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**Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army** **Date:** March 2023

<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 0605144A / <i>Next Generation Load Device - Medium</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	14.835	22.439	36.970	-	36.970	1.609	1.007	1.018	1.029	0.000	78.907
BY6: <i>Key Management Infrastructure Development</i>	-	14.835	22.439	36.970	-	36.970	1.609	1.007	1.018	1.029	0.000	78.907

**A. Mission Description and Budget Item Justification**

This Program Element (PE) is a key enabler of the Army Modernization Priorities in support of Communication Security (COMSEC).

This PE funds the development and test of the Next Generation Load Device - Medium (NGLD-M) to conduct the Army's key fill mission by issuing, filling, and managing Cryptographic keys to both legacy and future Key Management Infrastructure (KMI) aware End-Cryptographic Units (ECUs). This effort is an Acquisition Category III (ACAT III) Program of Record (POR). COMSEC is governed by the Chairman of the Joint Chiefs of Staff Instruction (CJCSA) 6510. In order to ensure Warfighters continue to have secured communications (i.e., encrypted data and voice), Army communications systems are required to support modern cryptographic capabilities by implementing modern algorithms. These efforts are consistent with Strategic Planning Guidance (SPG).

FY2024 funding accelerates the development of the NGLD-M program which replaces the legacy Simple Key Loader (SKL). NGLD-M adds capability of cryptographic re-programmability, over the network keying, and is upgradable to NSA's Cryptographic Modernization 2 (CM2) algorithms. Funding supports the NGLD-M developmental effort for two vendors to develop and test their hardware and software solutions.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
Previous President's Budget	15.397	22.439	6.716	-	6.716
Current President's Budget	14.835	22.439	36.970	-	36.970
Total Adjustments	-0.562	0.000	30.254	-	30.254
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.562	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	30.254	-	30.254

**Change Summary Explanation**

Fiscal Year 2024 (FY24) funding increase accelerates the development of the NGLD-M program which replaces the legacy Simple Key Loader (SKL). NGLD-M adds capability of cryptographic re-programmability, over the network keying, and is upgradable to NSA's Cryptographic Modernization 2 (CM2) algorithms.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Army										<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0605144A / Next Generation Load Device - Medium				<b>Project (Number/Name)</b> BY6 / Key Management Infrastructure Development			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
BY6: Key Management Infrastructure Development	-	14.835	22.439	36.970	-	36.970	1.609	1.007	1.018	1.029	0.000	78.907
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

As part of the Army's Key Management Infrastructure (KMI) implementation, the Next Generation Load Device - Medium (NGLD-M) is an Acquisition Category III (ACAT III) Program of Record (POR) and modernized load device that will replace legacy AN/PYQ-10A and AN/PYQ-10A(C) (Army), which is commonly referred to as the Simple Key Loader (SKL). The NGLD-M will receive, store, manage, and transfer electronic key through the network to be loaded into communication devices such as radios and satellites to secure the network. The NGLD-M requires RDT&E investment to develop and test the hardware and software solutions. Without this technology Warfighters are required to manually receive their cryptographic products by traveling to COMSEC account locations (which may not be co-located) and manually filling their devices.

FY2024 funding supports the NGLD-M developmental effort for two vendors to establish a developmental baseline and conduct developmental and operational testing of their hardware and software solutions.

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

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<b>Title:</b> NGLD-M Development and NSA Certification	13.680	20.310	26.721
<b>Description:</b> The Next Generation Load Device - Medium (NGLD-M) will conduct the Army's key fill mission by issuing, filling, and managing Cryptographic keys to both legacy and future KMI aware End-Cryptographic Units (ECUs). This technology requires RDT&E investment to meet the requirements outlined in the NGLD Capability Production Document (CPD).			
<b>FY 2023 Plans:</b> Continue NGLD-M development to finalize the physical and functional characteristics of the NGLD-M configuration items and establish Government configuration control of the design at the Critical Design Review (CDR). At CDR, The Government will receive pre-production development models to support Highly Accelerated Life Testing for system reliability testing, End Cryptographic Unit interoperability testing, and other developmental testing. Additionally, the NGLD-M configuration will undergo a Risk Management Framework Security Control Assessment.			
<b>FY 2024 Plans:</b> Continue NGLD-M development and testing to obtain NSA Certification for both vendors. Security Verification Test (SVT) and Physical Configuration Audits (PCA) will be used with both vendors to verify that products meet cryptographic and protective alarms requirements and specifications IAW NSA IASRD.			
<b>FY 2023 to FY 2024 Increase/Decrease Statement:</b>			

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<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605144A / <i>Next Generation Load Device - Medium</i>	<b>Project (Number/Name)</b> BY6 / <i>Key Management Infrastructure Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
The increase is due to NGLD-M Development and NSA Certification entering into the production phase.				
<p><b>Title:</b> Program Management Support</p> <p><b>Description:</b> This funds matrixed support from Combat Capabilities Development Command (CCDC) Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center to assist with the NGLD-M development effort.</p> <p><b>FY 2023 Plans:</b> FY 2023 funds matrixed support to include Acquisition Program Manager (APM), and Software Engineer Program Management support from Combat Capabilities Development Command (CCDC) Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center to assist with the NGLD-M development effort.</p> <p><b>FY 2024 Plans:</b> FY 2024 funds matrixed support to include Acquisition Program Manager (APM), and Software Engineer Program Management support from Combat Capabilities Development Command (CCDC) Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center to assist with the NGLD-M development effort.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> The increase is due to the additional Program Management Support activities associated with entering into the production phase.</p>		1.155	1.752	2.510
<p><b>Title:</b> Developmental Test &amp; Evaluation Support</p> <p><b>Description:</b> NGLD-M developmental test and evaluation support efforts.</p> <p><b>FY 2023 Plans:</b> FY 2023 funds developmental test and evaluation support efforts to include End Cryptographic Unit (ECU) interoperability testing, environmental testing, Telecommunications Electronics Materials Protected from Emanating Spurious Transmissions (TEMPEST), and NSA Testing.</p> <p><b>FY 2024 Plans:</b> FY 2024 funds developmental test and evaluation support efforts to include End Cryptographic Unit (ECU) interoperability testing, environmental testing, Telecommunications Electronics Materials Protected from Emanating Spurious Transmissions (TEMPEST), and NSA Testing.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b></p>		-	0.377	7.739

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Army		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605144A / Next Generation Load Device - Medium	<b>Project (Number/Name)</b> BY6 / Key Management Infrastructure Development

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
FY24 Test & Evaluation costs increase due to two Developmental Tests (DT) and two Operational Tests (OT) required to meet Milestone C.			
<b>Accomplishments/Planned Programs Subtotals</b>	14.835	22.439	36.970

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b> <b>Base</b>	<b>FY 2024</b> <b>OCO</b>	<b>FY 2024</b> <b>Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0303140A: Information Systems Security Program	15.680	17.209	15.323	-	15.323	17.786	17.807	17.998	18.200	Continuing	Continuing
• B96004: KEY MANAGEMENT INFRASTRUCTURE	78.283	75.541	72.289	-	72.289	31.524	31.699	28.697	24.050	0.000	342.083
• B96016: NEXT GENERATION LOAD DEVICE- MEDIUM	-	-	0.000	-	0.000	60.800	61.097	64.142	68.241	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

Aspects of the Next Generation Load Device - Medium (NGLD-M) may include commercially availability solutions and/or interfaces, but development is required to integrate these solutions into a device that meets the rigors of NSA certification and the Capability Production Document (CPD) requirements. There is no commercially driven market for NSA certified load devices that meet the requirements identified in the NGLD Family CPD. The NGLD-M Acquisition Strategy supports a multiple award contract strategy for development, production, and sustainment. These requirements ensure secure communications by requiring the NGLD-M to provide specific tamper protections, limit electromagnetic radiation to prevent adversarial detection of the system, among others outlined within the Information Assurance Security Requirements Document. The Milestone Decision Authority issued a Materiel Development Decision (MDD) Acquisition Decision Memorandum (ADM) on 14 March 2019 that designated the NGLD-M as an ACAT III Program of Record (PoR).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army												Date: March 2023			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605144A / Next Generation Load Device - Medium				BY6 / Key Management Infrastructure Development							
Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Program Management Support	C/CPFF	CCDC C5ISR S&TCD : APG, MD	-	1.155	Nov 2021	1.752	Apr 2023	2.510	Feb 2024	-		2.510	0.000	5.417	-
<b>Subtotal</b>			-	1.155		1.752		2.510		-		2.510	0.000	5.417	N/A
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
NGLD-M Development	C/CPFF	CCDC C5ISR S&TCD, NIWC-Pacific : APG, MD; San Diego, CA	-	13.680	Nov 2021	20.310	Apr 2023	26.721	Feb 2024	-		26.721	0.000	60.711	-
<b>Subtotal</b>			-	13.680		20.310		26.721		-		26.721	0.000	60.711	N/A
Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Test and Evaluation	C/CPFF	CCDC C5ISR S&TCD : APG, MD	-	-		0.377	Apr 2023	7.739	Feb 2024	-		7.739	0.000	8.116	-
<b>Subtotal</b>			-	-		0.377		7.739		-		7.739	0.000	8.116	N/A
<b>Project Cost Totals</b>			-	14.835		22.439		36.970		-		36.970	0.000	74.244	N/A
<b>Remarks</b>															



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Army		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605144A / <i>Next Generation Load Device - Medium</i>	<b>Project (Number/Name)</b> BY6 / <i>Key Management Infrastructure Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NGLD-M Development	4	2021	1	2025
NGLD-M Testing	4	2023	2	2031
NGLD-M Development, Production, Sustainment Contract	4	2021	4	2031
NGLD-M Milestone C	4	2024	4	2024