Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604037A *I Tactical Intel Targeting Access Node (TITAN) Adv Dev*

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	-	28.347	0.863	-	0.863	0.594	4.336	4.133	4.173	0.000	42.446
BY4: *Tactical Intelligence Targeting Access Node*	-	-	28.347	0.863	-	0.863	0.594	4.336	4.133	4.173	0.000	42.446

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the Army Modernization Priorities in support of the Tactical Intelligence Targeting Access Node (TITAN). TITAN is a scalable and expeditionary intelligence ground station that supports commanders across the entire Multi-Domain Operations (MDO)/Joint All Domain Operations (JADO) battlefield framework with capabilities tailored to echelon. TITAN leverages Space, High Altitude, Aerial and Terrestrial layer sensors to provide targetable data to fires networks as well as multi-discipline intelligence support to targeting and Situation Awareness/Situation Understanding (SA/SU) in support of mission command.

TITAN is the future Army Intelligence, Surveillance, and Reconnaissance (ISR) ground station that will consolidate the sensor processing capabilities in the current Distributed Common Ground System-Army (DCGS-A) Operational-Intelligence Ground Station (OGS), Tactical-Intelligence Ground Station (TGS), the Advanced Miniaturized Data Acquisition System Dissemination Vehicle (ADV) and the Remote Ground Terminal (RGT). Additionally, TITAN will have the access and sensor tasking or control capabilities of the future Tactical Space Layer assets, National assets, the Multi-Domain Sensing Systems (MDSS) as well as commercial overhead sensors. Consequently, the TITAN ground station will be able to conduct deep sensing operations with the abilities to Task, Collect, Process, Exploit, and Disseminate (TCPED) information from Space, High Altitude, Aerial, and Terrestrial Layer sensors in support of Long Range Precision Fires (LRPF) operations.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	0.000	28.347	0.000	-	0.000
Current President's Budget	0.000	28.347	0.863	-	0.863
Total Adjustments	0.000	0.000	0.863	-	0.863
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	0.863	-	0.863

Change Summary Explanation

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

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604037A / *Tactical Intel Targeting Access Node (TITAN) Adv Dev*	Project (Number/Name) BY4 / *Tactical Intelligence Targeting Access Node*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
BY4: *Tactical Intelligence Targeting Access Node*	-	-	28.347	0.863	-	0.863	0.594	4.336	4.133	4.173	0.000	42.446
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Tactical Intelligence Targeting Access Node (TITAN) directly addresses the U.S. Army Combined Arms Center's (USACAC) Multi-Domain Operations (MDO) Gap #1: Lack of echelons above corps (EAC) multi-domain deep sensing, analysis, and processing, exploitation and dissemination (PED) for indications & warning (I&W) and anti-access/area denial (A2/AD) targeting. Furthermore, TITAN indirectly addresses MDO Gap 2: No theater detect, decide, deliver, assess (D3A) and convergence of Long Range Precision Fires (LRPF) to disintegrate A2/AD and MDO Gap #3: Lack of EAC LRPF capacity to dis-integrate A2/AD and shape the deep fight. TITAN supports these MDO gaps by providing the sensor data receipt and control, analysis, exploitation, and dissemination functions needed to enable LRPF. The system is postured to provide the fighting force with improved capacity and capability to "stimulate, see, and strike the enemy."

The FY23 RDTE Dollars in the amount of $0.863M will fund continued support efforts to prototype high altitude, aerial and terrestrial sensor data feeds and processing.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Development and Prototyping of Critical RF Technologies	-	15.721	0.313
Description: Fund initial Prototyping and Advanced Development of TITAN critical technologies on a representative platform. Development and prototyping of critical RF technologies and technology which currently does not exist or needs significant enhancements to meet TITAN requirements. Fund technology maturation and prototyping of critical TITAN RF technologies including Multi-Link Antennas and CMOSS implementations. Multi-link RF systems will support the simultaneous ingest of multiple sensor data streams in a tactical configuration/footprint Prototype high altitude, aerial and terrestrial sensor data feeds.			
FY 2022 Plans: Fund initial Prototyping and Advanced Development of TITAN critical RF technologies on a representative platform. Prototype high altitude, aerial and terrestrial sensor data feeds and processing. Fund technology maturation of critical TITAN technologies to include Multi-Link Antennas and CMOSS.			
FY 2023 Plans: Continued maturation of technologies which will be incorporated into TITAN operational prototypes.			
FY 2022 to FY 2023 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604037A / *Tactical Intel Targeting Access Node (TITAN) Adv Dev*	**Project (Number/Name)** BY4 / *Tactical Intelligence Targeting Access Node*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Funding decrease in this PE as prototype integration and systems engineering ramps up in Budget Activity (BA) 5; however, enduring requirement for prototyping will remain constant to support new technology and sensors			
Title: Development and Prototyping of Critical Automated Processing Technologies	-	12.626	0.550
Description: Fund technology maturation of critical TITAN processing technologies including hyper-computing solutions, AI/ML algorithms to enhance targeting automation, stimulation capabilities and the generation of ML training data. Fund maturation of existing technology that needs minor enhancements to meet Army needs. This includes AI/ML algorithms that will transition to TITAN from various programs across the DoD and IC and need to be tuned for Army use cases. Fund the generation of new training data to aid in automated targeting. Funding will be used to integrate other technology transitioned from the research and development centers across the army to increase the accuracy and precision of TITAN. Existing modeling and simulation tools will be enhanced to account for the additional sensor modalities (EO/IR/SAR/FMV) that TITAN needs to process, which will allow the PM to automate more of the testing at the same time allowing units to run their own training exercises to maintain proficiency. ***FY 2022 Plans:*** Fund initial Prototyping and Advanced Development of TITAN critical technologies on a representative platform. Prototype high altitude, aerial and terrestrial sensor data feeds and processing. Fund technology maturation of critical TITAN technologies including hyper-computing and AI/ML algorithms. ***FY 2023 Plans:*** Continued maturation of technologies with will be incorporated into TITAN operational prototypes. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decrease in this PE as prototype integration and systems engineering ramps up in Budget Activity (BA) 5; however, enduring requirement for prototyping will remain constant to support new technology and sensors			
Accomplishments/Planned Programs Subtotals	-	28.347	0.863

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• BY5: *Tactical Intelligence Targeting Access Node EMD*	-	54.972	58.087	-	58.087	36.013	31.949	31.494	31.801	0.000	244.316
• K57311: *TITAN GROUND STATION*	-	-	84.821	-	84.821	298.935	372.787	409.469	350.556	0.000	1,516.568

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost

Remarks

0605148A BY5 funding supports development and system engineering for TITAN

D. Acquisition Strategy

The TITAN program acquisition strategy is to leverage Middle-Tier of Acquisition (MTA) for Rapid Prototyping. This strategy allows the program to rapidly develop and field a capability that address multi-domain operations gap. The capabilities will be refined through soldier touchpoints and demonstrations/exercises, and inform final TITAN requirements and Concept of Operations (CONOPS). Demonstrating the objective capability in an operational environment will inform a decision point to transition to an MTA Rapid Fielding effort or tailored Milestone C for production. TITAN's open-system architecture approach ensures the system will be tailorable and scalable, with the ability to provide increased intelligence capabilities, additional sensor data and processing throughput over time to keep pace with new technology and changing threat. TITAN's MTA approval is based on an Abbreviated CDD (A-CDD) with an Army Requirements Oversight Council (AROC), which was approved in 1QFY22. The MTA decision point is scheduled for 2QFY22.

An Other Transaction Authority (OTA) contract was awarded under the 10 U.S.C. 2371b and the 2016 National Defense Authorization Act (NDAA), Section 815, for TITAN Rapid Prototyping. This innovative approach enables acceleration of the TITAN Ground Station capabilities to the Warfighter. The TITAN OTA approach is a multi-phased contract vehicle designed to scope each phase separately based on maturing requirements and informed by risk reduction efforts in prior phases. The initial phase, Ground Station Modernization, was competitive risk-reduction effort between two vendors to build system-level designs and mature a Software (SW) baseline. The next phase will be awarded in 3QFY22 and is focused on competitive prototyping between both vendors. The Competitive Prototyping Phase includes further SW baseline refinement to ensure functionality and then begin Hardware (HW) integration within a shelter and on a representative vehicle platform. The TITAN program includes two variants, Advanced and Basic, with Advanced featuring direct downlink (DDL) access to space data and enhanced storage capabilities, and Basic tailored for lower echelons and more expeditionary. At the conclusion of Competitive Prototyping, both vendors will be evaluated against technical feasibility and ability to meet TITAN requirements, which will inform up-select to one vendor. The selected vendor will move on to the final prototyping phase, Prototype maturation, which includes increasing capability of their prototypes to inform final TITAN requirements and support a Production decision. Multiple Soldier Touchpoints and demonstration of capability in the operational force, to ensure usability and inform requirements and CONOPS, will highlight the OTA phases for Rapid Prototyping. TITAN Production may be executed through Major Capability Acquisition (MCA) Milestone C or MTA for Rapid Fielding, and future FAR-based contracts will support both production and sustainment.

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

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development and Prototyping of Critical RF Technologies	C/FP	Contractor (Pending Selection) : PEO IEW&S (APG) and Contractor Facility (TBD)	-	-		15.721	Nov 2021	0.313	Jan 2023	-		0.313	Continuing	Continuing	Continuing
		Subtotal	-	-		15.721		0.313		-		0.313	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development and Prototyping of Critical Automated Processing Technologies	C/FP	Contractor (Pending Selection) : Various: APG, Ft. Bragg, JBLM, YPG, CTR FAC (TBD)	-	-		12.626	Nov 2021	0.550	Jan 2023	-		0.550	Continuing	Continuing	Continuing
		Subtotal	-	-		12.626		0.550		-		0.550	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		28.347		0.863		-		0.863	Continuing	Continuing	N/A

Remarks

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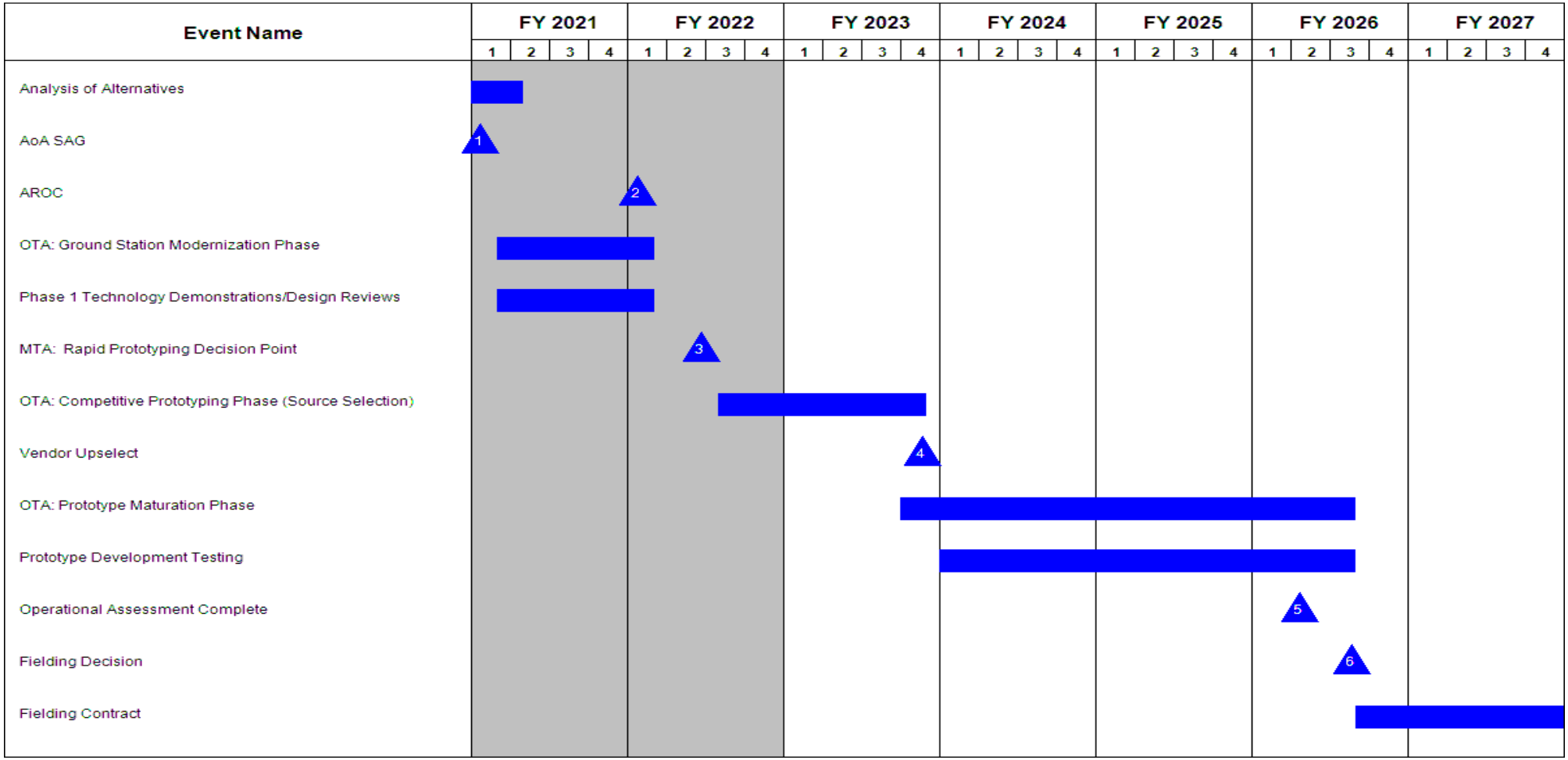

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604037A / *Tactical Intel Targeting Access Node (TITAN) Adv Dev*	**Project (Number/Name)** BY4 / *Tactical Intelligence Targeting Access Node*

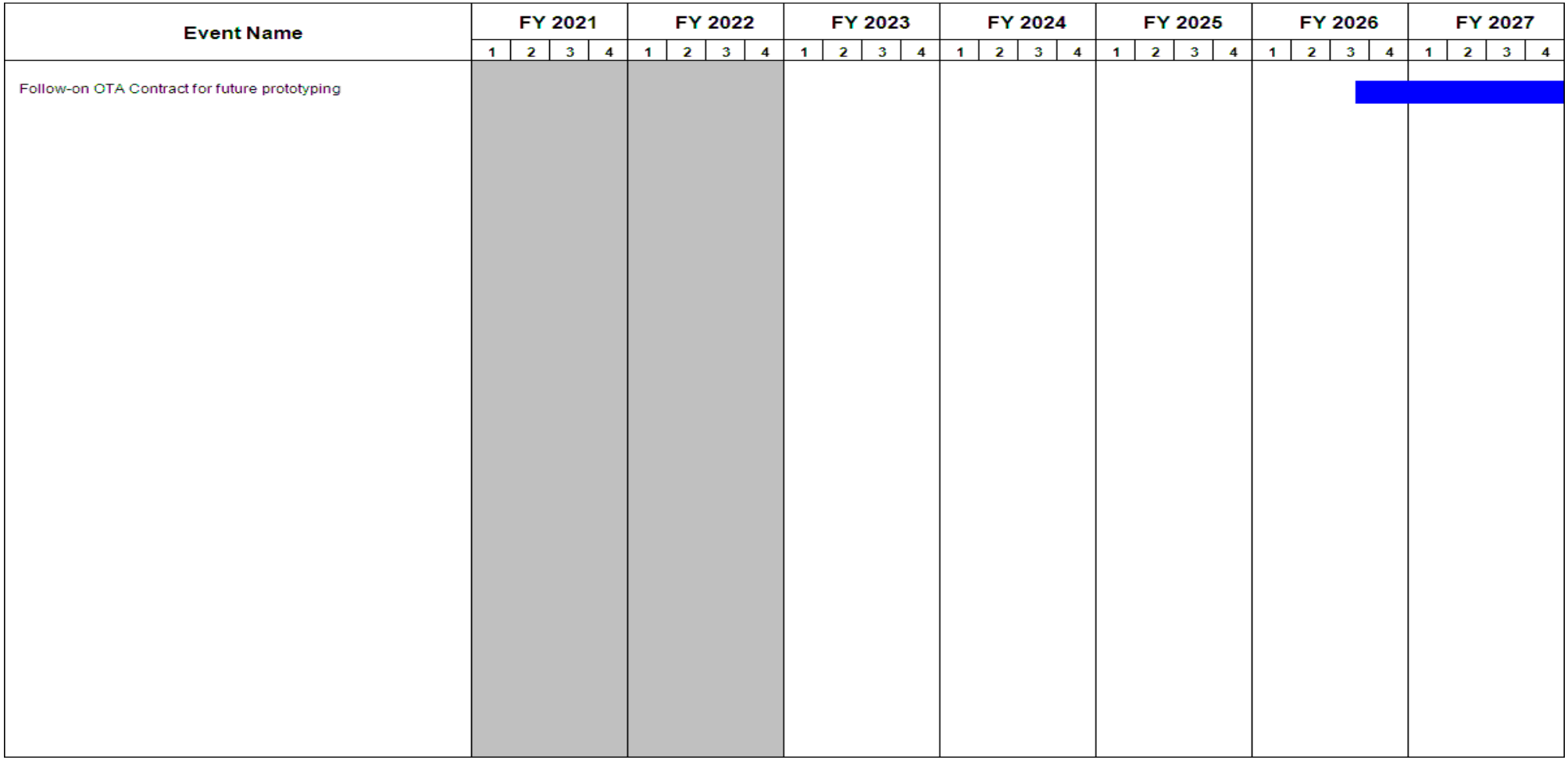

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MDD	2	2020	2	2020
Analysis of Alternatives	3	2020	1	2021
AoA SAG	1	2021	1	2021
AROC	1	2022	1	2022
OTA: Ground Station Modernization Phase	1	2021	1	2022
Phase 1 Technology Demonstrations/Design Reviews	1	2021	1	2022
MTA: Rapid Prototyping Decision Point	2	2022	2	2022
OTA: Competitive Prototyping Phase (Source Selection)	3	2022	4	2023
Vendor Upselect	4	2023	4	2023
OTA: Prototype Maturation Phase	4	2023	3	2026
Prototype Development Testing	1	2024	3	2026
Operational Assessment Complete	2	2026	2	2026
Fielding Decision	3	2026	3	2026
Fielding Contract	3	2026	4	2027
Follow-on OTA Contract for future prototyping	3	2026	4	2027

Note

Schedule Detail notes.