory Propulsion, Emergency and Recovery Set (SPEaRS)	0.585	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L43 / *ENGINEER SUPPORT EQUIPMENT - ED*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Prepare documentation, conduct market research, procure production representative, and complete required testing.			
Title: Program Managment Support ***Description:*** Program support costs associated with emerging program development.	0.098	-	-
Title: Family of Boats and Motors	0.200	-	-
Accomplishments/Planned Programs Subtotals	1.191	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• R70001: *Family Of Engr Combat and Construction Sets*	11.451	23.324	36.163	-	36.163	-	-	-	-	-	-
• R12001: *Family of Boats and Motors*	5.745	5.289	-	-	-	-	-	-	-	-	-
• ML5301: *Items Less Than $5M (Eng Spt)*	4.128	8.014	-	-	-	-	-	-	-	-	-

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 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	Project (Number/Name) L43 / *ENGINEER SUPPORT EQUIPMENT - ED*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	MIPR	PM SKOT : MI	-	0.098	Dec 2019	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	0.098		-		-		-		-	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Quality Assurance - FoPUk	MIPR	ECBC/ARDEC : Rock Island, IL	-	0.068	Oct 2019	-		-		-		-	Continuing	Continuing	-
Engineer and Quality Assurance Support - SPEARS	MIPR	ECBC/ARDEC : Rock Island, IL	-	0.132	Oct 2019	-		-		-		-	Continuing	Continuing	-
Packaging Support for Engineer Portfolio SKOs	MIPR	ECBC : Rock Island, IL	-	0.180	Oct 2019	-		-		-		-	Continuing	Continuing	-
Logisitics	TBD	TACOM : Warren, MI	-	0.513	Apr 2020	-		-		-		-	0.000	0.513	-
		Subtotal	-	0.893		-		-		-		-	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Family of Boats and Motors	TBD	TBD : TBD	-	0.200	May 2021	-		-		-		-	0.000	0.200	-
		Subtotal	-	0.200		-		-		-		-	0.000	0.200	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	1.191		0.000		-		-		-	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L43 / *ENGINEER SUPPORT EQUIPMENT - ED*

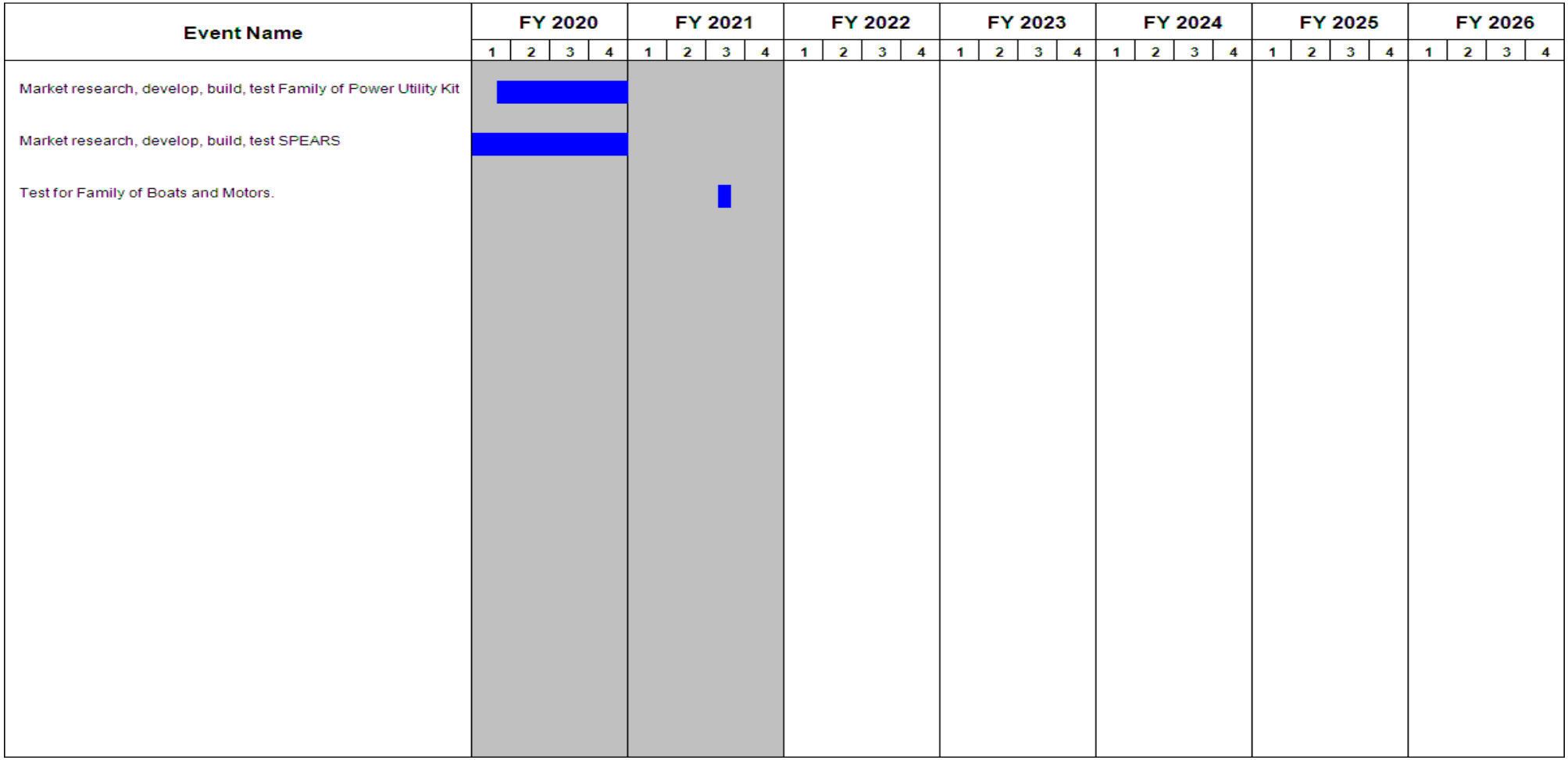

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L43 / *ENGINEER SUPPORT EQUIPMENT - ED*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Market research, develop, build, test Family of Power Utility Kit	1	2017	4	2020
Market research, develop, build, test SPEARS	1	2019	4	2020
Test for Family of Boats and Motors.	3	2021	3	2021

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army												Date: May 2021
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 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
L46: *Maintenance Support Equipment*	-	8.218	1.300	0.766	-	0.766	-	-	-	-	-	-
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 2022 Army		Date: May 2021
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 2020	FY 2021	FY 2022
Title: MWMSS Additive Manufacturing ***Description:*** Develop Additive Manufacturing capability for Army systems, Limited User Experiment and Evaluation. ***FY 2021 Plans:*** Expeditionary Metal Additive Manufacturing options. ***FY 2022 Plans:*** Expeditionary Metal Additive Manufacturing options. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $510 from FY21 to FY22.	-	1.300	0.766
Title: Next Generation High Mobility Multipurpose Wheeled Vehicle (HMMWV) Shop Equipment Contact Maintenance (SECM) ATR	3.218	-	-
Accomplishments/Planned Programs Subtotals	3.218	1.300	0.766

	FY 2020	FY 2021
Congressional Add: Next Generation High Mobility Multipurpose Wheeled Vehicle (HMMWV) Shop Equipment Contact Maintenance (SECM) ***FY 2020 Accomplishments:*** Testing, Product Development, Engineering, and Logistical efforts.	5.000	-
Congressional Adds Subtotals	5.000	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• ML5345: *Items Less Than $5.0M (Maint Eq)*	5.608	5.570	-	-	-	-	-	-	-	-	-
• G05301: *Mobile Maintenance Equipment Systems*	140.053	168.106	14.756	-	14.756	-	-	-	-	-	-

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

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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*

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 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	MIPR	PM SKOT : Warren, MI	0.312	0.025	Mar 2020	0.095	Feb 2021	0.057	Oct 2021	-		0.057	Continuing	Continuing	-
		Subtotal	0.312	0.025		0.095		0.057		-		0.057	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-	-		0.856	Feb 2021	0.485	Dec 2021	-		0.485	0.000	1.341	-
Product Dev Next Generation Shop	MIPR	CCDC : Rock Island, IL	-	6.062	Mar 2020	-		-		-		-	0.000	6.062	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Equipment Contact Maintenance															
		Subtotal	6.019	6.062		0.856		0.485		-		0.485	0.000	13.422	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-		0.349	Feb 2021	0.224	Oct 2021	-		0.224	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	-		0.349		0.224		-		0.224	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	Jan 2021	-		-		-		-	0.000	2.131	-
		Subtotal	0.920	2.131		-		-		-		-	0.000	3.051	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.623	8.218		1.300		0.766		-		0.766	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
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*

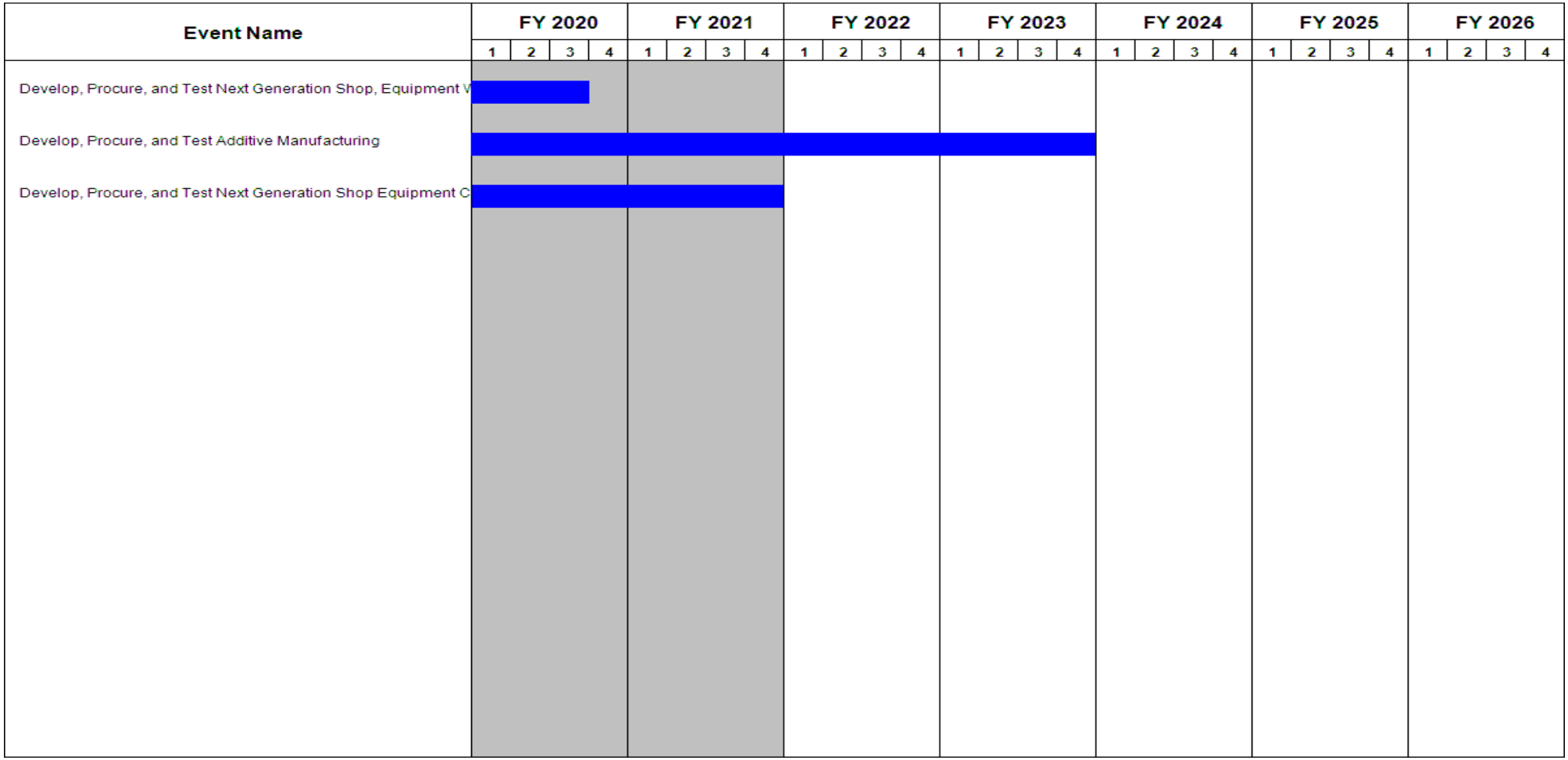

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L46 / *Maintenance Support Equipment*

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 2022 Army			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
L47: *Improved Environmental Control Units Ed*	-	1.032	1.062	1.801	-	1.801	-	-	-	-	-	-
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), Army Standard Family of Rigid Wall Shelters (ASF-RWS) 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 2020	FY 2021	FY 2022
Title: Technology Development	0.393	0.277	0.800
Description: Development and integration of Improved Environmental Control Units (IECU) in the range of 9-60K BTUH to support integrated shelter systems.			
FY 2021 Plans: Conduct testing of 60K IECU CB variant and complete final design documentation.			
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 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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 2020	FY 2021	FY 2022
Funds moved to support development of in-house modeling accomplishments.			
Title: Government System Test and Evaluation ***Description:*** Testing of prototype performance for multiple variants of the IECUs and soft wall shelter ECUs. ***FY 2021 Plans:*** Complete testing at Aberdeen Test Center (ATC) or similar facility (e.g. Eglin AFB) to evaluate capabilities and performance of 60K IECU CB Variant. ***FY 2022 Plans:*** Design and testing for potential product improvements to IECU family (Block II) and support User Engagements. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funds moved from Technology Development to support Testing accomplishments.	0.188	0.250	0.500
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 2021 Plans:*** Complete validation of baseline TDP for 60K IECU CB variant, conduct limited performance testing and PCA. Concept development for IECU integration in support of CPI2 and Army Standard Family of Rigid Wall Shelters. ***FY 2022 Plans:*** Concept development for IECU integration and/or new variants in support of IECU Data Interchange (DI) customers. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funds moved to support Testing accomplishments.	0.264	0.235	0.301
Title: Government Program Management ***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 2021 Plans:***	0.187	0.300	0.200

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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 2020	FY 2021	FY 2022
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 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 2021 to FY 2022 Increase/Decrease Statement:*** Funds increased to support development efforts.			
Accomplishments/Planned Programs Subtotals	1.032	1.062	1.801

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• MF9303: *IMPROVED ENVIRONMENTAL CONTROL UNITS*	5.876	8.570	7.116	-	7.116	-	-	-	-	-	-

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/ 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 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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		0.100		-		0.100	0.000	1.678	Continuing
60K IECU	Various	PM E2S2 : various	0.337	0.186		0.150		0.100		-		0.100	0.000	0.773	-
		Subtotal	1.765	0.186		0.300		0.200		-		0.200	0.000	2.451	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
9 ,18 and 36K Improved Environmental Control Unit (IECU)	MIPR	NSSC : Natick, MA	2.064	0.129		0.150		0.800		-		0.800	0.000	3.143	Continuing
60K IECU	MIPR	ARDEC PIF : Huntsville. AL	4.032	0.430		0.127		-		-		-	0.000	4.589	-
		Subtotal	6.096	0.559		0.277		0.800		-		0.800	0.000	7.732	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-		-		0.301		-		0.301	0.000	3.130	-
60K IECU	Various	CERDEC : Fort Belvoir, VA	4.407	-		0.235		-		-		-	0.000	4.642	-
		Subtotal	7.236	-		0.235		0.301		-		0.301	0.000	7.772	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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		-		0.500	0.000	1.028	-
60K IECU	MIPR	ATEC : APG, MD	0.625	0.287		0.250		-		-		-	0.000	1.162	-
		Subtotal	1.153	0.287		0.250		0.500		-		0.500	0.000	2.190	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	16.250	1.032		1.062		1.801		-		1.801	0.000	20.145	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
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*

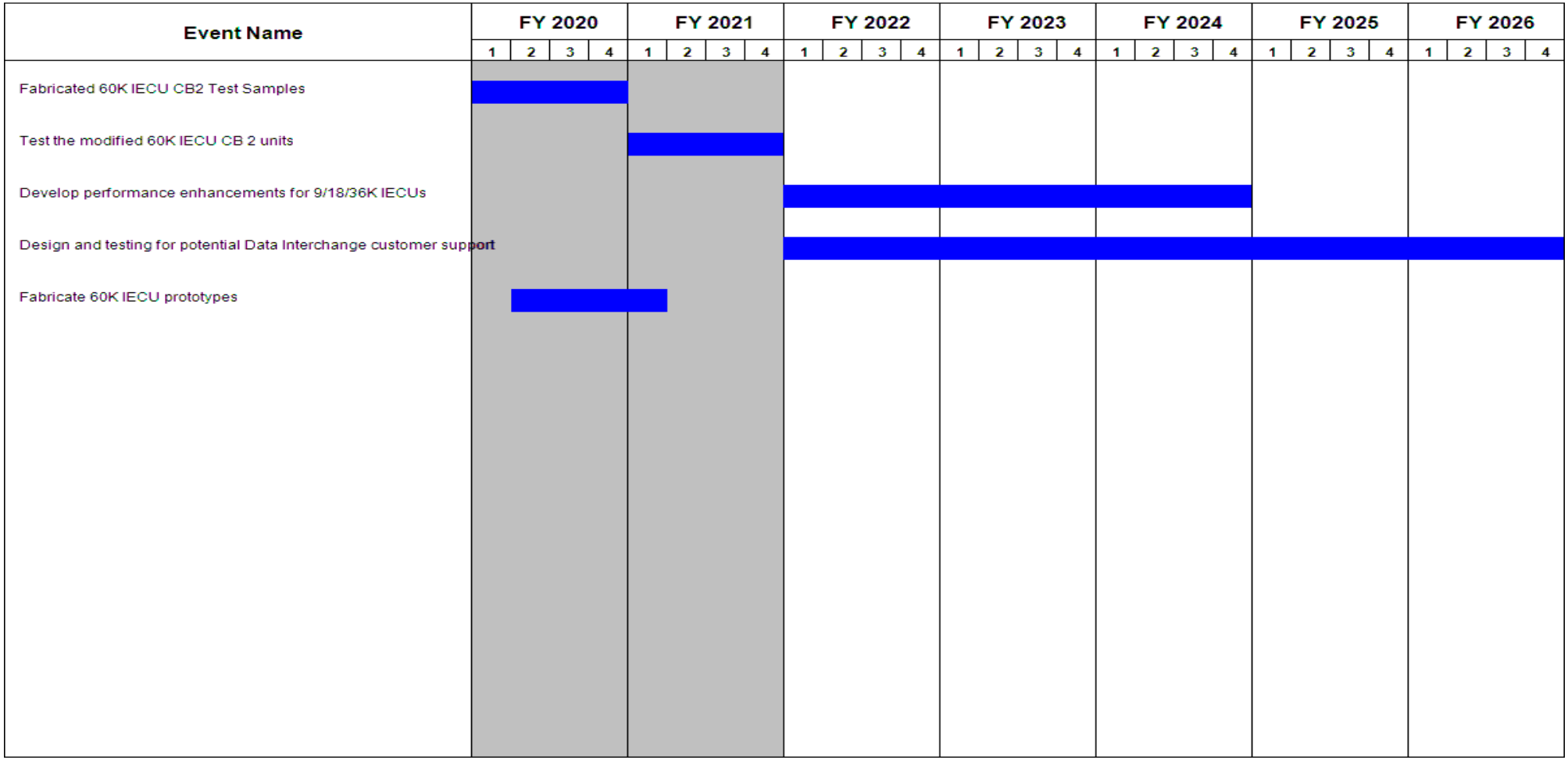

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** L47 / *Improved Environmental Control Units Ed*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Fabricated 60K IECU CB2 Test Samples	1	2020	4	2020
Test the modified 60K IECU CB 2 units	1	2021	4	2021
Develop performance enhancements for 9/18/36K IECUs	1	2022	4	2024
Design and testing for potential Data Interchange customer support	1	2022	4	2026
Fabricate 60K IECU prototypes	2	2020	1	2021

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
VR7: *Combat Service Support Systems*	-	-	-	2.101	-	2.101	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2022.

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 support mobile Joint Service command and control, medical, force projection and maintenance platforms. This project develops critical enablers that support the Army Campaign Plan and Army Modernization Strategy by maintaining readiness through fielding and integrating new equipment. This project also 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Army Standard Family of Rigid Wall Shelters (ASF-RWS)	-	-	2.101
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 Technical Data Packages (TDPs) 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 2022 Army		Date: May 2021
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Obtain Development Decision, award development contract and initiate design development for ASF-RWS Phase 2 - Vehicle Mounted Variant. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** No funding received in FY21. RDT&E funding reinstated in FY22 to resume ASF-RWS program development.			
Accomplishments/Planned Programs Subtotals	-	-	2.101

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 2022 Army			Date: May 2021
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*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Support	Various	PM Force Sustainment Systems : Natick, MA	2.609	-		-		0.301		-		0.301	0.000	2.910	-
		Subtotal	2.609	-		-		0.301		-		0.301	0.000	2.910	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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		-		1.800	0.000	3.800	-
		Subtotal	2.000	-		-		1.800		-		1.800	0.000	3.800	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-		-		-		-		-	0.000	0.582	-
		Subtotal	0.582	-		-		-		-		-	0.000	0.582	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.191	-		0.000		2.101		-		2.101	0.000	7.292	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
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*

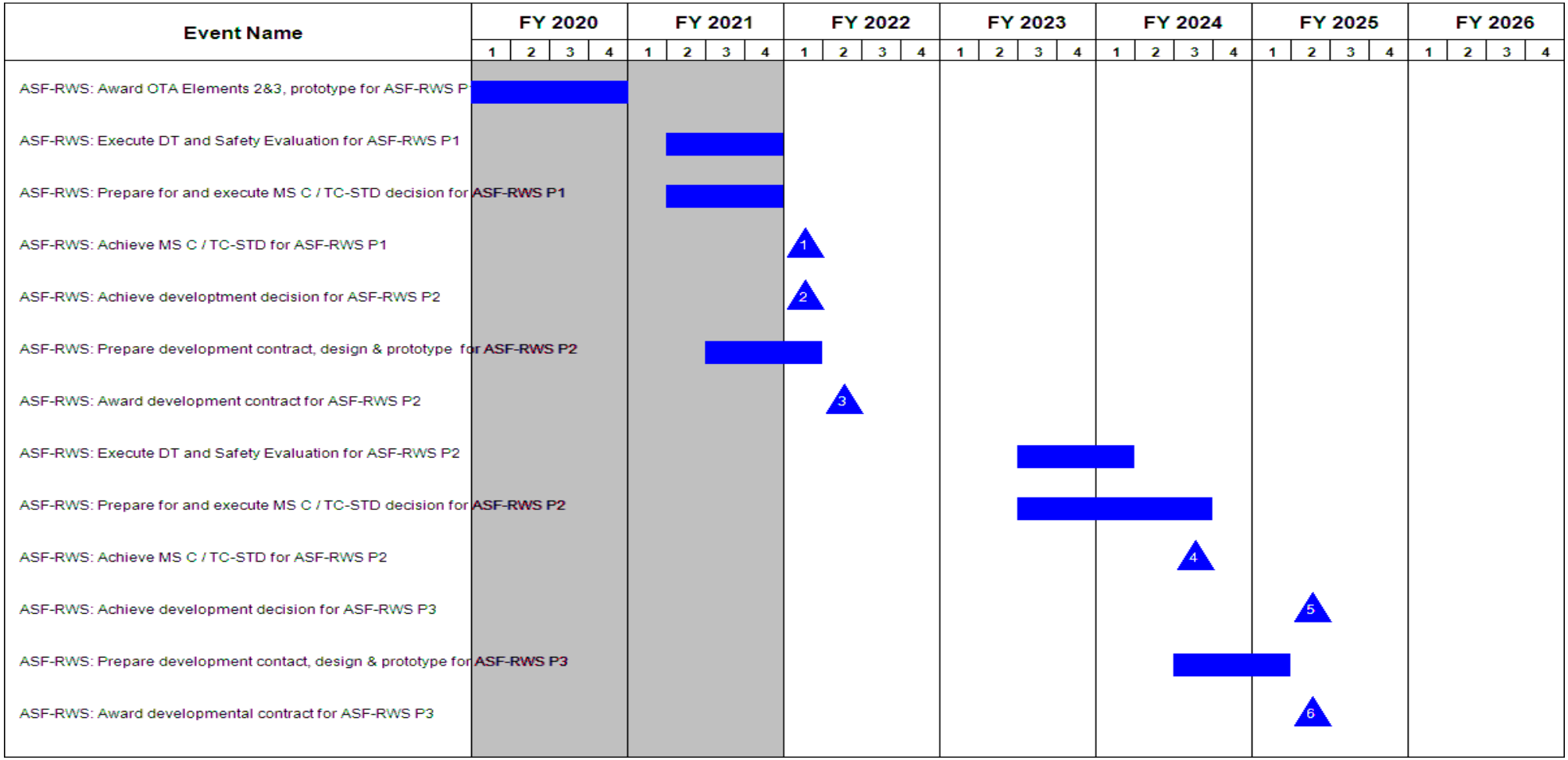

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604804A / *Logistics and Engineer Equipment - Eng Dev*	**Project (Number/Name)** VR7 / *Combat Service Support Systems*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ASF-RWS: Award OTA Elements 2&3, prototype for ASF-RWS P1	4	2019	4	2020
ASF-RWS: Execute DT and Safety Evaluation for ASF-RWS P1	2	2021	4	2021
ASF-RWS: Prepare for and execute MS C / TC-STD decision for ASF-RWS P1	2	2021	4	2021
ASF-RWS: Achieve MS C / TC-STD for ASF-RWS P1	1	2022	1	2022
ASF-RWS: Achieve developtment decision for ASF-RWS P2	1	2022	1	2022
ASF-RWS: Prepare development contract, design & prototype for ASF-RWS P2	3	2021	1	2022
ASF-RWS: Award development contract for ASF-RWS P2	2	2022	2	2022
ASF-RWS: Execute DT and Safety Evaluation for ASF-RWS P2	3	2023	1	2024
ASF-RWS: Prepare for and execute MS C / TC-STD decision for ASF-RWS P2	3	2023	3	2024
ASF-RWS: Achieve MS C / TC-STD for ASF-RWS P2	3	2024	3	2024
ASF-RWS: Achieve development decision for ASF-RWS P3	2	2025	2	2025
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