Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force											Date: March 2023	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604005F / *NC3 Commercial Development & Prototyping*							
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	-	0.000	97.000	78.799	0.000	78.799	68.004	67.188	61.004	0.000	Continuing	Continuing
640860: *Nuclear Command Control and Communications (NC3)*	-	0.000	97.000	78.799	0.000	78.799	68.004	67.188	61.004	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 4, PE 0604005F, project 640860, Commercial Leveraging for the Nuclear Enterprise, is a new start.

Funding for NC3 PE under PE 0604858F (Tech Transition), prototyping Project (BPAC 645351), transitioned to PE 0604005F, Project 640860, beginning in FY23 per Congressional direction.

A. Mission Description and Budget Item Justification

The DAF nuclear enterprise has historically used unique closed systems to provide the high degree of mission assurance and security needed for this mission. Furthermore the rapid development of the nuclear enterprise required the fielding of the most advanced technology of that time, and in most cases utilized technology that was well ahead of the commercial sector. Today the technological world is very different and in cases such as satellite communications and information technology (IT) systems the commercial sector has raced ahead of government unique systems.

Commercial Leveraging for the nuclear enterprise will explore a range of key technologies that are either commercial, or commercial entwined with government system to quantitatively determine whether these capabilities provide increased resilience, improved reconstitution, or lower cost for applications within the DOD nuclear enterprise. It is not intended to replace baseline systems, but rather will be prototypes to augment existing capabilities.

The program will reduce risk in leveraging emerging commercial-based technologies by partnering with industry while providing access to Government analysis, testing and certification capabilities. Prime investments focus on Government-Industry partnerships to influence and militarize emerging commercial capabilities to ensure US competitive advantage in key technology areas. Experimentation efforts will be employed to explore new concepts and their applications in future operating environments within a system-of-systems context taking risks early in the acquisition process to drive a more optimized and efficient acquisition approach significantly reducing overall acquisitions costs. Prototyping of commercially-derived technologies into government systems, followed by operational experimentation of the performance and security, will enable these candidate technologies to move into warfighting capability faster and at a lower cost, based on demonstrated low-risk prototypes.

Efforts include a focus on communications, secure data flow, and incorporating commercial approaches for a coarse navigation capability. Communications will focus primarily on satellite links by prototyping terminals that can gain access and switch across multiple commercial and government links from a common terminal. Multiple commercial vendors will be competitively awarded contracts for these prototypes and will work with the government partners to interface with selected platforms

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across the enterprise. Secure data flow will test various techniques across commercial and DOD partners to smartly utilize multiple communications paths to increase resilience, and also to integrate with hybrid architectures under USSF and across terrestrial networks. Coarse navigation will explore, test and prototype commercially-derived approaches to resiliently provide a very coarse navigation capability to disadvantaged users. This capability does not replace GPS or other advanced precision DOD Position-Navigation-Timing capabilities or approach their exquisite capabilities, but will instead provide a back-up option for a coarse capability for a scenario when no other options are available to the DOD user.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F, 0605831F, and/or 0606017F

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	97.000	78.799	0.000	78.799
Total Adjustments	0.000	97.000	78.799	0.000	78.799
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	97.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	78.799	0.000	78.799

Change Summary Explanation

The FY23 PB Congress directed the stand-up of this new PE. Previous efforts programmed in PE 0604858F.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Commercial Leveraging for the Nuclear Enterprise	-	97.000	78.799
Description: Utilizing commercial terminal providers to develop key prototypes, and associated test and experimentation. Includes analysis to assess the hybrid architecture and integration options to the USSF/SDA space transport layer and DOD/ commercial terrestrial networks. Includes prototype of coarse navigation capability. Establish partnerships with DOD partners			

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
for secure data transport across multiple links. Initiate efforts with the USAF program offices for the key platforms to facilitate integration assessments. ***FY 2023 Plans:*** In FY23 the effort will award key contracts to 2-3 commercial terminal providers to develop the key prototypes. ***FY 2024 Plans:*** Receive initial terminal prototypes late in FY24 and initiate testing. Fund multiple contracts for platform integration assessments with each platform. Start field testing of coarse navigation techniques and approaches for secure data transport across multiple links. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY2024 funding decreased compared to FY2023 funding by $18.201 million due to the high initial up-front hardware costs for the prototype terminals with a significant cost for long-lead items. In FY24 the effort starts switching to integration platform assessments experimentation, operational experimentation, and testing which are lower cost due to the nature of the work.			
Accomplishments/Planned Programs Subtotals	-	97.000	78.799

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

For FY24-FY25, the NC3 contractual efforts are within the scope of the DEUCSI solicitation which has an ASP approved by AFRL/CC. We are currently working to raise the ceiling and add some scope to the DEUCSI ASP and solicitation. This will be completed shortly and will cause no delay in the execution of funds.

The FFRDC analysis will be executed under existing contractual arrangements. Those vehicles have sufficient scope and ceiling to support the NC3 effort.

Integration assessment will be executed by the existing contractor aligned with each platform. Each platform PEO already has those contracts in place, and the NC3 funds will be transferred as needed by MIPR.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604005F / *NC3 Commercial Development & Prototyping*	Project (Number/Name) 640860 / *Nuclear Command Control and Communications (NC3)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prototype Terminals	C/CPAF	TBD : TBD	-	-		89.000	Feb 2023	63.799		-		63.799	Continuing	Continuing	-
Coarse Navigation approach 1	C/FFP	TBD : TBD	-	-		5.000	Jun 2023	10.000		-		10.000	Continuing	Continuing	-
Platform Integration assessments	C/Various	TBD : TBD	-	-		1.000	Jul 2023	3.000		-		3.000	Continuing	Continuing	-
		Subtotal	-	-		95.000		76.799		-		76.799	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Architecture analysis	C/Various	IDA : TBD	-	-		1.000		1.000		-		1.000	Continuing	Continuing	-
Architecture Analysis (1)	C/CPAF	JHU/APL : TBD	-	-		1.000		1.000		-		1.000	Continuing	Continuing	-
		Subtotal	-	-		2.000		2.000		-		2.000	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		97.000		78.799		-		78.799	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604005F / *NC3 Commercial Development & Prototyping*	**Project (Number/Name)** 640860 / *Nuclear Command Control and Communications (NC3)*

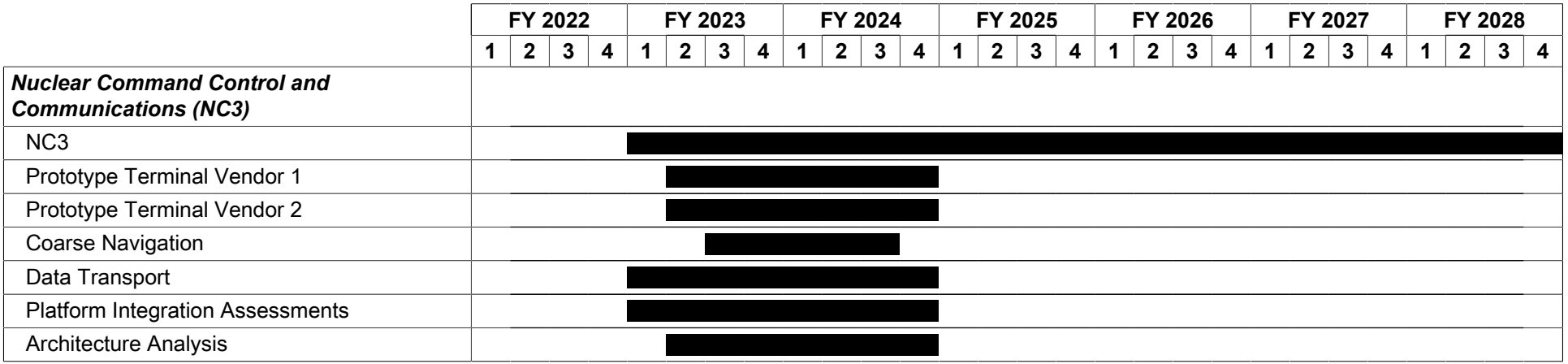

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604005F / *NC3 Commercial Development & Prototyping*	**Project (Number/Name)** 640860 / *Nuclear Command Control and Communications (NC3)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Nuclear Command Control and Communications (NC3)				
NC3	1	2023	4	2028
Prototype Terminal Vendor 1	2	2023	4	2024
Prototype Terminal Vendor 2	2	2023	4	2024
Coarse Navigation	3	2023	3	2024
Data Transport	1	2023	4	2024
Platform Integration Assessments	1	2023	4	2024
Architecture Analysis	2	2023	4	2024