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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army **Date:** March 2024

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) Adv Dev</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	-	0.863	10.626	4.317	-	4.317	4.129	4.107	4.153	4.194	Continuing	Continuing
BY4: <i>Tactical Intelligence Targeting Access Node</i>	-	0.863	10.626	4.317	-	4.317	4.129	4.107	4.153	4.194	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Tactical Intelligence Targeting Access Node (TITAN) is a key enabler of the Army Modernization Priorities in support of Army Cross Functional Teams.

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. This funding will provide development and prototyping of Critical Radio Frequency (RF) technologies and integration of Space Force's new Space-Based ISR capabilities into the TITAN POR.

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 access to sensor data of the future Tactical Space Layer assets, National assets, the Multi-Domain Sensing Systems (MDSS) as well as commercial overhead sensors. Thus, 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.

The total cost of the TITAN Middle Tier of Acquisition effort is \$489.7 million RDTE (including funds in PE 0605148A) from FY22 to FY26.

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Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) Adv Dev</i>
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B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	0.863	10.626	14.308	-	14.308
Current President's Budget	0.863	10.626	4.317	-	4.317
Total Adjustments	0.000	0.000	-9.991	-	-9.991
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-9.991	-	-9.991

Change Summary Explanation

Realignment of \$9.991M funding to support Space Based GMTI from TITAN PE 0604037A to TENCAP PE 0604766A.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army										Date: March 2024		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) Adv Dev</i>				Project (Number/Name) BY4 / <i>Tactical Intelligence Targeting Access Node</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
BY4: <i>Tactical Intelligence Targeting Access Node</i>	-	0.863	10.626	4.317	-	4.317	4.129	4.107	4.153	4.194	Continuing	Continuing
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 and 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 FY25 RDTE Dollars in the amount of \$4.308M will fund continued support efforts to prototype high altitude, aerial and terrestrial sensor data feed, processing and AI/ML operational platforms in the Prototype Maturation Phase (PMP).

The total cost of the TITAN Middle Tier of Acquisition effort is \$489.7 million RDTE (including funds in PE 0605148A) from FY22 to FY26.

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

	FY 2023	FY 2024	FY 2025
Title: Development and Prototyping of Critical RF Technologies	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.			
Title: Development and Prototyping of Critical Automated Processing Technologies	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 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.			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) Adv Dev</i>	Project (Number/Name) BY4 / <i>Tactical Intelligence Targeting Access Node</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Title: Integration Space Based ISR</p> <p>Description: Fund initial efforts to integrate Space-Based Intelligence, Surveillance and Reconnaissance capabilities into TITAN program of record.</p> <p>FY 2024 Plans: Fund initial efforts to integrate Space-Based Intelligence, Surveillance and Reconnaissance capabilities into TITAN program of record.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to Integration Space Based ISR effort realignment to TENCAP.</p>	-	10.000	-
<p>Title: Development and Prototyping of Critical RF Technologies (PMP)</p> <p>Description: Fund continued maturation, Prototyping, and Advanced Development of TITAN critical technologies on a representative platform. Development and prototyping of critical RF technologies, which currently do not exist or need 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 ground configuration/footprint, for high altitude, aerial, and terrestrial sensor data feeds. CMOSS implementations support Space, Weight and Power-Cooling (SWaP-C) reductions in an open architecture solution with modularity.</p> <p>FY 2024 Plans: Continued maturation of multi-link antenna tech and CMOSS implementations on TITAN platform.</p> <p>FY 2025 Plans: Continued maturation and implementation of multi-link antenna technology, maturation and prototyping of evolving National modernization architecture elements, and implement developing CMOSS solutions on the TITAN prototypes during Prototype Maturation Phase.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding increased to support RF Technologies requirements initiated during TITAN Prototype development in PMP.</p>	-	0.626	4.317
Accomplishments/Planned Programs Subtotals	0.863	10.626	4.317

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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) Adv Dev</i>	Project (Number/Name) BY4 / <i>Tactical Intelligence Targeting Access Node</i>
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• BY5: <i>Tactical Intelligence Targeting Access Node EMD</i>	103.987	132.136	157.036	-	157.036	48.739	35.961	39.605	40.001	Continuing	Continuing
• K57311: <i>TITAN GROUND STATION</i>	-	-	0.000	-	0.000	262.448	216.673	328.297	331.574	0.000	1,138.992

Remarks

0605148A BY5 funding supports development, integration and system engineering of TITAN prototypes.

D. Acquisition Strategy

The TITAN program acquisition strategy is to leverage Middle-Tier of Acquisition (MTA) for Rapid Prototyping (RP). This strategy allows the program to rapidly develop and field a capability that addresses gaps for multi-domain operations. TITAN's MTA RP approval in 3QFY22 was based on an Abbreviated Capabilities Development Document (A-CDD) with an Army Requirements Oversight Council (AROC) decision, which was approved in 1QFY22. 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 (RF) effort or tailored Milestone C (MS 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.

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 Competitive Prototyping Phase (CPP) was awarded in 3QFY22 and is focused on competitive prototyping between both vendors. The CPP includes further SW baseline refinement to ensure functionality and then begin Hardware (HW) integration within a shelter and on a representative vehicle platform for the Advanced variant. At the conclusion of Competitive Prototyping, both vendors will be evaluated against technical feasibility and ability to meet TITAN requirements, which will inform the up-select to one vendor. The selected vendor will move on to the final prototyping phase, Prototype maturation, which includes increasing capability of vendor prototypes to inform final TITAN requirements and support the transition decision out of MTA RP to either MTA RF or MS C. Multiple Soldier Touchpoints and Capability demonstrations in the operational force, to ensure usability and inform requirements and CONOPS, will highlight the OTA phases for Rapid Prototyping. 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 focus. Future Federal Acquisition Regulation (FAR) based contracts will support both production and sustainment.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army												Date: March 2024			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)					
2040 / 4					PE 0604037A / Tactical Intel Targeting Access Node (TITAN) Adv Dev					BY4 / Tactical Intelligence Targeting Access Node					
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development and Prototyping of Critical RF Technologies	C/FP	Contractors (Palantir and Raytheon) : PEO IEW&S (APG) and Contractor Facilities	15.721	0.313	Jan 2023	-		-		-		-	0.000	16.034	-
Development and Prototyping of Critical RF Technologies in Prototype Maturation Phase	C/TBD	Contractor (Pending Selection) : TBD	-	-		0.626	Jan 2024	4.317	Jan 2025	-		4.317	Continuing	Continuing	Continuing
Subtotal			15.721	0.313		0.626		4.317		-		4.317	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development and Prototyping of Critical Automated Processing Technologies	C/FP	Contractors (Palantir and Raytheon) : Various: APG, Ft. Liberty, JBLM, YPG, CTR FAC	12.626	0.550	Jan 2023	-		-		-		-	0.000	13.176	-
Integration Space Based ISR	TBD	Contractor (Pending Selection) : TBD	-	-		10.000	Jan 2024	-		-		-	0.000	10.000	-
Subtotal			12.626	0.550		10.000		-		-		-	0.000	23.176	N/A
Project Cost Totals			28.347	0.863		10.626		4.317		-		4.317	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) Adv Dev</i>	Project (Number/Name) BY4 / <i>Tactical Intelligence Targeting Access Node</i>	

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
OTA: Competitive Prototyping Phase (1x Advanced per vendor)	████████████████				████████████████																							
Vendor Upselect					▲ 1																							
OTA: Prototype Maturation Phase					████████████████																							
Prototype Development Testing					████████████████																							
Army Requirements Oversight Council									▲ 2																			
Joint Requirements Oversight Council													▲ 3															
Operational Assessment Complete																	▲ 4											
TITAN MTA RF/MS C Decision													▲ 5															
TITAN MTA RF/MS C Contract													████████████████				████████████████				████████████████							
Follow-on Contract for Future Prototyping/Software Pathw...													████████████████				████████████████				████████████████							

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) Adv Dev</i>	Project (Number/Name) BY4 / <i>Tactical Intelligence Targeting Access Node</i>

Schedule Details

Events	Start		End	
	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	3	2022	3	2022
OTA: Competitive Prototyping Phase (1x Advanced per vendor)	3	2022	2	2024
Vendor Upselect	2	2024	2	2024
OTA: Prototype Maturation Phase	2	2024	2	2026
Prototype Development Testing	2	2024	2	2026
Army Requirements Oversight Council	2	2025	2	2025
Joint Requirements Oversight Council	4	2025	4	2025
Operational Assessment Complete	3	2026	3	2026
TITAN MTA RF/MS C Decision	3	2026	3	2026
TITAN MTA RF/MS C Contract	3	2026	1	2034
Follow-on Contract for Future Prototyping/Software Pathways (R&D)	3	2026	1	2034

Note

Schedule Detail notes.