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**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 0605144A / <i>Next Generation Load Device - Medium</i>
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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	-	-	15.397	22.439	-	22.439	6.716	1.026	1.026	1.036	0.000	47.640
BY6: <i>Key Management Infrastructure Development</i>	-	-	15.397	22.439	-	22.439	6.716	1.026	1.026	1.036	0.000	47.640

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

This budget item is a key enabler of the Army Modernization Priorities in support of the Communication Security (COMSEC).

Project BY6: This budget item 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).

Project BY6 FY 2023 Justification: FY2023 funding supports the NGLD-M developmental effort for two vendors to develop and test their hardware and software solutions.

Prior to FY2022, the NGLD-M development effort was funded under PE 0303140A, Project DV4. In FY2022 and out, PE 0303140A no longer includes funding associated with the NGLD-M Program. New PE 0303140A Project Code BY6 was established to clearly identify requirements for NGLD-M development and is not considered a new start effort.

<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	0.000	15.616	0.000	-	0.000
Current President's Budget	0.000	15.397	22.439	-	22.439
Total Adjustments	0.000	-0.219	22.439	-	22.439
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-0.219			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	22.439	-	22.439

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

**R-1 Program Element (Number/Name)**  
PE 0605144A / *Next Generation Load Device - Medium*

**Change Summary Explanation**

Fiscal Year 2023 (FY23) funding increase reflects the fact that the FY22 President's Budget request did not include out-year funding.

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<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 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 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>
BY6: Key Management Infrastructure Development	-	-	15.397	22.439	-	22.439	6.716	1.026	1.026	1.036	0.000	47.640
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.

FY2023 funding supports the NGLD-M developmental effort for two vendors to establish a developmental baseline and conduct developmental testing of their hardware and software solutions.

Prior to FY2022, the NGLD-M development effort was funded under PE 0303140A, Project DV4. In FY2022 and out, PE 0303140A no longer includes funding associated with the NGLD-M Program. New PE 0303140A Project Code BY6 was established to clearly identify requirements for NGLD-M development and is not considered a new start effort.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> NGLD-M Development and NSA Certification	-	13.680	20.310
<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 2022 Plans:</b> Conduct the NGLD-M development and the User Application Software (UAS) integration of up to two solutions to meet the CPD. The NGLD-M development will establish configuration items and allocate system functions and performance requirements to the configurations items through a Preliminary Design Review. Further NGLD-M development will 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			

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<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 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 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>Life Testing for system reliability testing, End Cryptographic Unit interoperability testing, and the Risk Management Framework Security Control Assessment.</p> <p><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.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY23 increase supports the acquisition strategy enabling full and open competition between two vendors currently on contract. This increase keeps the developmental schedule on track to be completed in FY25.</p>				
<p><b>Title:</b> Program Management Support</p> <p><b>Description:</b> PMO costs will be covered by OMA funding. 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 2022 Plans:</b> FY 2022 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 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 2022 to FY 2023 Increase/Decrease Statement:</b> The increase is due to inflation.</p>		-	1.155	1.752
<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></p>		-	-	0.377

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

<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
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2021	FY 2022	FY 2023
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.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY23 increase supports developmental test and evaluation efforts.			
<b>Title:</b> SBIR/STTR Transfer  <b>Description:</b> SBIR/STTR  <b>FY 2022 Plans:</b> FY22 funding transfer reflects SBIR/STTR reduction from FY22 RAP  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Fiscal Year 2022 (FY22) funding decrease reflects SBIR/STTR reduction from FY22 RAP	-	0.562	-
<b>Accomplishments/Planned Programs Subtotals</b>	-	15.397	22.439

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	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
• 0303140A: Information Systems Security Program	28.270	15.680	17.209	-	17.209	16.675	18.140	18.146	18.323	Continuing	Continuing
• B96000: Communications Security (COMSEC)	159.400	126.273	125.692	-	125.692	139.147	150.393	150.835	150.769	0.000	1,002.509

**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 2023 Army** **Date:** April 2022

<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
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<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPFF	CCDC C5ISR S&TCD : APG, MD	-	-		1.155	Nov 2021	1.752	Nov 2022	-		1.752	0.000	2.907	-
SBIR/STTR Transfer	TBD	Various : Various	-	-		0.562		-		-		-	0.000	0.562	-
<b>Subtotal</b>			-	-		1.717		1.752		-		1.752	0.000	3.469	N/A

<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NGLD-M Development	C/CPFF	CCDC C5ISR S&TCD, NIWC-Pacific : APG, MD; San Diego, CA	-	-		13.680	Nov 2021	20.310	Nov 2022	-		20.310	0.000	33.990	-
<b>Subtotal</b>			-	-		13.680		20.310		-		20.310	0.000	33.990	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	C/CPFF	CCDC C5ISR S&TCD : APG, MD	-	-		-		0.377	Nov 2022	-		0.377	0.000	0.377	-
<b>Subtotal</b>			-	-		-		0.377		-		0.377	0.000	0.377	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		
	<b>Project Cost Totals</b>			-	-	15.397	22.439	-	22.439	0.000	37.836

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Army</b>		<b>Date:</b> April 2022
<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

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																																
NGLD-M Development																																																												
NGLD-M Testing																																																												
NGLD-M Development, Production, Sustainment Contract																																																												
NGLD-M Milestone C																																													▲ 1															

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</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 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	4	2024
NGLD-M Testing	4	2023	4	2024
NGLD-M Development, Production, Sustainment Contract	4	2021	4	2031
NGLD-M Milestone C	4	2024	4	2024