

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army** **Date:** April 2022

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

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	-	3.451	3.362	3.761	-	3.761	3.862	3.900	3.939	3.978	Continuing	Continuing
RH5: TROJAN - RH12	-	3.451	3.362	3.761	-	3.761	3.862	3.900	3.939	3.978	Continuing	Continuing

**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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	3.451	3.362	0.000	-	0.000
Current President's Budget	3.451	3.362	3.761	-	3.761
Total Adjustments	0.000	0.000	3.761	-	3.761
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	3.761	-	3.761

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Army **Date:** April 2022

**Appropriation/Budget Activity**  
2040: *Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)*

**R-1 Program Element (Number/Name)**  
PE 0303032A / TROJAN - RH12

**Change Summary Explanation**

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

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Army										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0303032A / TROJAN - RH12				<b>Project (Number/Name)</b> RH5 / TROJAN - RH12			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
RH5: TROJAN - RH12	-	3.451	3.362	3.761	-	3.761	3.862	3.900	3.939	3.978	Continuing	Continuing
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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Integrate Direction Finding and geo-location	1.200	1.188	1.200
<b>Description:</b> Integrate Direction Finding (DF) and geolocation (GL) technologies into TROJAN Remote Receiving Groups.			
<b>FY 2022 Plans:</b> 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 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.			
<b>FY 2023 Plans:</b> 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**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Army		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0303032A / TROJAN - RH12	<b>Project (Number/Name)</b> RH5 / TROJAN - RH12		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<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><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding changes reflects planned lifecycle of this effort.</p>				
<p><b>Title:</b> Enable assured communications for the TROJAN Network architecture (formerly Improve security of the TROJAN Network architecture).</p> <p><b>Description:</b> Acquire and apply multi-bandwidth compression algorithm technology to maximize TROJAN intelligence network throughput.</p> <p><b>FY 2022 Plans:</b> 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><b>FY 2023 Plans:</b> Ongoing effort of transitioning 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. This effort nears completion in FY23 with ongoing work in the outyears.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Due to this effort ramping down, the need for funds decreases in FY23 and the outyears.</p>		0.751	0.500	0.300
<p><b>Title:</b> Integrate and test specialized hardware/software</p> <p><b>Description:</b> 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><b>FY 2022 Plans:</b> 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</p>		0.500	0.704	1.161

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Army	<b>Date:</b> April 2022
--	-------------------------

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0303032A / TROJAN - RH12	<b>Project (Number/Name)</b> RH5 / TROJAN - RH12
--	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>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).</p> <p><b>FY 2023 Plans:</b> 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. Migration of NexGEN Family of system capabilities from rack based servers and receivers to a C5ISR/EW Modular Open-Source Suite of Standards (CMOSS) configuration to reduce system SWaP.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Due to the need to rapidly integrate program capabilities, the level of effort has increased.</p>			
<p><b>Title:</b> Research and testing of receivers</p> <p><b>Description:</b> 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.</p> <p><b>FY 2022 Plans:</b> 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.</p> <p><b>FY 2023 Plans:</b> 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 continue to utilize COTS/GOTS hardware and software frameworks to enable multiple SDRs to cooperate on a common backplane; which also includes DSP processing framework (Photon), receiver hardware resource manager, and single user interface application.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Due to COTS/GOTS hardware/Software framework changes, the level of effort has increased.</p>	1.000	0.970	1.100
<b>Accomplishments/Planned Programs Subtotals</b>	3.451	3.362	3.761

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Army	<b>Date:</b> April 2022
--	-------------------------

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0303032A / TROJAN - RH12	<b>Project (Number/Name)</b> RH5 / TROJAN - RH12
--	---	---

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• BA0326: TROJAN	19.359	30.828	20.562	-	20.562	16.296	16.466	16.680	16.840	Continuing	Continuing

**Remarks**

**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 2023 Army												Date: April 2022				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0303032A / TROJAN - RH12				RH5 / TROJAN - RH12								
<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	6.662	-		-		-		-		-	0.000	6.662	-	
<b>Subtotal</b>			6.662	-		-		-		-		-	0.000	6.662	N/A	
<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	6.974	1.200	Oct 2020	1.188	Oct 2021	1.200	Oct 2022	-		1.200	Continuing	Continuing	-	
Enable assured communications for the TROJAN Network Architecture	Various	APG : MD	7.191	0.751	Oct 2020	0.500	Oct 2021	0.300	Oct 2022	-		0.300	Continuing	Continuing	-	
Research and testing of Receivers	Various	APG : MD	2.780	1.000	Oct 2020	0.970	Oct 2021	1.100	Oct 2022	-		1.100	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	-	
<b>Subtotal</b>			22.032	2.951		2.658		2.600		-		2.600	Continuing	Continuing	N/A	
<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	8.141	0.500	Oct 2020	0.704	Oct 2021	1.161	Oct 2022	-		1.161	0.000	10.506	Continuing	
<b>Subtotal</b>			8.141	0.500		0.704		1.161		-		1.161	0.000	10.506	N/A	



**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0303032A / TROJAN - RH12	<b>Project (Number/Name)</b> RH5 / TROJAN - RH12
--	---	---

Event Name	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Follow on Hardware, Software and Systems Development																												
	Development Efforts																											

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0303032A / TROJAN - RH12	<b>Project (Number/Name)</b> 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