

UNCLASSIFIED

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

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0303032A / TROJAN - RH12
--	---

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	-	3.936	3.451	3.362	-	3.362	-	-	-	-	-	-
RH5: TROJAN - RH12	-	3.936	3.451	3.362	-	3.362	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

TROJAN research and development supports TROJAN Next Generation (TROJAN NexGEN), formerly TROJAN Classic XXI (TCXXI), future capabilities to fulfill the Army's need for worldwide, deployable, remotable, intelligence, surveillance and reconnaissance support that can dynamically execute operations from sanctuary-based to deployed assets in theater. In support of Army Modernization and Army Force Generation, TROJAN NexGEN will provide soldiers with a real-world, hands-on, live and near-real time Signals Intelligence (SIGINT) training environment sustaining, maintaining and enhancing their military occupational specialty proficiencies and specific target expertise. This operational readiness training will fulfill the Army's larger intelligence training requirement via a secure, collaborative architecture.

A key factor for future force success is the ability to collect, process, and use information about an adversary while preventing similar information from being disclosed. TROJAN NexGEN is a combined operational and readiness mission system which uses advanced networking technology to provide seamless rapid radio relay, secure communications to include voice, data, and electronic reconnaissance support to U.S. forces throughout the world. TROJAN NexGEN operations may be easily tailored to fit military intelligence unit training schedules and surged during specific events to involve every aspect of the tactical intelligence collection, processing, analysis and reporting systems. Engineers test and evaluate new digital intelligence collection, processing and dissemination technology using the fielded TROJAN NexGEN systems prior to the acquisition of those technologies. As part of the objective intelligence architecture, these capabilities will enable processing and dissemination of real-time intelligence data from various sources to form the intelligence needed to issue orders inside the threat decision cycle. To that end, it is imperative that TROJAN NexGEN keeps pace with digitization initiatives in order to respond aggressively to the emerging intelligence communication threat.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	3.936	3.451	3.404	-	3.404
Current President's Budget	3.936	3.451	3.362	-	3.362
Total Adjustments	0.000	0.000	-0.042	-	-0.042
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.042	-	-0.042

UNCLASSIFIED

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 0303032A / TROJAN - RH12				Project (Number/Name) RH5 / TROJAN - RH12			
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
RH5: TROJAN - RH12	-	3.936	3.451	3.362	-	3.362	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

TROJAN research and development supports TROJAN Next Generation (TROJAN NexGEN), formerly TROJAN Classic XXI (TCXXI), future capabilities to fulfill the Army's need for worldwide, deployable, remorable, intelligence, surveillance and reconnaissance support that can dynamically execute operations from sanctuary-based to deployed assets in theater. In support of Army Modernization and Army Force Generation, TROJAN NexGEN will provide soldiers with a real-world, hands-on, live and near-real time SIGINT training environment sustaining, maintaining and enhancing their military occupational specialty proficiencies and specific target expertise. This operational readiness training will fulfill the Army's larger intelligence training requirement via a secure, collaborative architecture.

A key factor for future force success is the ability to collect, process, and use information about an adversary while preventing similar information from being disclosed. TROJAN NexGEN is a combined operational and readiness mission system which uses advanced networking technology to provide seamless rapid radio relay, secure communications to include voice, data, and electronic reconnaissance support to U.S. forces throughout the world. TROJAN NexGEN operations may be easily tailored to fit military intelligence unit training schedules and surged during specific events to involve every aspect of the tactical intelligence collection, processing, analysis and reporting systems. Engineers test and evaluate new digital intelligence collection, processing and dissemination technology using the fielded TROJAN NexGEN systems prior to the acquisition of those technologies. As part of the objective intelligence architecture, these capabilities will enable processing and dissemination of real-time intelligence data from various sources to form the intelligence needed to issue orders inside the threat decision cycle. To that end, it is imperative that TROJAN NexGEN keeps pace with digitization initiatives in order to respond aggressively to the emerging intelligence communication threat.

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

	FY 2020	FY 2021	FY 2022
Title: Integrate Direction Finding and geo-location	0.765	1.200	1.188
Description: Integrate Direction Finding (DF) and geolocation (GL) technologies into TROJAN Remote Receiving Groups.			
FY 2021 Plans: Continuously adapt/improve the latest Direction Finding (DF) and geolocation technologies for integration into TROJAN NexGEN systems in accordance with Joint Interface Control Document (JICD) 4.2. Utilize field based risk reduction exercises to test and evaluate integrated technologies of the overall TROJAN Intelligence, Surveillance, and Reconnaissance (ISR) Enterprise. Continue to research and test for the integration of Electronics Intelligence (ELINT) capabilities. Resource labor for one MAT DEV technologist, two MAT DEV software engineers and two MAT DEV HW engineers will be accounted for in the Integrate Direction Finding (DF) and geolocation (GL) project.			
FY 2022 Plans: Will continuously adapt/improve the latest Direction Finding (DF) and geolocation technologies for integration into TROJAN NexGEN systems in accordance with Joint Interface Control Document (JICD) 4.2., and JICD 4.2 ELINT (JEL). Will utilize field			

UNCLASSIFIED

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 0303032A / TROJAN - RH12	Project (Number/Name) RH5 / TROJAN - RH12		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>based risk reduction exercises to test and evaluate integrated technologies of the overall TROJAN Intelligence, Surveillance, and Reconnaissance (ISR) Enterprise. Will continue to research and test for the integration of Electronics Intelligence (ELINT) capabilities. Will resource labor for one MAT DEV technologist, two MAT DEV software engineers and two MAT DEV HW engineers will be accounted for in the Integrate Direction Finding (DF) and geolocation (GL) project.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Decrease reflects inflation adjustment.</p>				
<p>Title: Enable assured communications for the TROJAN Network architecture (formerly Improve security of the TROJAN Network architecture).</p> <p>Description: Acquire and apply multi-bandwidth compression algorithm technology to maximize TROJAN intelligence network throughput.</p> <p>FY 2021 Plans: Continue efforts to utilize Government off the shelf (GOTS) / Commercial of the shelf (COTS) solutions to enable communication in an anti-access/area denial environment; continue to integrate and test with technologies to enable redundant communications paths; will continue to test with anti-jam technologies for satellite communications.</p> <p>FY 2022 Plans: Will transition Government off the shelf (GOTS) / Commercial of the shelf (COTS) solutions enabling communication in an anti-access/area denial environment to TROJAN production systems. Will continue to research, evaluate, integrate and test with technologies to enable redundant communications paths and anti-jam technologies based current threats.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Reduced level of effort in anticipation of a transition to TROJAN production systems.</p>		1.035	0.751	0.500
<p>Title: Integrate and test specialized hardware/software</p> <p>Description: Integrate and test specialized hardware/software for classified pre-processing of new signals of interest utilizing enhanced signal processing algorithms. Resource development of GLAIVE software (SW). Integrated several new National Security Agency (NSA) SW packages.</p> <p>FY 2021 Plans: Continue integration and testing of specialized hardware/software for classified pre-processing and detection of new signals of interest. Continue to resource development, integration and test of GOTS/COTS software. Continue efforts to develop TROJAN Intelligence Surveillance Reconnaissance enterprise. Continue efforts to integrate JICD 4.2 across all platforms. Begin efforts to integrate C4ISR Modular Open Suite of Standards (CMOSS).</p> <p>FY 2022 Plans:</p>		1.001	0.500	0.704

UNCLASSIFIED

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 0303032A / TROJAN - RH12	Project (Number/Name) RH5 / TROJAN - RH12

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Will continue integration and testing of specialized hardware/software for classified pre-processing and detection of new signals of interest. Will continue to resource development, integration and test of GOTS/COTS software. Will continue efforts to develop TROJAN Intelligence Surveillance Reconnaissance enterprise. Will continue efforts to integrate JICD 4.2 across all platforms. Will continue efforts to integrate C4ISR Modular Open Suite of Standards (CMOSS).			
FY 2021 to FY 2022 Increase/Decrease Statement: Increased focus on GOTS C4ISR Modular Open Suite of Standards (CMOSS).			
Title: Research and testing of receivers Description: Research and testing of receiver packages for fixed and transportable TROJAN systems to acquire non-standard modulations using Digital System Processing (DSP) and Software Defined Radio (SDR) technologies. FY 2021 Plans: Continue research and testing of receiver packages for fixed and transportable TROJAN systems to detect and process non-standard modulations using DSP and SDRs. Integrate receiver packages to enable additional and wideband frequency ranges for COTS/GOTS Software Defined Radios. FY 2022 Plans: Will continue research and testing of receiver packages for fixed and transportable TROJAN systems to detect and process non-standard modulations using DSP and SDRs. Will integrate receiver packages to enable additional and wideband frequency ranges for COTS/GOTS Software Defined Radios. Will utilize COTS/GOTS hardware and software frameworks to enable multiple SDRs to cooperate on a common backplane. FY 2021 to FY 2022 Increase/Decrease Statement: Economic Adjustment	0.360	1.000	0.970
Title: Labor cost software (SW) engineers Description: Labor for two software (SW) engineers in support of GLAIVE and other above applicable efforts. Labor for one Material Developer (MAT DEV) technologist, one MAT DEV software and one MAT DEV Hardware (HW) engineer.	0.775	-	-
Accomplishments/Planned Programs Subtotals	3.936	3.451	3.362

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• BA0326: TROJAN	20.965	19.359	30.828	-	30.828	-	-	-	-	-	-
Remarks											

UNCLASSIFIED

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 0303032A / TROJAN - RH12	Project (Number/Name) RH5 / TROJAN - RH12

D. Acquisition Strategy

The Acquisition Strategy for the TROJAN NexGEN Systems supported by TROJAN RDT&E is to adapt and leverage from Commercial Off the Shelf (COTS) and Government Off the Shelf (GOTS) products. Additionally, the Acquisition Strategy leverages off of development by DoD and other Government agencies to the greatest extent possible. TROJAN RDT&E is used to fund the development of enhancing these technologies to meet specific user requirements.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0303032A / TROJAN - RH12				RH5 / TROJAN - RH12								
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
Labor Costs MAT DEV HW/SW Engineers	Various	CERDEC I2WD, APG, MD : MD	5.887	0.775	Oct 2019	-		-		-		-	0.000	6.662	-	
Subtotal			5.887	0.775		-		-		-		-	0.000	6.662	N/A	
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
Integrate Direction Finding and geo-location	Various	APG : MD	6.209	0.765	Oct 2019	1.200	Oct 2020	1.188	Oct 2021	-		1.188	Continuing	Continuing	-	
Enable assured communications for the TROJAN Network Architecture	Various	APG : MD	6.156	1.035	Oct 2019	0.751	Oct 2020	0.500	Oct 2021	-		0.500	Continuing	Continuing	-	
Research and testing of Receivers	Various	APG : MD	2.420	0.360	Oct 2019	1.000	Oct 2020	0.970	Oct 2021	-		0.970	Continuing	Continuing	-	
Develop Satellite Communications (SATCOM) Dishes and transceivers	Various	APG : MD	3.644	-		-		-		-		-	0.000	3.644	-	
Specialized Software Enhancements	Various	APG : MD	0.998	-		-		-		-		-	0.000	0.998	-	
Develop Hardware/ Software Interface	Various	APG : MD	0.445	-		-		-		-		-	0.000	0.445	-	
Subtotal			19.872	2.160		2.951		2.658		-		2.658	Continuing	Continuing	N/A	
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
Integration and Testing of Hardware/Software	Various	APG : MD	7.140	1.001	Oct 2019	0.500	Oct 2020	0.704	Oct 2021	-		0.704	0.000	9.345	Continuing	
Subtotal			7.140	1.001		0.500		0.704		-		0.704	0.000	9.345	N/A	

UNCLASSIFIED

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 0303032A / TROJAN - RH12	Project (Number/Name) RH5 / TROJAN - RH12
--	---	---

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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
Follow on Hardware, Software and Systems Development																												
	Development Efforts																											

UNCLASSIFIED

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 0303032A / TROJAN - RH12	Project (Number/Name) RH5 / TROJAN - RH12
--	---	---

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Hardware, Software and Systems Development	1	2014	4	2018
Follow on Hardware, Software and Systems Development	1	2019	4	2023