Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force											Date: April 2022	
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force* / BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 1206444SF / *Next-Gen OPIR -- Polar*							
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	-	0.000	471.398	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
657121: *Next-Gen OPIR Space, Block 0 Polar*	-	0.000	471.398	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In accordance with Congressional direction in the FY22 enacted budget, funds in Program Element 1206442SF, Project 657121, Next-Gen OPIR Space, Block 0 Polar, have been transferred to 1206444SF

A. Mission Description and Budget Item Justification

Next-Generation Overhead Persistent Infrared (OPIR) Space, Block 0 Polar (NGP) (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 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 design and development, critical path flight hardware procurement, and risk reduction efforts leading to a System CDR in FY 2024. Phase 2 will be awarded prior to System CDR for the manufacturing, assembly, integration and test, and early on orbit test, through operational acceptance of NGP satellites 1 and 2.

Next-Gen OPIR Polar is not fully funded across the Future Years Defense Program. The Department of the Air Force is assessing all options to address the funding shortfalls for MTA programs including additional funding in a future budget request, performance trades based on technical maturity, or transition to alternative pathways.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force	Date: April 2022
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B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	471.398	0.000	0.000	0.000
Total Adjustments	0.000	471.398	0.000	0.000	0.000
• 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	471.398			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

In accordance with Congressional direction in the FY22 enacted budget, funds in Program Element 1206442SF, Project 657121, Next-Gen OPIR Space, Block 0 Polar, have been transferred to 1206444SF

C. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Next Gen OPIR Space, Block 0 Polar	-	471.398	0.000

Description: Development of the Next-Gen OPIR Polar 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 Next-Gen OPIR Polar satellites in a resilient architecture, providing real time persistent infrared coverage of the northern hemisphere.

FY 2022 Plans:

Continue Phase 1 systems engineering design activities to ensure a successful Polar System Preliminary Design Review (PDR) by FY 2023. Support enterprise requirements in the development of the Next Gen OPIR System Requirements Document (SRD), Next Gen OPIR Space Segment Specification, and Polar Space Vehicle (SV) Technical Requirements Document (TRD). Mature satellite design by performing analysis for requirements unique to the Polar bus and payload. Conduct Baseline Technical Reviews (BTR) as well as modeling and simulation reviews to ensure satellite mission performance parameters are met. Develop design reference missions as well as conditions and methods documentation to understand power, pointing, thermal, data-rate, data-volume, environment, and ground interface parameters. Specify design updates to resolve any payload interface requirement disconnects. Perform auxiliary payload subsystem (APS) installation in a virtualized System Integration Laboratory (SIL) environment to conduct flight software testing. Refine initial software design, develop test events and initial test plans. Mature security design by performing an iterative review of security controls and establish implementation plans. Continue risk

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

C. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
reduction efforts, initial procurement of mission critical flight hardware and test equipment to support systems engineering, cyber, resiliency, and security test events. Additionally, FY 2022 funding will allow the program to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities include, but are not limited to, program office support, studies, technical analysis, and experimentation, prototyping. ***FY 2023 Plans:*** FY23 Budget Year Plans are captured in Program Element 1206442SF. They will be captured in Program Element 1206444SF per direction in the FY22 Appropriations Bill in the next budget cycle. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** The FY 2023 funding in PE 1206442SF increased by $427.798M compared to the FY 2022 funding in this PE to support ramp of engineering activity to support PDR and critical parts procurement necessary to support FY28 launch.			
Accomplishments/Planned Programs Subtotals	-	471.398	0.000

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

The Space Force intends to acquire Next-Gen systems in block developments to deliver the required constellation. The first block, Block 0, consists of 3 Next-Gen GEO and 2 Next-Gen Polar satellites. The Next-Gen OPIR Space program has been designated a Middle Tier Acquisition (MTA) Rapid Prototype effort under Section 804 of the 2016 National Defense Authorization Act (NDAA). The purpose of the MTA is to develop and qualify up to two competitive mission payloads. Following completion of the MTA activity, the Next Gen OPIR GEO program developments will transition to Major Capability Acquisition programs. The first GEO satellite is required by FY 2025 and the first Polar satellite is required in FY 2028. The program office awarded two sole source contracts (one to a GEO prime and one to a Polar prime) under the authority of two Justification & Authorization documents. The Next-Gen Polar 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, development, critical path flight hardware procurement, and risk reduction efforts leading to a System CDR NLT FY 2024 for Next-Gen Polar Satellite Vehicles (SV) 1 and 2. Phase 2 will be awarded prior to System CDR, encompassing build, integration, test, launch, and transition to operations for Next-Gen Polar SVs 1 and 2.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206444SF / *Next-Gen OPIR -- Polar*	**Project (Number/Name)** 657121 / *Next-Gen OPIR Space, Block 0 Polar*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Next Gen OPIR Space,Block 0 Polar Phase 1	SS/CPAF	Northrop Grumman : Redondo Beach, CA	-	-		441.192	Oct 2021	-		-		-	Continuing	Continuing	-
Enterprise Comm and Crypto	Various	Various : TBD	-	-		-		-		-		-	Continuing	Continuing	-
SE&I	Various	Various : TBD	-	-		7.898	Dec 2021	-		-		-	Continuing	Continuing	-
Technical Mission Analysis	RO	Aerospace Corporation : El Segundo, CA	-	-		7.400	Oct 2021	-		-		-	Continuing	Continuing	-
		Subtotal	-	-		456.490		-		-		-	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC	RO	Aerospace Corporation : El Segundo, CA	-	-		2.301	Dec 2021	-		-		-	Continuing	Continuing	-
A&AS	Various	Various : TBD	-	-		6.105	Feb 2022	-		-		-	Continuing	Continuing	-
Other Support	Various	Various : TBD	-	-		6.502	Oct 2021	-		-		-	Continuing	Continuing	-
		Subtotal	-	-		14.908		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		471.398		-		-		-	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206444SF / *Next-Gen OPIR -- Polar*	**Project (Number/Name)** 657121 / *Next-Gen OPIR Space, Block 0 Polar*

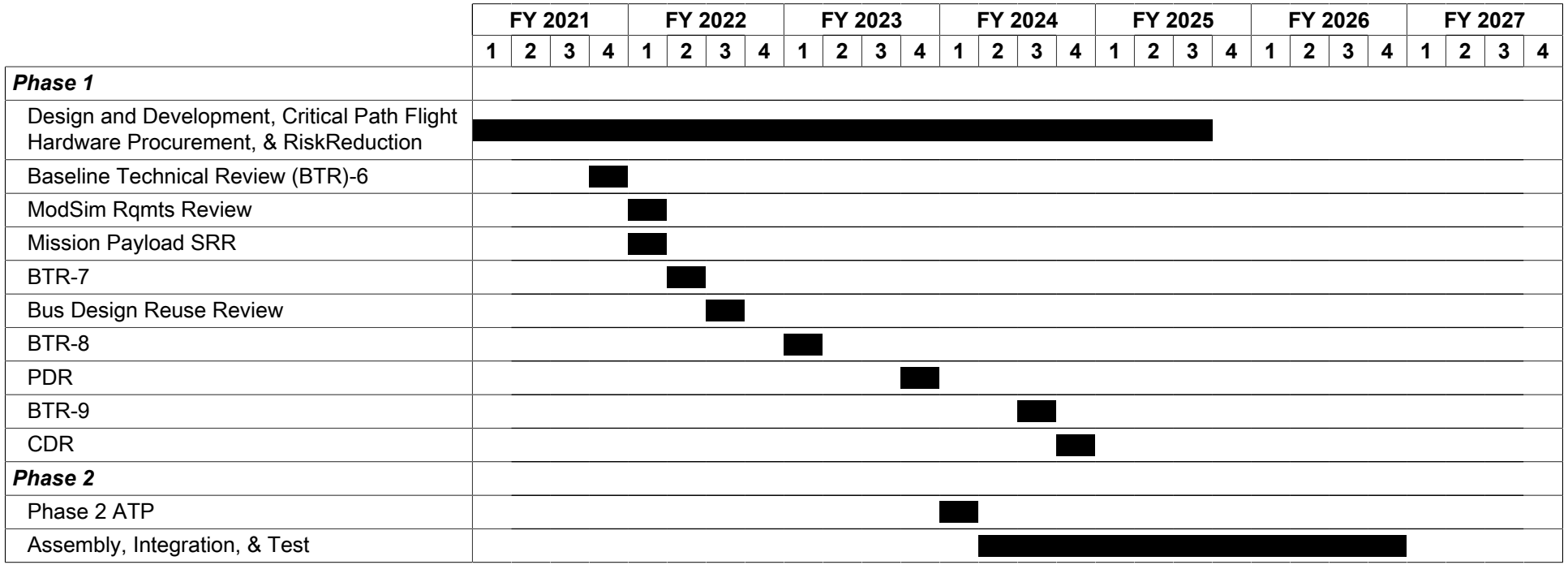

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206444SF / *Next-Gen OPIR -- Polar*	**Project (Number/Name)** 657121 / *Next-Gen OPIR Space, Block 0 Polar*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Phase 1				
Design and Development, Critical Path Flight Hardware Procurement, & RiskReduction	1	2021	3	2025
Baseline Technical Review (BTR)-6	4	2021	4	2021
ModSim Rqmts Review	1	2022	1	2022
Mission Payload SRR	1	2022	1	2022
BTR-7	2	2022	2	2022
Bus Design Reuse Review	3	2022	3	2022
BTR-8	1	2023	1	2023
PDR	4	2023	4	2023
BTR-9	3	2024	3	2024
CDR	4	2024	4	2024
Phase 2				
Phase 2 ATP	1	2024	1	2024
Assembly, Integration, & Test	2	2024	4	2026