Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force												Date: March 2024
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 1206444SF *I Next-Gen OPIR -- Polar*							
COST ($ in Millions)	**Prior Years**	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
Total Program Element	471.398	849.196	1,013.478	828.878	0.000	828.878	474.689	382.825	345.493	393.488	658.578	5,418.023
657121: *Next-Gen OPIR Space, Block 0 Polar*	471.398	849.196	1,013.478	828.878	0.000	828.878	474.689	382.825	345.493	393.488	658.578	5,418.023
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Next-Generation Overhead Persistent Infrared (OPIR) Space, Block 0 Polar (Project 657121): The primary mission is to provide initial missile warning of a ballistic missile attack on the US, its deployed forces, and its allies. Next-Gen OPIR Space enhances detection and improves reporting of intercontinental ballistic missile launches, submarine launched ballistic missile launches, and tactical ballistic missile launches. Development consists of the Next-Gen OPIR Polar (NGP) missile warning satellites with new payloads in a highly resilient bus, providing real-time persistent global infrared coverage to meet validated Joint Requirements Oversight Council (JROC) requirements on current and future space domain demands.

The Program Office is acquiring the NGP capability through three contract phases. Phase 0, awarded in June 2018, encompassed system requirements analysis and risk reduction efforts, which led to a March 2020 System Requirements Review (SRR). Phase 1, awarded in May 2020, encompasses engineering design, unit hardware procurement, component and subsystem qualification and design, critical path flight hardware procurement, and risk reduction efforts leading to a System Critical Design review (CDR) in FY 2024. Phase 2 will award in 3QFY24 for the manufacturing, assembly, integration & test, launch and early on orbit test, through operational acceptance of NGP satellites 1 and 2.

The NGP program has been designated as Major Capability Acquisition.

NGP program prior year costs from PE 1206444SF (Next-Gen OPIR - Polar), Project 657121 (Next-Gen OPIR Space Polar) of 471.4 million.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Next-Gen OPIR Polar system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 1206392SF and 1206398SF.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.

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B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	849.196	1,013.478	897.341	0.000	897.341
Current President's Budget	849.196	1,013.478	828.878	0.000	828.878
Total Adjustments	0.000	0.000	-68.463	0.000	-68.463
• 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	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-68.463	0.000	-68.463

Change Summary Explanation

FY 2025: -69.900M; reduced to align with updated cost estimate
FY 2025: -0.224M; realigned for higher priorities
FY 2025: +1.661M; inflation Rates for Non-Pay and Non-Fuel Purchases

C. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Next-Gen OPIR Space, Block 0 Polar	849.196	1,013.478	828.878

Description: Development of the Next-Gen OPIR Polar (NGP) missile warning satellites using a proven bus with modifications, auxiliary payloads for improved resiliency, and new hardened sensors. The Polar space segment will consist of two NGP satellites in a resilient architecture, providing real time persistent infrared coverage of the northern hemisphere.

FY 2024 Plans:

FY 2024 funds are required to execute the program Critical Design Review (CDR) campaign, begin preparations for the production, assembly, test, and launch phase of the program, and preserve FY 2028 initial launch capability (ILC) for satellite vehicle (SV) #1. Conduct critical design activities for communications payload, cryptographic units, auxiliary payloads, satellite bus, mission payload, mission unique ground system, and hardware/software early risk reduction activities to support the CDR. Scheduled activities include Internal Design reviews (IDRs) to demonstrate individual units are at CDR maturity. This will flow into Critical Design Audits (CDAs) to demonstrate subsystem CDR maturity and the Baseline Technical Review 9 (BTR-9), an interim review to synchronize design and analysis cycles, as well as on-going system preparation and execution, to lead to the CDR milestone. Finalize efforts to develop Engineering Design Units and Flight Hardware for component and subsystem qualification of design. Additionally, preparation work for Phase 2 set to be awarded in 3rd Quarter FY 2024, to begin Polar SV #1 Assembly, Integration and Test (AI&T), which will bring the program from CDR through launch, early on orbit testing and

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
operational acceptance. Procure long lead items to support Phase 2 scheduled dates. Continue Enterprise Planning and support for secure communications including government-furnished flight cryptologic units, long-haul communications, ground integration, launch integration efforts, etc. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, and activities that may leverage commercial and international opportunities. ***FY 2025 Plans:*** FY 2025 funds are required to preserve FY 2028 ILC for SV #1 and FY 2030 ILC for SV #2, as well as perform space/ground integration activities. Complete Phase 1 contract closeout activities for development activities of spacecraft bus & communication payload and all associated subsystem components. Complete flight hardware procurements for SVs #1 and #2. Continue development of ground and spacecraft flight software and mission data processing algorithms. Continue assembly, integration and test of flight mission payload for SV #1. Continue subsystem component and integration testing, and simulation development for requirements verification. Continue Phase 2 efforts to manufacture, build, integrate, test and launch of the NGP SVs #1 and #2 to include the mission payload, communications payload and satellite bus. Continue activities for system test and factory ops support center planning. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, and activities that may leverage commercial and international opportunities. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 decreased due to completing design activities and the majority of non-recurring engineering and hardware purchases for SVs #1 and #2.			
Accomplishments/Planned Programs Subtotals	849.196	1,013.478	828.878

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

The Space Force intends to rapidly acquire Next-Gen systems to out-pace adversary missile and counterspace threats while maintaining survivable, global missile warning capability sufficient to enable a transition to the future Force Design Architecture. Next-Gen Polar consists of two satellites. The Next-Gen OPIR Space program was designated a Middle Tier Acquisition (MTA) Rapid Prototype effort under Section 804 of the 2016 National Defense Authorization Act (NDAA). The Next-Gen OPIR Polar program was re-designated as an Acquisition Category (ACAT)-1B Major Capability Acquisition program in Nov 2023. The first Polar satellite is required in FY 2028. The program office awarded a sole source contract under the authority of a Justification & Authorization document. The NGP Phase 0 was awarded in FY 2018, consisting of requirements development, and culminated in a March 2020 SRR. Phase 1 was awarded May 2020, encompassing requirements review, design,

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development, critical path flight hardware procurement, and risk reduction efforts leading to a System CDR no later than FY 2024 for NGP SVs #1 and #2. Phase 2 will award in 3QFY24, encompassing build, integration, test, launch, and transition to operations for NGP SVs #1 and #2.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force		Date: March 2024
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Next-Gen OPIR Space, Polar (Phase 1 & 2)	Various	Northrop Grumman : Various	441.192	780.516	Oct 2022	936.190	Oct 2023	738.513	Oct 2024	-		738.513	1,947.518	4,843.929	-
Enterprise Comm and Crypto	Various	Various : Various	0.000	34.768	Dec 2022	32.200	Dec 2023	7.175	Dec 2024	-		7.175	8.681	82.824	-
Launch Support	Various	Various : Various	0.000	-		-		13.699	Oct 2024	-		13.699	25.773	39.472	-
SE&I	Various	Various : Various	4.399	8.192	Dec 2022	11.630	Dec 2023	10.295	Dec 2024	-		10.295	64.326	98.842	-
Technical Mission Analysis	RO	Aerospace Corporation : El Segundo, CA	9.661	8.775	Oct 2022	12.330	Oct 2023	14.817	Oct 2024	-		14.817	66.045	111.628	-
		Subtotal	455.252	832.251		992.350		784.499		-		784.499	2,112.343	5,176.695	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC	RO	Aerospace Corporation : El Segundo, CA	5.939	4.251	Dec 2022	6.544	Dec 2023	8.554	Dec 2024	-		8.554	38.445	63.733	-
A&AS	Various	Various : Various	10.010	12.520	Feb 2023	14.406	Feb 2024	35.642	Feb 2025	-		35.642	103.240	175.818	-
Other Support	Various	Various : Various	0.197	0.174	Oct 2022	0.178	Oct 2023	0.183	Oct 2024	-		0.183	1.045	1.777	-
		Subtotal	16.146	16.945		21.128		44.379		-		44.379	142.730	241.328	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	471.398	849.196		1,013.478		828.878		-		828.878	2,255.073	5,418.023	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force		Date: March 2024
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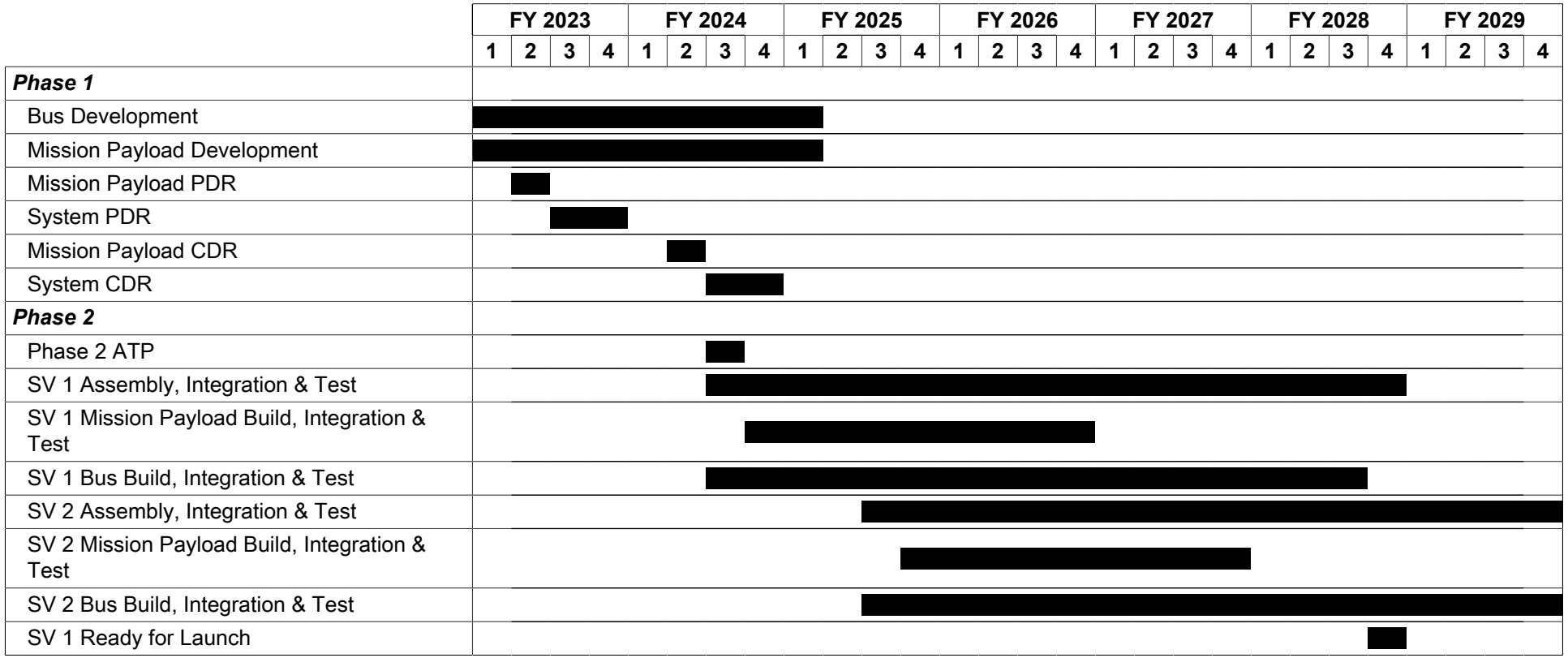

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Phase 1				
Bus Development	1	2023	1	2025
Mission Payload Development	1	2023	1	2025
Mission Payload PDR	2	2023	2	2023
System PDR	3	2023	4	2023
Mission Payload CDR	2	2024	2	2024
System CDR	3	2024	4	2024
Phase 2				
Phase 2 ATP	3	2024	3	2024
SV 1 Assembly, Integration & Test	3	2024	4	2028
SV 1 Mission Payload Build, Integration & Test	4	2024	4	2026
SV 1 Bus Build, Integration & Test	3	2024	3	2028
SV 2 Assembly, Integration & Test	3	2025	4	2029
SV 2 Mission Payload Build, Integration & Test	4	2025	4	2027
SV 2 Bus Build, Integration & Test	3	2025	4	2029
SV 1 Ready for Launch	4	2028	4	2028

Note

Next-Gen Polar (Project 657121) efforts continue past 2029.