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 1206442SF *I Next Generation OPIR*							
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	-	2,318.864	125.853	3,479.459	0.000	3,479.459	2,951.422	2,439.846	1,598.985	1,436.199	Continuing	Continuing
657009: *Space Mod Initiative*	-	194.662	97.978	224.084	0.000	224.084	341.045	320.831	273.532	218.582	Continuing	Continuing
657106: *Next-Gen OPIR Ground*	-	384.289	0.000	612.529	0.000	612.529	662.760	557.800	371.924	286.841	Continuing	Continuing
657120: *Next-Gen OPIR Space, Block 0 GEO*	-	1,402.900	0.000	1,713.933	0.000	1,713.933	907.577	636.663	452.039	462.547	Continuing	Continuing
657121: *Next-Gen OPIR Space, Block 0 Polar*	-	337.013	0.000	899.196	0.000	899.196	1,008.941	892.331	470.765	436.905	Continuing	Continuing
657123: *Integration*	-	0.000	27.875	29.717	0.000	29.717	31.099	32.221	30.725	31.324	Continuing	Continuing

Note

In accordance with Congressional direction in the FY22 enacted budget, funds in Project 657120, Next Gen OPIR Block 0 GEO will be distributed to newly created program element 1206443SF, Next Gen OPIR - GEO. Budget will be submitted in the new PE for the next budget cycle.

In accordance with Congressional direction in the FY22 enacted budget, funds in Project 657121, Next Gen OPIR Block 0 Polar will be distributed to newly created program element 1206444SF, Next Gen OPIR - Polar. Budget will be submitted in the new PE for the next budget cycle.

In accordance with Congressional direction in the FY22 enacted budget, funds in Project 657106, Next Gen OPIR Ground (FORGE) will be distributed to newly created program element 1206440SF, Next Gen OPIR - FORGE. Budget will be submitted in the new PE for the next budget cycle.

A. Mission Description and Budget Item Justification

The Next Generation Overhead Persistent Infrared (Next-Gen OPIR) program will succeed the current Space Based Infrared System (SBIRS) and will provide improved missile warning, missile defense, battlespace awareness, and technical intelligence collection capabilities that are more survivable against emerging adversary threats. The program will deliver satellites in a diverse set of orbits to meet mission coverage needs; a modular, extensible, and cyber-hardened ground system to operate and process mission data downlinked from on-orbit assets; an on-ramp to demonstrate novel infrared technologies; and an integration effort will identify, plan, manage and execute integration activities at the enterprise level. The program is comprised of five projects, summarized below:

1. Next-Gen OPIR Space Modernization Initiative (SMI) (Project 657009/Program Element 1206442SF): To better enable response to emerging global missile threats, SMI advances capabilities and reduces risk through three major thrust areas: Demonstrations/Prototypes, Technology Maturation, and Data Exploitation. Demonstrations mature technologies by delivering ground and on-orbit prototypes. Demonstrations advance OPIR capabilities for missile warning and tracking ensuring a low risk, smooth transition of advanced technology to future operational systems. Technology Maturation focuses investments on high pay-off critical components to reduce production risks and development costs. Technology Maturation focuses development on advanced IR sensing optics and electronics; resiliency hardware and software; and on-board processing algorithms and on-board computers. Data Exploitation enables access to OPIR data sources to expand technical intelligence

and battlespace awareness processing and data dissemination tools to support warfighters and other data users. SMI supports Next-Gen OPIR by maturing new technologies to enable detection of new and challenging missile threats. SMI funds engineering activities to reduce both production and future system costs through manufacturing and producibility enhancements, and technology insertion. SMI generally includes studies and risk reduction activities to evolve the current Program of Record (PoR) constellation and/or simultaneously mature breakthrough technologies to create a leap in capability for follow-on systems.

2. Next-Gen OPIR Ground (Project 657106/Program Element 1206440SF): Next-Gen OPIR Ground, also known as Future Operationally Resilient Ground Evolution (FORGE), consists of Command and Control (C2) migration to the Space Force's Enterprise Ground Services (EGS), modernization of Mission Data Processing (MDP) to implement an open framework, and required development and/or upgrades to Relay Ground Stations (RGS) to meet United States Space Command guidance on the current and future space domain demands. FORGE and EGS efforts combined will provide the flexibility and scalability to integrate new satellites, sensors, and capabilities more rapidly and efficiently in order to meet evolving threats and warfighter needs. Identify shared/common platform, infrastructure, and data layer solutions to support open frameworks and architectures across the enterprise ground portfolio. The Next-Gen OPIR ground efforts enable cyber enhancements for both space and ground systems. EGS will introduce common ground services such as Telemetry, Tracking, and Commanding (TT&C); mission management; and automation. To support initial Next-Gen OPIR Space satellite launches without driving risks into the FORGE development schedule, the program will establish a risk reduction ground Next-Gen OPIR Interim Operations (NIO) capability based on a limited Space Based Infrared System (SBIRS) Block 20 solution that can be utilized if FORGE is delayed.

3. Next-Gen OPIR Space, Block 0 GEO (NGG) (Project 657120/Program Element 1206443SF): Joint Requirements Oversight Council Memorandum (JROCM) 130-17, dated 21 December 2017, directs the development of the next generation of strategically survivable space-based missile warning OPIR platforms in both GEO and Polar orbits. The Program Office is acquiring the NGG capability in two contract actions. Phase 1, awarded in August 2018, encompasses requirements analysis, design/ development, critical path flight hardware procurement, and risk reduction efforts leading to a System Critical Design Review (CDR). Phase 2 was awarded in FY 2021 for the manufacturing, assembly, system integration and test, launch, and early on-orbit test, through operational acceptance of NGG satellites 1-3. The first GEO satellite is required no later than FY 2025.

4. Next-Gen OPIR Space, Block 0 Polar (NGP) (Project 657121/Program Element 1206444SF): 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 May 2020, encompasses design and development, critical path flight hardware procurement, and risk reduction efforts leading to a System CDR. 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. The first Polar satellite is required in FY 2028.

5. Integration (Project 657123/Program Element 1206442SF): The Next Generation OPIR Integration project includes the direct Enterprise Systems Engineering and Integration (SE&I) efforts associated with the Government's primary role in, and tasks necessary to accomplish, the critical lead system integration function with the Next Gen OPIR enterprise material segments (Next Gen GEO, Next Gen Polar, Next Gen Ground, and the Resilient Missile Warning/Missile Tracking architecture). The focus of the Integration project is on system-level integration requirements between segments such as Space to Ground. This differs from integration within each segment which refers to subsystem-level integration between subsystems such as a spacecraft bus to the mission payload. The Government Integrator directs the Next Gen OPIR current enterprise architecture and system definition, controls and validates interfaces, ensures compatibility of Next Gen systems, and develops/manages plans

for execution and fielding of the Next Gen OPIR Enterprise. Further, the Integrator executes unique Model Based System Engineering and integration requirements of each segment by providing modeling, simulation, and technical analyses of Government-directed enterprise level trades among the Next Gen OPIR segments. These trades lead to definition, management, maintenance, and evolution of the Next Gen OPIR Enterprise requirements and interface technical documents to ensure the integrity of the enterprise technical baseline.

Space acquisition must respond with speed and agility to emerging adversary threats. Space Systems Command (SSC) has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SSC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose existing capabilities.

The total cost of the FORGE Rapid Prototyping Middle Tier of Acquisition effort is 2,849.44 million, including RDT&E and procurement of prototype units. FORGE Rapid Prototyping 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. The FORGE RP MTA effort only represents a portion of the entire FORGE program.

The total cost of the Next Gen OPIR Space (GEO and Polar) Middle Tier of Acquisition effort is 8,074.5 million, including RDT&E and procurement of prototype units. Next Gen OPIR 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. The NG OPIR Space (GEO and Polar) effort only represents a portion of the entire GEO and Polar programs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Next-Gen OPIR weapon system capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 1206392SF and 1206389SF.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because the majority of Projects under PE 1206442SF have been declared Section 804 Rapid Prototype efforts 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
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 5: *System Development & Demonstration (SDD)*			R-1 Program Element (Number/Name) PE 1206442SF *I Next Generation OPIR*		
B. Program Change Summary ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**
Previous President's Budget	2,318.864	2,451.256	0.000	0.000	0.000
Current President's Budget	2,318.864	125.853	3,479.459	0.000	3,479.459
Total Adjustments	0.000	-2,325.403	3,479.459	0.000	3,479.459
• 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	-2,325.403			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	3,479.459	0.000	3,479.459

Change Summary Explanation

FY 2023: The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY 2023 cannot be made in a relevant manner.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3620F / 5	R-1 Program Element (Number/Name) PE 1206442SF / *Next Generation OPIR*	Project (Number/Name) 657009 / *Space Mod Initiative*	

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
657009: *Space Mod Initiative*	-	194.662	97.978	224.084	0.000	224.084	341.045	320.831	273.532	218.582	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Next-Gen OPIR Space Modernization Initiative (SMI) (Project 657009): To better enable response to emerging global missile threat, SMI advances capabilities and reduces risk through three major thrust areas: Demonstrations/Prototypes, Technology Maturation, and Data Exploitation. Demonstrations mature technologies by delivering ground and on-orbit prototypes. Demonstrations advance OPIR capabilities for missile warning and tracking ensuring a low risk, smooth transition of advanced technology to future operational systems. Technology Maturation focuses investments on high pay-off critical components to reduce production risks and development costs. Technology Maturation focuses development on advanced IR sensing optics and electronics; resiliency hardware and software; and on-board processing algorithms and on-board computers. Data Exploitation enables access to OPIR data sources to expand technical intelligence and battlespace awareness processing and data dissemination tools to support warfighters and other data users. SMI supports Next-Gen OPIR by maturing new technologies to enable detection of new and challenging missile threats. SMI funds engineering activities to reduce both production and future system costs through manufacturing and producibility enhancements, and technology insertion. SMI includes studies and risk reduction activities to evolve the current Program of Record (PoR) constellation and simultaneously mature breakthrough technologies to create a leap in capability for follow-on systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Demonstrations/Prototypes	133.139	37.381	135.758
Description: Demonstrations and prototypes mature and prove viability of OPIR technologies, missions, and performance with ground and on-orbit prototypes. They enable transition of improved capabilities to full scale architectures and inform critical decisions for future fielding as well as support maturation of Mission Data Processing (MDP) algorithms for tactical and strategic applications by providing additional sensors and algorithms to advance detection and tracking. The Missile Track Custody Demo leverages the Missile Track Custody Digital Engineering Risk Reduction effort, to support a digital engineering demonstration and prototype development that will prove the capability to track emerging missile threats outlined in the Missile Warning (MW) Missile Defense (MD) Capability Development Document (CDD). The effort assesses the feasibility of missile tracking from Medium Earth Orbit (MEO) with ground based hardware in-the-loop simulations and on-orbit satellites. The primary mission of the digital engineering effort is to show the feasibility of providing track custody data from post-boost to burn-out of dim upper stage missiles. The Missile Track Custody Digital Engineering Risk Reduction effort will fill noted knowledge gaps identified by the Integrated OPIR Missile Warning & Missile Defense Interagency Team by developing digital models and engineering development units. Space Systems Command's Missile Track Custody Demonstrations, combined with Space Development Agency and Missile Defense Agency (MDA) OPIR system data, are critical to the future combined missile warning and defense architecture. The effort will carry two mission payload vendor designs through Mission Payload Critical Design Review (CDR) in FY 2022 and has contract options to build, test, integrate and launch up to six Space Vehicles (SV) into			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657009 / *Space Mod Initiative*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
MEO followed by on-orbit experimentation and support. The effort will deliver CDR level designs and digital models to the USSF and OSD for detailed architecture analysis. The Wide Field Of View (WFOV) demonstration matures WFOV technology and validates multi-mission capabilities including the potential for a single sensor to simultaneously perform strategic and tactical missions. WFOV is ready for launch in FY 2022. Collection of on-orbit WFOV data is critical to develop algorithms to process large data set generated by emerging large format focal planes and reduce risk for future architectures. The WFOV payload and bus are separate development efforts. The WFOV testbed program provides a bus capable of demonstrating on-orbit mission performance and mitigating the development risks for employing WFOV sensors. The testbed program will integrate, test, and launch a prototype WFOV payload with a government owned free flyer spacecraft. The WFOV testbed will host the WFOV payload. As an integrated SV, the WFOV system will prove on-orbit mission performance of WFOV sensors. The WFOV payload will provide the critical on-orbit data required to develop and validate WFOV algorithms, as well as on-board MDP throughput requirements for strategic missile warning. A OSD/CAPE Missile Warning and Missile Tracking Analysis of Alternatives concluded in FY 2021 and recommended a MEO warning and tracking layer solution. The Missile Track Custody Demonstration and prototype provides the fastest and most efficient MEO solution by leveraging on-going risk reduction efforts and expanding into a full flight demonstration. ***FY 2022 Plans:*** WFOV Demonstrations: Continue to mature ground integration plan to ensure ground mission data processing and Space Vehicle Command and Control after launch. Continue development of launch and early orbit test plan to ensure Space Vehicle deployment and mission payload calibration. Refine experimentation plan to verify prototype meets requirements; and finalize transition to operations plan. Missile Track Custody Digital Engineering Risk Reduction: Execute Other Transaction Agreement for up to two contractors that culminates in a Mission Payload Critical Design Review (CDR) by end of FY 2022. Continue to develop digital engineering tools to model sensor performance across a variety of orbits and inform future OPIR architecture studies. ***FY 2023 Plans:*** Missile Track Custody Demonstrations: Continue to execute up to two Other Transaction Agreements to build and mature digital engineering Model-Based Systems Engineering tools to model performance against the Missile Track Custody Technical Requirements Document (TRD) and the Missile Warning and Missile Defense Capabilities OPIR Development Document. Select up to two vendors to proceed on to perform development culminating in a Space Vehicle Critical Design Review (CDR). Conduct a digital Space Vehicle Preliminary Design Review. Continue spacecraft bus development and purchase long lead parts. Conduct integrated demonstrations of the payload. Develop bus-to-payload interfaces, conduct spacecraft-to-ground requirements analysis and conduct early integration testing. Perform demonstrations to validate system meets space system			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657009 / *Space Mod Initiative*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
CDR entrance and exit criteria. Continue to mature Government Reference Digital Engineering Environment and Model-Based Systems Engineering (MBSE) and Performance Models to ensure that, as the designs mature, the Government can continue to manage risk while understanding system level performance or cost trades. Rapidly respond to implement system resiliency and situational awareness necessary to operate in a contested space domain. Activities may include, but are not limited to, program office support, studies, technical analysis, modeling, simulation, experimentation, prototyping, etc. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 funds increased to support development of the MEO prototype space vehicle and preliminary and critical design review campaigns, including engineering and system-level activities.			
Title: Technology Maturation ***Description:*** Assess technology needs to support resiliency of PoR assets and future architectures that are responsive to the evolving threat environment. Perform trade and design studies to assess obsolescence, affordability, capability design modifications, and CONOPS for the OPIR mission. Mature technologies and manufacturability to reduce cost, schedule, and technical risk for new component and subsystem designs that may be used in the future systems. Mature technologies including algorithms, Focal Plane Arrays (FPA), optical filters, on-board processors, auxiliary resiliency payloads, and other payload components for future missile warning satellites, and reconstitution capabilities. Develop modeling and simulation (M&S) capabilities, and engineering model prototypes for hardware/software integration and testing. These efforts will reduce risk and mature technologies applicable to future systems and architectures. Additionally, develop test beds to validate/verify requirements and ensure technical maturity for next-generation payload technologies as well as threat mitigation components and techniques. ***FY 2022 Plans:*** Ongoing technology maturation efforts will deliver initial flight grade FPAs in early FY 2022. Accelerate data-processing technologies, including resilient algorithms, delivering standard scenes, and studies to investigate minimum detectable targets and raid scenarios. Begin maturing additional new technologies in support of emerging program of record needs, including resilient FPAs, radiation hardened memory, and reduced cost cryo-coolers. Continue prototyping resilient hardware and maturing critical technologies that include large format FPAs, resilient FPAs, resilient processing algorithms, pointing mirrors, threat sensors, and processors for earliest integration into Next-Gen OPIR or similar programs. Continue to develop technology options to address emerging threats and stressing targets to current and future OPIR systems. Continue to develop and space qualify emerging technologies to reduce risk for Next-Gen OPIR satellites. Continue to develop system resiliency and advanced technology concepts via ground and on-orbit demonstrations to validate performance, develop CONOPS, and prove enhanced system capabilities. Continue to develop test bed components for resiliency, requirements verification/validation, and to enhance technology maturation. Additionally, FY 2022 funding will allow the program to implement system resiliency and situational	10.526	4.854	11.952

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
awareness necessary to operate in the contested space domain. Activities include, but are not limited to, program office support, studies, technical analysis, experimentation, prototyping, etc. ***FY 2023 Plans:*** Evolve ongoing OPIR technology maturation efforts to further accelerate data-processing technologies, including resilient, onboard GEO algorithms, delivering standard scenes, and studies to investigate minimum detectable targets and raid scenarios. Continue to mature additional technologies in support of emerging program of record needs, including resilient, high dynamic range FPAs, resilient onboard MEO algorithms, radiation hardened memory, and reduced cost cryo-coolers. Advance prototyping resilient hardware and maturing critical technologies that include large format FPAs, resilient FPAs, resilient processing algorithms, pointing mirrors, threat sensors, and processors for earliest integration into Next-Gen OPIR or similar programs. Maintain and enhance efforts to develop technology options to address emerging threats and stressing targets to current and future OPIR systems. Progress development and space qualification of emerging technologies to reduce risk for Next-Gen OPIR satellites. Boost development of system resiliency and advanced technology concepts via ground and on-orbit demonstrations to validate performance, develop CONOPS, and prove enhanced system capabilities. Expand the development of test bed components for resiliency, requirements verification/validation, and to enhance technology maturation. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 funding level is consistent with FY 2022 actuals investments in Tech Maturation due to the FY 2022 OPIR mission priorities.			
Title: Data Exploitation ***Description:*** Data exploitation efforts will exploit existing OPIR data sources including Defense Support Program (DSP), SBIRS Highly Elliptical Orbit (HEO), SBIRS GEO Scanner, SBIRS GEO Starer, WFOV demonstrations, prototypes, and other sources. Efforts will exploit data through collection, processing, fusion, data dissemination, algorithm development and testing, network connectivity, and sensor performance assessments. SBIRS and other sensors provide a rich data set for exploitation. SMI data exploitation enables access to raw and processed data for data analysts and application developers to expand capabilities for battlespace awareness and other applications. SMI data exploitation efforts are complementary to, and enhance, the exploitation capabilities delivered by the Program of Record (PoR) and prototypes. SMI will develop tools and algorithms to enable users to apply OPIR data to support their mission needs. Data exploitation efforts also evaluate tools for C2, mission management, and MDP to reduce risk. Data exploitation efforts evolve the PoR ground system to an open architecture that could support PoR and other future satellite alternatives. SMI ground system development activities seek to demonstrate the performance of an evolved ground system architecture capable of supporting multiple satellites, payloads, and missions through management and data processing. These efforts seek to lower operating costs with enhanced net-centric and service-oriented features with a new flexible expansion capability. Data exploitation efforts support demonstration and prototype architecture planning and experimentation.	50.997	55.743	76.374

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
FY 2022 Plans: Innovate wildland fire tracking capabilities and incorporate applications into national fire tracking solution. Begin Data Exploitation efforts on Wide Field of View (WFOV) system as the satellite transitions from on-orbit check-out to its detailed experimentation plan. Incorporate results from WFOV payload calibration into WFOV MDP software. Develop and test WFOV calibration algorithm and execute the WFOV on-orbit calibration. Continue expanding operational capability of the data exploitation lab enabling applications to advance from a prototype state to a near-fully operational capability. Complete expansion of a Battlespace Awareness real-time capability in the OPIR Battlespace Awareness Center (OBAC) that will integrate applications and services matured in the data exploitation government lab. Continue to develop, expand, and manage the common open framework architecture of the data exploitation lab and real-time OBAC capability. Support development of experimental operations and additional uses of the program of record data in the OBAC. Develop prototype processes for managing an open framework architecture. Develop applications for the OBAC that transition to the Future Operationally Resilient Ground Evolution (FORGE). Support experimentation, technology maturity, and evolution of exploitation algorithms and continue to provide enhanced ground segment capability and tools for C2, data collection, mission processing, and data dissemination via the Space Enterprise Consortium contract vehicle. Enhance mission resiliency and data exploitation of SBIRS and other OPIR data. Continue to collaborate with the Intelligence Community (IC) and Missile Defense Agency (MDA) to enhance Joint OPIR Ground (JOG) study initiatives. Develop and demonstrate the performance of a Government owned open and extensible evolved ground system architecture to support multiple satellites, payloads, and missions. Demonstrate data processing for any infrared payload with enhanced net-centric and service-oriented features with a flexible expansion capability.			
FY 2023 Plans: Continue to innovate wildland fire tracking capabilities and incorporate applications into national fire tracking solution. Continue operations and Data Exploitation efforts on Wide Field of View (WFOV) system as the satellite transitions from on-orbit check-out to its detailed experimentation plan. Incorporate results from WFOV payload calibration into WFOV MDP software. Develop and test WFOV calibration algorithm and execute the WFOV on-orbit calibration. Continue expanding operational capability of the data exploitation lab enabling applications to advance from a prototype state to a near-fully operational capability. Continue to support development of experimental operations and additional uses of the program of record data in the OBAC. Develop prototype processes for managing an open framework architecture. Develop applications for the OBAC that transition to the Future Operationally Resilient Ground Evolution (FORGE). Continue to support experimentation, technology maturity, and evolution of exploitation algorithms and continue to provide enhanced ground segment capability and tools for C2, data collection, mission processing, and data dissemination via the Space Enterprise Consortium (SpEC) Other Transaction Agreements (OTAs) and AFRL/RI Broad Agency Announcement (BAA) contract vehicle. Enhance mission resiliency and data exploitation of SBIRS and other OPIR data using BAAs and OTAs. Continue to collaborate with the Intelligence Community (IC) and Missile Defense Agency (MDA) to enhance Joint OPIR Ground (JOG) study initiatives. Continue to develop and demonstrate the performance of a Government owned open and extensible evolved ground system architecture to support multiple satellites, payloads, and			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
missions, as required. Evolve data processing for infrared payload applications with enhanced net-centric and service-oriented features. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 increased due to the ramp up of WFOV data exploitation activities.			
Accomplishments/Planned Programs Subtotals	194.662	97.978	224.084

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• SPAF 01 MSSBIR: *SBIR High (Space)*	160.891	156.481	-	-	-	-	0.000	0.000	-	0.000	317.372

Remarks

D. Acquisition Strategy

The program office will use a variety of acquisition approaches to execute various concept studies, technology maturation efforts, testbed/prototype demonstrations, and data exploitation initiatives and projects. The program office will collaborate with appropriate contracting agencies to support each individual effort. Data exploitation efforts in the laboratory and the OPIR Battlespace Awareness Center (OBAC) will leverage existing external contracts, as well as new internal competitive contracts. Activities, such as SBIRS obsolescence and affordability enhancements to the existing satellite design, will leverage existing Program of Record contracts. Technology maturation and component prototyping and/or qualification could leverage existing contracts. Broad Agency Announcements (BAAs) and Other Transaction Authorities (OTA) are planned in collaboration with Air Force Research Lab (AFRL) and other government agencies. Where practical, other efforts are competed. A SSC BAA will be used to acquire and mature high priority technology items. Federally Funded Research and Development Center (FFRDC), University Affiliated Research Centers (UARCs), and Systems Engineering and Technical Assistance (SETA) contractors will also be used to conduct and support studies. New technology, replacement components, and system designs will be acquired with government data rights to the maximum extent, allowing incorporation into future OPIR satellite production or system development. Contracting partnerships with other agencies will also be used to study, develop, demonstrate, and prove emerging capabilities. To accelerate contracting actions and program execution, the Space Enterprise Consortium (SpEC) will be utilized to execute OTAs to conduct data exploitation improvements at the OBAC and Tools, Application, Processing (TAP) Lab. A local SSC contract is being utilized for services at the OBAC and TAP Lab.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force			Date: April 2022
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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
Demonstrations/Prototypes	Various	Various : Various	-	121.131	Dec 2020	30.805	Dec 2021	124.093	Dec 2022	-		124.093	Continuing	Continuing	-
Technology Maturation	Various	Various : Various	-	9.577	Jan 2021	4.000	Jan 2022	10.925	Jan 2023	-		10.925	Continuing	Continuing	-
Data Exploitation	Various	Various : Various	-	46.397	Jan 2021	45.930	Jan 2022	69.812	Jan 2023	-		69.812	Continuing	Continuing	-
Technical Mission Analysis	RO	Aerospace Corporation : El Segundo, CA	-	7.012	Oct 2020	8.012	Oct 2021	8.140	Oct 2022	-		8.140	Continuing	Continuing	-
		Subtotal	-	184.117		88.747		212.970		-		212.970	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	Various	Various : Various	-	6.052	Dec 2020	6.581	Dec 2021	6.314	Dec 2022	-		6.314	Continuing	Continuing	-
A&AS	Various	Various : Various	-	4.193	Oct 2020	2.214	Oct 2021	4.400	Oct 2022	-		4.400	Continuing	Continuing	-
Other Support	Various	Various : Various	-	0.300	Jan 2021	0.436	Jan 2022	0.400	Jan 2023	-		0.400	Continuing	Continuing	-
		Subtotal	-	10.545		9.231		11.114		-		11.114	Continuing	Continuing	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
Project Cost Totals	-	194.662		97.978		224.084		-		224.084	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 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657009 / *Space Mod Initiative*

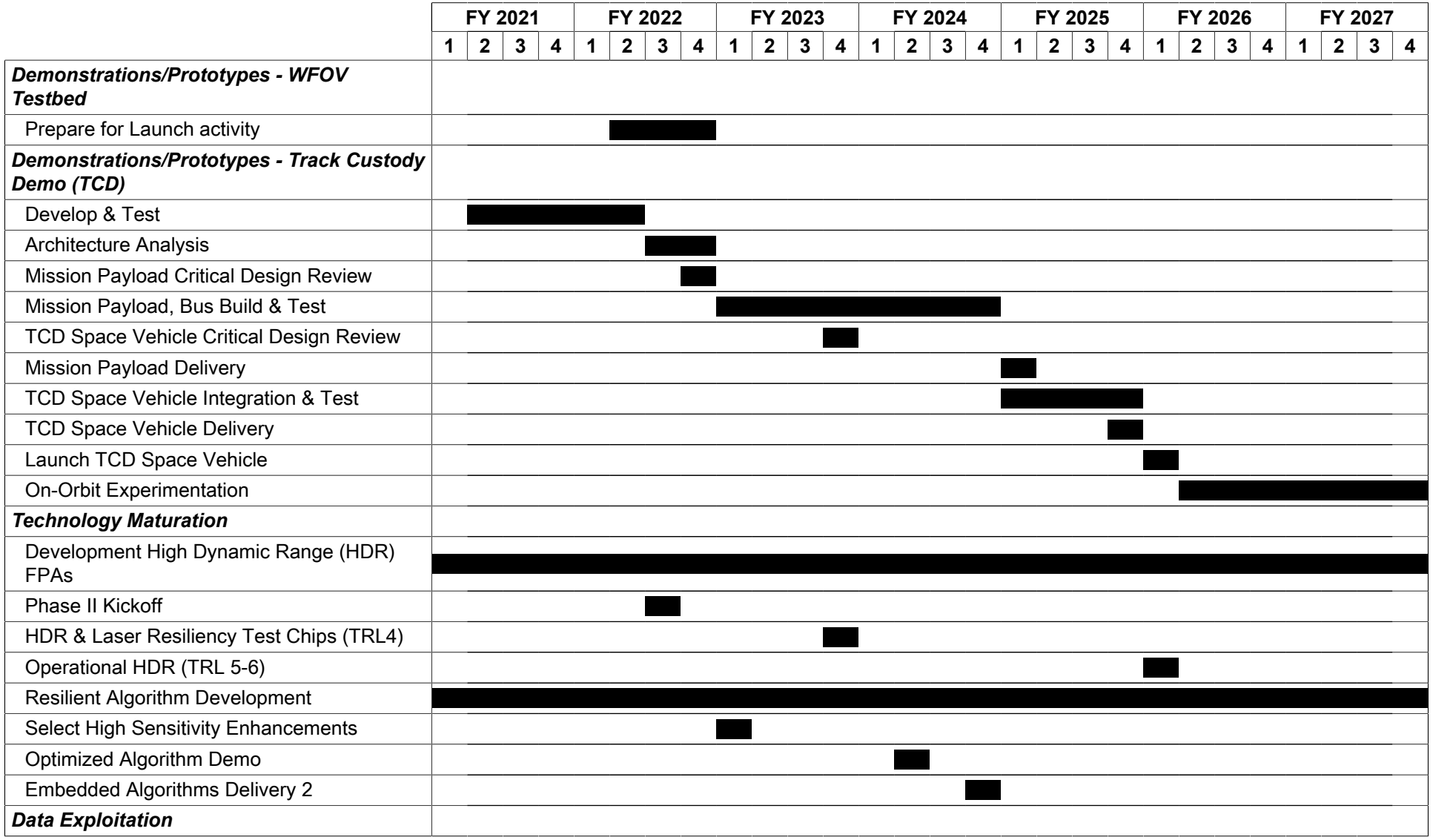

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657009 / *Space Mod Initiative*

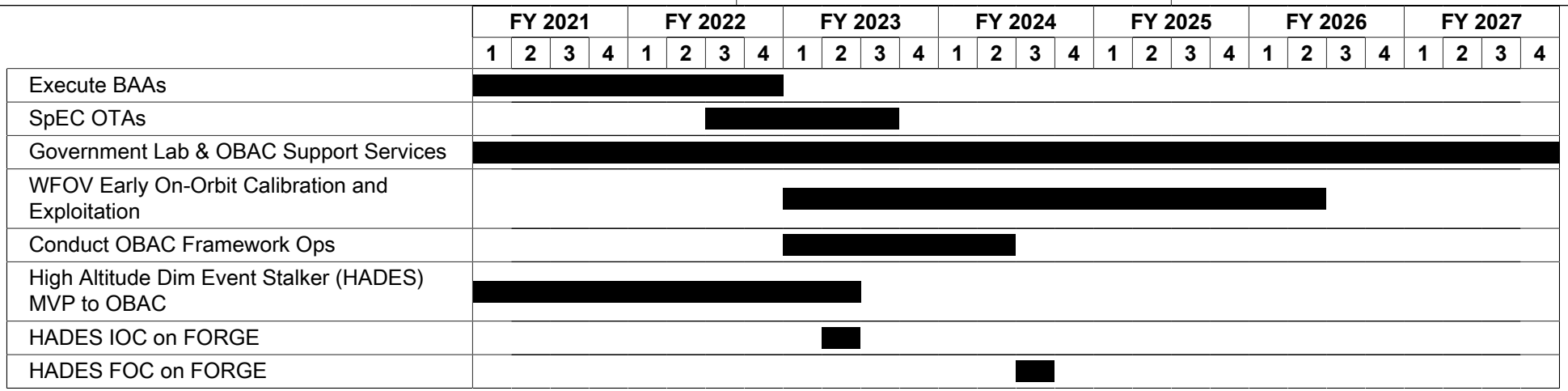

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657009 / *Space Mod Initiative*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Demonstrations/Prototypes - WFOV Testbed				
Prepare for Launch activity	2	2022	4	2022
Demonstrations/Prototypes - Track Custody Demo (TCD)				
Develop & Test	2	2021	2	2022
Architecture Analysis	3	2022	4	2022
Mission Payload Critical Design Review	4	2022	4	2022
Mission Payload, Bus Build & Test	1	2023	4	2024
TCD Space Vehicle Critical Design Review	4	2023	4	2023
Mission Payload Delivery	1	2025	1	2025
TCD Space Vehicle Integration & Test	1	2025	4	2025
TCD Space Vehicle Delivery	4	2025	4	2025
Launch TCD Space Vehicle	1	2026	1	2026
On-Orbit Experimentation	2	2026	4	2027
Technology Maturation				
Development High Dynamic Range (HDR) FPAs	1	2021	4	2027
Phase II Kickoff	3	2022	3	2022
HDR & Laser Resiliency Test Chips (TRL4)	4	2023	4	2023
Operational HDR (TRL 5-6)	1	2026	1	2026
Resilient Algorithm Development	1	2021	4	2027
Select High Sensitivity Enhancements	1	2023	1	2023
Optimized Algorithm Demo	2	2024	2	2024
Embedded Algorithms Delivery 2	4	2024	4	2024
Data Exploitation				

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 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657009 / *Space Mod Initiative*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Execute BAAs	1	2021	4	2022
SpEC OTAs	3	2022	3	2023
Government Lab & OBAC Support Services	1	2021	4	2027
WFOV Early On-Orbit Calibration and Exploitation	1	2023	2	2026
Conduct OBAC Framework Ops	1	2023	2	2024
High Altitude Dim Event Stalker (HADES) MVP to OBAC	1	2021	2	2023
HADES IOC on FORGE	2	2023	2	2023
HADES FOC on FORGE	3	2024	3	2024

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3620F / 5	R-1 Program Element (Number/Name) PE 1206442SF / *Next Generation OPIR*	Project (Number/Name) 657106 / *Next-Gen OPIR Ground*	

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
657106: *Next-Gen OPIR Ground*	-	384.289	0.000	612.529	0.000	612.529	662.760	557.800	371.924	286.841	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In accordance with Congressional direction in the FY22 enacted budget, funds in Project 657106, Next Gen OPIR Ground (FORGE) will be distributed to newly created program element 1206440SF, Next Gen OPIR Ground. Budget will be submitted in the new PE for the next budget cycle.

A. Mission Description and Budget Item Justification

Next-Gen OPIR Ground (Project 657106/Program Element 1206440SF): Next-Gen OPIR Ground, also known as Future Operationally Resilient Ground Evolution (FORGE), consists of Command and Control (C2) migration to US Space Force (USSF) Enterprise Ground Services (EGS), modernization of Mission Data Processing (MDP) to implement an open framework and develop mission applications, and required development and/or upgrades to Relay Ground Stations (RGS) to meet USSF current and future space domain demands. FORGE and EGS efforts combined will provide the flexibility and scalability to integrate new satellites, sensors and capabilities more rapidly and efficiently in order to meet evolving threats and warfighter needs. Identify shared/common platform, infrastructure, and data layer solutions to support open frameworks and architectures across the enterprise ground portfolio. The Next-Gen OPIR ground efforts enable cyber enhancements for both space and ground systems. EGS will introduce common ground services such as Telemetry, Tracking, and Commanding (TT&C); mission management; and automation. To support initial Next-Gen OPIR Space satellite launches without driving risk into the FORGE development schedule, the program has established a risk reduction ground Next-Gen OPIR Interim Operations (NIO) capability based on a limited Space Based Infrared System (SBIRS) Block 20 solution.

FORGE 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: FORGE - C2	44.855	0.000	72.301
Description: The Space Force is transitioning to Enterprise Ground Services, a Government-owned ground architecture that focuses on Mission Management (MM), TT&C, and Ground Control (GC) utilizing common services. FORGE C2 creates Mission Unique Software (MUS) and provides sensor/spacecraft specific C2 capabilities to plug into the EGS suite of services. C2 of the legacy SBIRS constellation assets will be transitioned using the FORGE C2 portion of EGS.			
FY 2022 Plans: FY22 Current Year Plans are captured in Program Element 1206440SF per direction in the FY22 Appropriations Bill.			
FY 2023 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657106 / *Next-Gen OPIR Ground*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
GNOME: Continue development and integration of C2 MUS and core applications for a GEO space vehicle onto EGS. Conduct live testing of developed MUS and integrated system at all applicable test locations. Work with NRL to refine software required to operate MUS with core applications on the EGS framework (e.g., Neptune & VMOC) and support deficiency burn-down from test events. C2X: Continue development of MUS, SBIRS Transport Network and integration activities to support migration of all HEOs and GEO assets to EGS/FORGE framework. Continue to develop or refine NRL software required to operate core applications, and conduct preliminary testing. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 increased compared to the FY 2022 funding amount in PE 1206440SF by $8.05M as SBIRS C2 constellation cutover activities ramp-up.			
Title: FORGE - Mission Data Processing (MDP)	198.682	0.000	294.054
Description: The FORGE MDP effort creates a replacement for the existing legacy SBIRS Ground mission processing applications which have cyber security and scalability limitations. MDP is creating a cyber-resilient, flexible, and scalable open framework capable of meeting current and future threats. MDP will plan OPIR and other mission data resource utilization to meet warfighter requirements. MDP provides the ability to ingest and publish varying levels of processed data for enhanced processing, perform efficient and systematic upgrades, and orchestrate real-time wide-band processing for ITW/AA and non-ITW/AA mission areas. The MDP system provides modular mission applications to meet the future challenges of Missile Warning (MW), Missile Defense (MD), Battlespace Awareness (BA), Technical Intelligence (TI). MDP is critical to making cyber-secure, effective use of the increased amounts of data that will be collected by Next-Gen OPIR. ***FY 2022 Plans:*** FY22 Current Year Plans are captured in Program Element 1206440SF per direction in the FY22 Appropriations Bill. ***FY 2023 Plans:*** Deliver non-ITW/AA certified framework to MCS and MCS-Backup. Continue development of follow-on MDPAF effort. Continue development of MDPAP effort. Continue development of SBIRS Legacy sensor specific processing software. Continue development for Sensor Specific Processing (SSP) to support migration of all SBIRS HEOs and GEO assets to FORGE framework. Conduct required studies to identify shared platform, infrastructure, and data layer solutions that will inform future concepts and activities in support of enterprise open frameworks and architectures as well as risk reduction activities, technical analysis for common platform, infrastructure and data layers for ground and communication systems to build upon. FY 2023 funding will allow the program to implement system resiliency, cyber security and situational awareness necessary to operate			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657106 / *Next-Gen OPIR Ground*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
in the contested space domain. Activities include, but are not limited to, program office support, studies, technical analysis, experimentation, and prototyping. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 decreased compared to the FY 2022 funding amount in PE 1206440SF by $6.658M as GNOME activities begin to ramp down.			
Title: FORGE - Next Gen Transition ***Description:*** The title of this major thrust has changed from "Next Gen Interim Operations (NIO)" to "FORGE-Next Gen Transition" to better encompass and describe all of the associated activities. Next Gen is the development to transition future OPIR space systems to using FORGE and EGS for mission processing and C2. Included in this effort is the development of an interim system (NIO) to ensure the most critical ground processing is ready in time for the first Next-Gen OPIR satellite launch. NIO will create mono tracks and publish those mono tracks to the existing SBIRS Block 20 ground system for fusion and dissemination to the warfighter. ***FY 2022 Plans:*** FY22 Current Year Plans are captured in Program Element 1206440SF per direction in the FY22 Appropriations Bill. ***FY 2023 Plans:*** Continue development of the risk reduction system, and conduct early integration and testing events. Continue integration of FORGE C2 and EGS functions. Continue install of hardware at the Consolidated and Continental United States (CONUS) Relay ground sites. Continue integration of mission data processing applications into the framework to support NGG. Continue to execute NGG and NGP contract. Start Space to Ground capability testing with NGG-1. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 increased compared to the FY 2022 funding amount in PE 1206440SF by $10.107M as initial integration and testing events begin.	137.704	0.000	169.174
Title: FORGE - Relay Ground Stations (RGSs) ***Description:*** OPIR data collected in space must be relayed to ground entry points and routed to provide warfighters with timely information. The legacy SBIRS ground architecture requires RGS upgrades and new RGSs to receive OPIR data from legacy and future Next-Gen OPIR assets. This effort expands the set of RGSs with up to three additional RGSs that will use common hardware capable of supporting all Next Gen OPIR space assets. This effort will provide data to the MCS for processing and dissemination to warfighters and National Command Authorities. The RGS modernization effort will include the ability to operate antennas, process data, and support older Defense Support Program (DSP) assets.	3.048	0.000	77.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657106 / *Next-Gen OPIR Ground*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
FY 2022 Plans: FY22 Current Year Plans are captured in Program Element 1206440SF per direction in the FY22 Appropriations Bill. ***FY 2023 Plans:*** Relay Ground Station (RGS): Continue build-out of RGS-A site facility which is an integral part of RGS development. Continue antenna/infrastructure installation and prepare for check out. Purchase high-value antenna and associated hardware for RGS-A site ramp up of labor/construction activities. Perform site surveys and planning for the next RGS site. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 increased compared to the FY 2022 funding amount in PE 1206440SF by $54.000M due to hardware/antenna purchases and continuing effort to install, integrate and test first site while initiating planning and design efforts on the second site.			
Accomplishments/Planned Programs Subtotals	384.289	0.000	612.529

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Next Gen OPIR Ground program is executing an acquisition strategy using Middle Tier of Acquisition (MTA) authority for Rapid Prototyping approved via Acquisition Decision Memorandum on 5 Dec 19.

To support this acquisition strategy, the program will follow an agile approach to develop capabilities and a robust DevSecOps (Development/Security/Operations) solution to deliver the capabilities. The FORGE program is pursuing a rapid prototyping approach founded primarily on software and infrastructure reuse, partnerships with other programs, limited scope, use of existing contracts where necessary, and maximizing competition where possible. For the MDP thrust, the FORGE program will competitively use Other Transaction (OT) authorities to develop the framework and the applications. For the C2 thrust, the program team will use existing Space Systems Command (SSC) contracts with an emphasis to on-ramp to Enterprise Ground Services as soon as practical. For the Next Gen Transition effort, the program is using the Next Gen GEO contract with the prime contractor. The program is executing the MDP, C2, and NIO thrusts within the scope of its Middle Tier of Acquisition authorities. The program is executing the RGS thrust using traditional acquisition authorities.

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 1206442SF / *Next Generation OPIR*	Project (Number/Name) 657106 / *Next-Gen OPIR Ground*	

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
FORGE - C2	Various	Various : Various	-	44.850	Nov 2020	-		72.301	Jun 2023	-		72.301	Continuing	Continuing	-
FORGE - MDP	Various	Various : Various	-	154.433	Nov 2020	-		238.367	Nov 2022	-		238.367	Continuing	Continuing	-
FORGE - Next Gen Transition	Various	Various : Various	-	137.704	Nov 2020	-		169.174	Nov 2022	-		169.174	Continuing	Continuing	-
FORGE - RGS-A	Various	Various : Various	-	3.048	Nov 2020	-		67.000	Nov 2022	-		67.000	Continuing	Continuing	-
FORGE - RGS Second Site	TBD	Various : Various	-	-		-		10.000	Mar 2023	-		10.000	Continuing	Continuing	-
SE&I	TBD	TBD : TBD	-	13.891	Nov 2020	-		15.746	Dec 2022	-		15.746	Continuing	Continuing	-
Technical Mission Analysis	RO	Aerospace Corporation : El Segundo/ CA	-	2.130	Nov 2020	-		2.168	Jan 2023	-		2.168	Continuing	Continuing	-
		Subtotal	-	356.056		-		574.756		-		574.756	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	-	3.838	Jan 2021	-		4.782	Jan 2023	-		4.782	Continuing	Continuing	-
A&AS	Various	Various : Various	-	24.290	Feb 2021	-		32.641	Feb 2023	-		32.641	Continuing	Continuing	-
Other Support	Various	Various : Various	-	0.105	Nov 2020	-		0.350	Nov 2022	-		0.350	Continuing	Continuing	-
		Subtotal	-	28.233		-		37.773		-		37.773	Continuing	Continuing	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
Project Cost Totals	-	384.289		-		612.529		-		612.529	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 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657106 / *Next-Gen OPIR Ground*

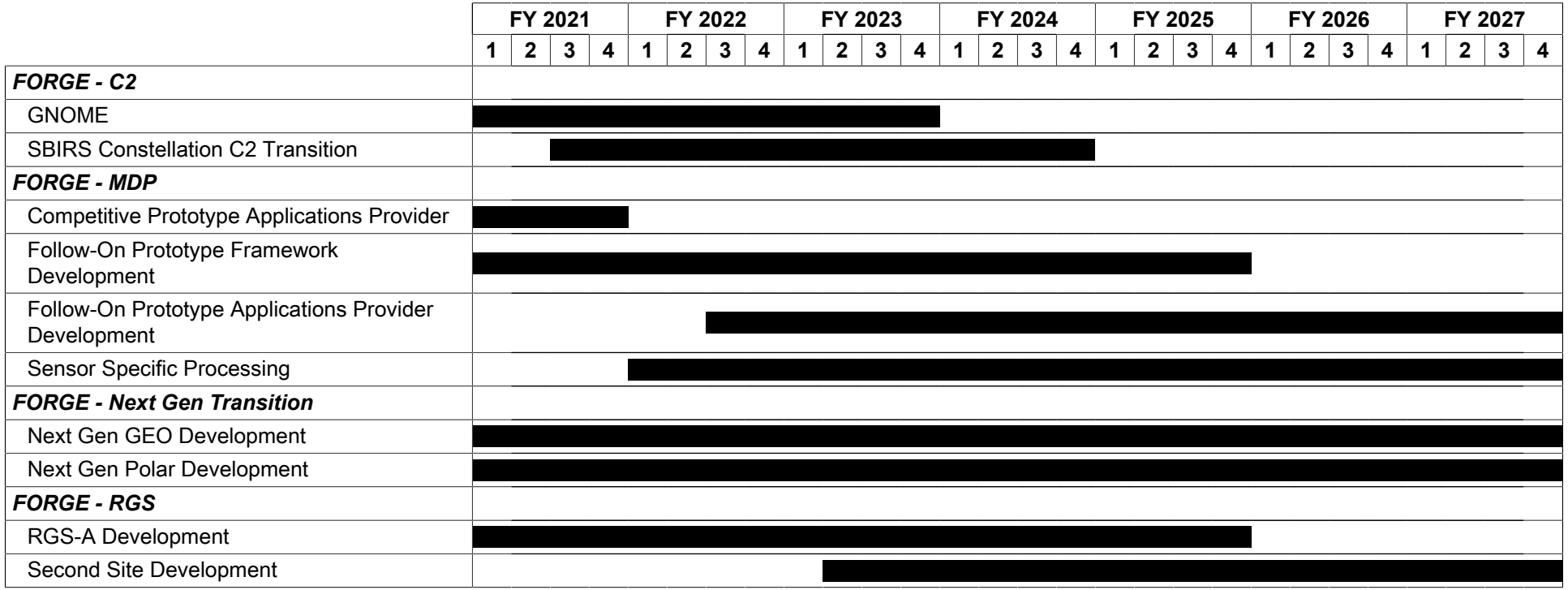

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657106 / *Next-Gen OPIR Ground*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
FORGE - C2				
GNOME	1	2021	4	2023
SBIRS Constellation C2 Transition	3	2021	4	2024
FORGE - MDP				
Competitive Prototype Applications Provider	1	2021	4	2021
Follow-On Prototype Framework Development	1	2021	4	2025
Follow-On Prototype Applications Provider Development	3	2022	4	2027
Sensor Specific Processing	1	2022	4	2027
FORGE - Next Gen Transition				
Next Gen GEO Development	1	2021	4	2027
Next Gen Polar Development	1	2021	4	2027
FORGE - RGS				
RGS-A Development	1	2021	4	2025
Second Site Development	2	2023	4	2027

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3620F / 5	R-1 Program Element (Number/Name) PE 1206442SF / *Next Generation OPIR*	Project (Number/Name) 657120 / *Next-Gen OPIR Space, Block 0 GEO*	

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
657120: *Next-Gen OPIR Space, Block 0 GEO*	-	1,402.900	0.000	1,713.933	0.000	1,713.933	907.577	636.663	452.039	462.547	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In accordance with Congressional direction in the FY22 enacted budget, funds in Project 657120, Next Gen OPIR Block 0 GEO will be distributed to newly created program element 1206443SF, Next Gen OPIR - GEO. Budget will be submitted in the new PE for the next budget cycle.

A. Mission Description and Budget Item Justification

Next-Generation Overhead Persistent Infrared (Next-Gen OPIR) Space Block 0 Geosynchronous Earth Orbit (GEO) (Project 657120/Program Element 1206443SF): The primary mission is to provide initial missile warning of a ballistic missile attack on the US, deployed forces and allies. The Next-Gen OPIR GEO (NGG) missile warning satellites enhance detection and improve reporting of intercontinental ballistic missile launches, submarine ballistic missile launches, and tactical ballistic missile launches. Development consists of 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 NGG capability in two contract actions. Phase 1 awarded in August 2018 encompasses requirements analysis, design/ development, critical path flight hardware procurement, and risk reduction efforts leading to a System Critical Design Review (CDR). Phase 2 was awarded in Jan 2021 for the manufacturing, assembly, system integration and test, launch, and early on-orbit test through operational acceptance of NGG satellites 1-3.

Next-Gen OPIR GEO 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Next-Gen OPIR Space, Block 0 GEO	1,402.900	0.000	1,713.933
Description: Development of the Next-Gen OPIR GEO missile warning satellites with a proven bus, new hardened sensors, and auxiliary payloads for increased resilience. The space segment for GEO missile warning satellites consist of a resilient architecture providing real time persistent global equatorial infrared coverage. The first GEO satellite is required in FY 2025.			
FY 2022 Plans: FY22 Current Year Plans are captured in Program Element 1206443SF per direction in the FY22 Appropriations Bill.			
FY 2023 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657120 / *Next-Gen OPIR Space, Block 0 GEO*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Continue Phase 2 efforts to build and deliver 3 GEO SVs. Continue assembly, integration and test of two competing payloads. Complete testing of at least one flight mission payload for SV #1 and delivery for integration into the SV. Continue efforts to manufacture, build, integrate, and test the GEO SV #1, including the first system-level integrated testing to enable discovery and correction of defects critical to launch. Conduct mission and auxiliary payload integration onto SV #1. Conduct SV #1 acoustic test. Continue critical path flight hardware procurement for SVs #2 & 3. Begin efforts to manufacture, build, integrate, and test the GEO SV #2, including early subsystem integration and testing. Rapidly respond to updated intelligence on threats and implement system resiliency and situational awareness necessary to operate in a contested space domain. Activities include, but are not limited to, program office support, studies, technical analysis, modeling, simulation, experimentation, prototyping, etc. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 increased compared to the FY 2022 funding amount in PE 1206443SF by $514.740M due to concurrent engineering, production, integration and test activity supporting all three Next Gen OPIR GEO Space Vehicles and two new-development OPIR mission payloads. Funds are required to preserve FY25 initial launch capability (ILC) for SV #1, place flight hardware material and vendor orders for SV 1-3, and perform space/ground integration activities. Funds required to enable the essential integration, test, and find/fix activity necessary to deliver SV#1 and two competitively produced OPIR mission payloads on the accelerated schedule necessary to maintain FY25 ILC.			
Accomplishments/Planned Programs Subtotals	1,402.900	0.000	1,713.933

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. 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 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. Upon approval by the SAE to complete MTA activity, the Next Gen OPIR Block 0 program development will transition to Major Capability Acquisition program. The first GEO satellite is required by FY 2025. The program office awarded a sole source contract under the authority of a Justification & Authorization document. The Next-Gen GEO Phase 1 contract was awarded in FY 2018, consisting of requirements development, critical path flight hardware procurement, and risk reduction efforts culminating in a Sept 2021 Critical Design Review (CDR). The Next-Gen GEO Phase 2 modification was awarded in Jan 2021, and includes scope for parts procurement, assembly, integration, test, launch, and checkout of all 3 GEO space vehicles.

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 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657120 / *Next-Gen OPIR Space, Block 0 GEO*

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 GEO (Phase 1 & 2)	Various	Lockheed Martin: Various : Various	-	1,362.660	Oct 2020	-		1,644.859	Oct 2022	-		1,644.859	Continuing	Continuing	-
SE&I	Various	Various : Various	-	4.759	Nov 2020	-		18.441	Dec 2022	-		18.441	Continuing	Continuing	-
Technical Mission Analysis	RO	Aerospace Corp. : El Segundo, CA	-	10.184	Oct 2020	-		20.555	Oct 2022	-		20.555	Continuing	Continuing	-
		Subtotal	-	1,377.603		-		1,683.855		-		1,683.855	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 Corp. : El Segundo, CA	-	10.622	Oct 2020	-		12.621	Oct 2022	-		12.621	Continuing	Continuing	-
A&AS	Various	Various : TBD	-	14.550	Feb 2021	-		17.051	Feb 2023	-		17.051	Continuing	Continuing	-
Other Support	Various	Various : TBD	-	0.125	Oct 2020	-		0.406	Oct 2022	-		0.406	Continuing	Continuing	-
		Subtotal	-	25.297		-		30.078		-		30.078	Continuing	Continuing	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
Project Cost Totals	-	1,402.900		-		1,713.933		-		1,713.933	Continuing	Continuing	N/A

Remarks

FY22 Cost Categories are captured in Program Element 1206443SF per direction in the FY22 Appropriations Bill.

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 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657120 / *Next-Gen OPIR Space, Block 0 GEO*

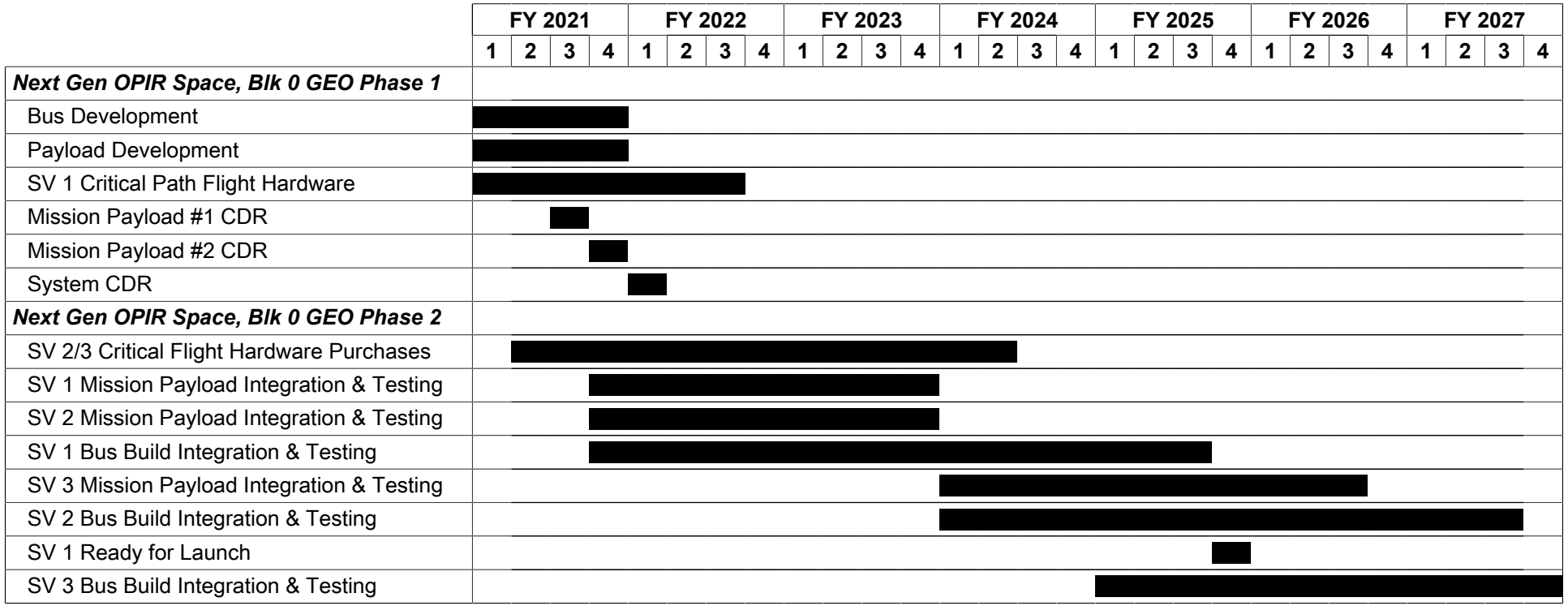

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657120 / *Next-Gen OPIR Space, Block 0 GEO*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Next Gen OPIR Space, Blk 0 GEO Phase 1				
Bus Development	1	2021	4	2021
Payload Development	1	2021	4	2021
SV 1 Critical Path Flight Hardware	1	2021	3	2022
Mission Payload #1 CDR	3	2021	3	2021
Mission Payload #2 CDR	4	2021	4	2021
System CDR	1	2022	1	2022
Next Gen OPIR Space, Blk 0 GEO Phase 2				
SV 2/3 Critical Flight Hardware Purchases	2	2021	2	2024
SV 1 Mission Payload Integration & Testing	4	2021	4	2023
SV 2 Mission Payload Integration & Testing	4	2021	4	2023
SV 1 Bus Build Integration & Testing	4	2021	3	2025
SV 3 Mission Payload Integration & Testing	1	2024	3	2026
SV 2 Bus Build Integration & Testing	1	2024	3	2027
SV 1 Ready for Launch	4	2025	4	2025
SV 3 Bus Build Integration & Testing	1	2025	4	2027

Note

Next-Gen OPIR GEO efforts continue past 2027.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3620F / 5	R-1 Program Element (Number/Name) PE 1206442SF / *Next Generation OPIR*	Project (Number/Name) 657121 / *Next-Gen OPIR Space, Block 0 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
657121: *Next-Gen OPIR Space, Block 0 Polar*	-	337.013	0.000	899.196	0.000	899.196	1,008.941	892.331	470.765	436.905	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In accordance with Congressional direction in the FY22 enacted budget, funds in Project 657121, Next Gen OPIR Block 0 Polar will be distributed to newly created program element 1206444SF, Next Gen OPIR - Polar. Budget will be submitted in the new PE for the next budget cycle.

A. Mission Description and Budget Item Justification

Next-Generation Overhead Persistent Infrared (OPIR) Space, Block 0 Polar (NGP) (Project 657121/Program Element 1206444SF): 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Next Gen OPIR Space, Block 0 Polar	337.013	0.000	899.196
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: FY22 Current Year Plans are captured in Program Element 1206444SF per direction in the FY22 Appropriations Act.			
FY 2023 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657121 / *Next-Gen OPIR Space, Block 0 Polar*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Continue to execute system engineering and bus maturation activities leading to Preliminary Design Review (PDR). Scheduled activities include Internal Design Reviews (IDR) which flow into Preliminary Design Audits (PDAs); the completion of the IDRs and PDAs are unique to Northrup Grumman for pre-PDR readiness. The activities supporting Space Vehicle development are to continue and mature the bus design and complete unit and sub-system level IDRs. The Communications Payload (CPL) and Cryptographic units will continue engineering, design, and hardware/software risk reduction activities to support System PDR. Many of the early stages of component-level IDRs will complete to solidify CPL preliminary design. The acceleration and execution of the SV, ground cryptographic equipment designs, and hardware prototyping will support timely completion of NGP design integration. This includes design and test plans for space to ground testing, delivery of cybersecurity design documents, and completion of cross-agency design audits to mature the Polar cybersecurity approach. Additionally, the execution of the Cyber Table Top exercises will identify design security risks that can be mitigated pre-PDR; and complete the Cybersecurity Strategy which will inform the decision for Authority to Operate. Assembly, Integration and Test (AI&T) path to PDR includes completion of Producibility & Ground System Engineering (GSE) Requirements: documentation and product development such as AI&T Plan & Procedures; Mechanical Ground System Engineering (MGSE); Electrical Ground System Engineering (EGSE), and significant oversight of factory facilities modernization and test bed development. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 increased compared to the FY 2022 funding amount in PE 1206444SF by $427.796M to support ramp-up of engineering activity to plan and execute PDR and critical parts procurement necessary to support FY28 launch.			
Accomplishments/Planned Programs Subtotals	337.013	0.000	899.196

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. 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 1206442SF / *Next Generation OPIR*	**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	-	316.362	Oct 2020	-		830.516	Oct 2022	-		830.516	Continuing	Continuing	-
Enterprise Comm and Crypto	Various	Various : Various	-	-		-		34.768	Dec 2022	-		34.768	Continuing	Continuing	-
SE&I	Various	Various : Various	-	3.878	Dec 2020	-		8.192	Dec 2022	-		8.192	Continuing	Continuing	-
Technical Mission Analysis	RO	Aerospace Corp : El Segundo, CA	-	6.311	Oct 2020	-		8.775	Oct 2022	-		8.775	Continuing	Continuing	-
		Subtotal	-	326.551		-		882.251		-		882.251	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 Corp : El Segundo, CA	-	4.273	Dec 2020	-		4.251	Dec 2022	-		4.251	Continuing	Continuing	-
A&AS	Various	Various : Various	-	6.129	Feb 2021	-		6.160	Feb 2023	-		6.160	Continuing	Continuing	-
Other Support	Various	Various : Various	-	0.060	Oct 2020	-		6.534	Oct 2022	-		6.534	Continuing	Continuing	-
		Subtotal	-	10.462		-		16.945		-		16.945	Continuing	Continuing	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
Project Cost Totals	-	337.013		-		899.196		-		899.196	Continuing	Continuing	N/A

Remarks

FY22 Cost Categories are captured in Program Element 1206444SF per direction in the FY22 Appropriations Act.

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 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657121 / *Next-Gen OPIR Space, Block 0 Polar*

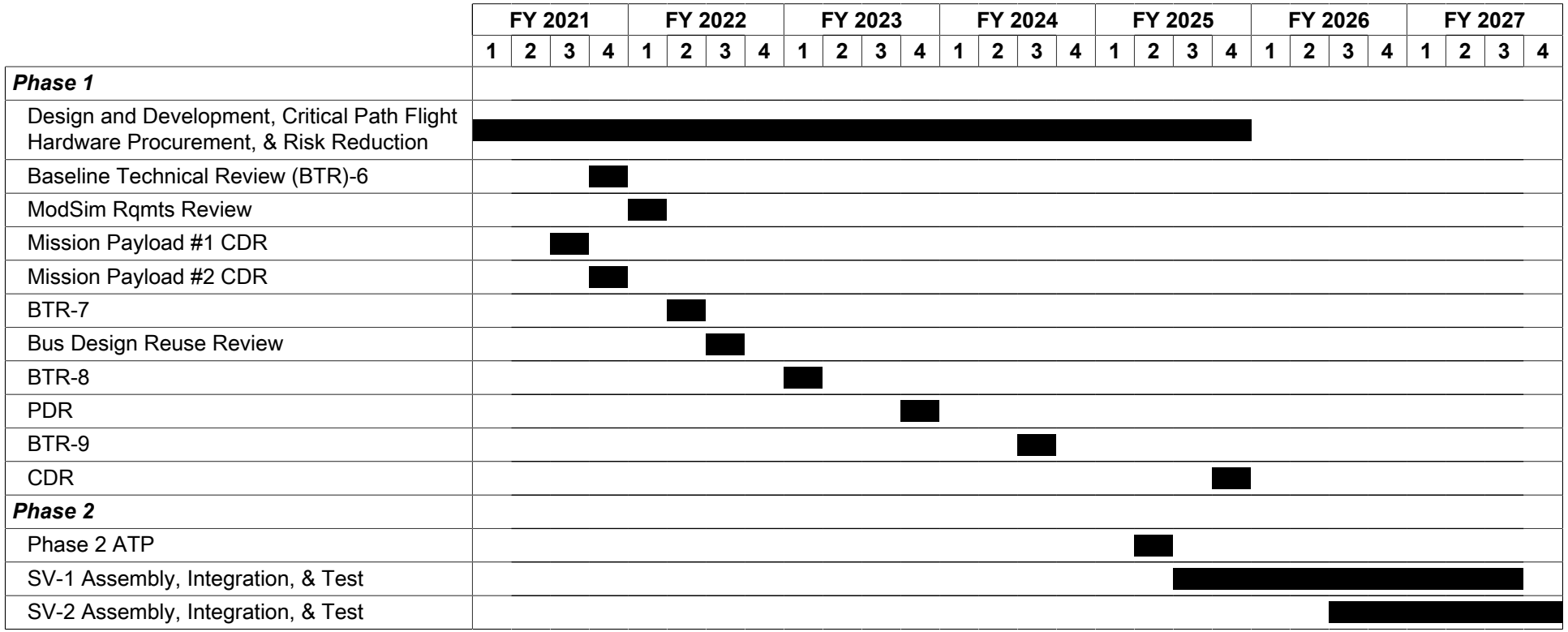

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657121 / *Next-Gen OPIR Space, Block 0 Polar*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Phase 1				
Design and Development, Critical Path Flight Hardware Procurement, & Risk Reduction	1	2021	4	2025
Baseline Technical Review (BTR)-6	4	2021	4	2021
ModSim Rqmts Review	1	2022	1	2022
Mission Payload #1 CDR	3	2021	3	2021
Mission Payload #2 CDR	4	2021	4	2021
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	2025	4	2025
Phase 2				
Phase 2 ATP	2	2025	2	2025
SV-1 Assembly, Integration, & Test	3	2025	3	2027
SV-2 Assembly, Integration, & Test	3	2026	4	2027

Note

Note: Next-Gen Polar (Project 657121) efforts continue past 2027

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3620F / 5	R-1 Program Element (Number/Name) PE 1206442SF / *Next Generation OPIR*	Project (Number/Name) 657123 / *Integration*	

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
657123: *Integration*	-	0.000	27.875	29.717	0.000	29.717	31.099	32.221	30.725	31.324	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Government works with the Enterprise SE&I contractor as a team to define the Next Gen OPIR enterprise architecture, control and validate interfaces, ensure compatibility of Next Gen OPIR systems, and develop/manage plans for fielding the Next Gen OPIR segments. Further, the Enterprise SE&I executes system-level integration requirements between segments such as Space to Ground. This differs from integration within each segment; integration within segments refers to subsystem-level integration between subsystems such as a spacecraft bus to the mission payload. The Government Integrator is responsible for defining the Next Gen OPIR enterprise architecture, controls and validates interfaces, ensures compatibility of Next Gen OPIR systems, and develops/manages plans for fielding the Next Gen OPIR Enterprise. Further, the Integrator executes Model Based System Engineering through modeling, simulation, and technical analyses of Government-directed enterprise level trades among the Next Gen OPIR segments. These trades lead to definition, management, maintenance, and evolution of the Next Gen OPIR Enterprise technical requirements and interface documents to ensure the integrity of the enterprise technical baseline.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Next-Gen OPIR Space, Integration	0.000	27.875	29.717
Description: The Integration (Project 657123) project includes the efforts associated with the Government's primary role and tasks necessary to accomplish the critical lead system integration function with the Next Gen OPIR enterprise material segments (Next Gen GEO, Next Gen Polar, Next Gen Ground, and the Resilient Missile Warning/Missile Tracking architecture). The Next Generation OPIR Program Manager is responsible for directing the Next Gen OPIR current Enterprise architecture, system definition, controls and validates interfaces, ensures compatibility of Next Gen systems, and develops/manages plans for execution and fielding of the Next Gen OPIR Enterprise			
FY 2022 Plans: Continue to execute critical System of Systems planning and execution. Scheduled activities: Space-to-ground System level Critical Design Review completion; NGG space-to-ground interface demonstrations; cyber vulnerability assessments; mission unique ground-based payload processors and software integration into FORGE. Plan for major pre-launch enterprise integration events scheduled in 2023. Activities include, but not limited to, management of the technical baseline; continued definition of space to ground interfaces, Early Integration Demonstration activities, Space to Ground integration and test planning activities, cross-segment engineering trades, and hosted payload integration and test activities. Activities may include, but are not limited to program office support studies, technical analysis experimentation, and prototyping.			
FY 2023 Plans: Continue to execute critical System of Systems planning and execution. Scheduled activities: NGG space-to-ground compatibility testing. Plan for major pre-launch enterprise integration events including NGG pre-launch readiness testing. Activities include,			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657123 / *Integration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
but not limited to, management of the technical baseline; continued definition of space to ground interfaces, Early Integration Demonstration activities, Space to Ground integration and test planning activities, cross-segment engineering trades, and hosted payload integration and test activities. 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, and prototyping. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 funds increased to support increased concurrent activities in the Next Gen programs and accelerate planning to support pivot to Resilient MW/MT requirements development while ensuring continued success of NGG and NGP.			
Accomplishments/Planned Programs Subtotals	0.000	27.875	29.717

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Space Force will exercise complete ownership of the architecture, system definition, technical baseline, and integration of NG OPIR space and ground segments. While this complex intersegment integration is traditionally performed by a prime contractor under a systems development contract, for NG OPIR, this approach requires the government to be the integrator. To execute this responsibility, the government leverages systems engineering and integration expertise from the Systems Engineering and Integration (SE&I) contractor. The Program Office intends to contract for this capability through a Systems Engineering and Integration follow-on Contract. There is a contractor finishing the execution of the current SE&I contract in 2021 with options into FY 2022, and the follow-on effort will be a competitive award expected for award in FY 2022. In this effort, the contractor will be tightly integrated with the government team to assist in executing the government lead system integration and validation function.

This contract will encompass two functions: first, it primarily supports the Enterprise SE&I effort captured in this Integration Project. Secondly, the contract includes scope to execute SE&I requirements internal to each segment.

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 1206442SF / *Next Generation OPIR*	Project (Number/Name) 657123 / *Integration*	

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
Enterprise SE&I Direct Support	Various	Various : Various	-	-		27.875	Jan 2022	29.717	Jan 2023	-		29.717	Continuing	Continuing	-
		Subtotal	-	-		27.875		29.717		-		29.717	Continuing	Continuing	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
Project Cost Totals	-	-		27.875		29.717		-		29.717	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 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657123 / *Integration*

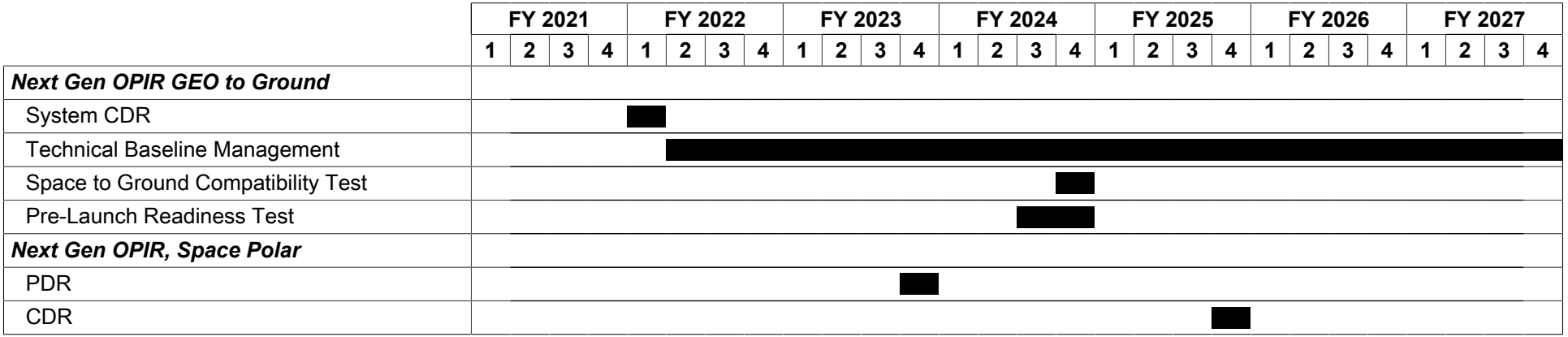

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206442SF / *Next Generation OPIR*	**Project (Number/Name)** 657123 / *Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Next Gen OPIR GEO to Ground				
System CDR	1	2022	1	2022
Technical Baseline Management	2	2022	4	2027
Space to Ground Compatibility Test	4	2024	4	2024
Pre-Launch Readiness Test	3	2024	4	2024
Next Gen OPIR, Space Polar				
PDR	4	2023	4	2023
CDR	4	2025	4	2025