Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force											Date: March 2023	
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force* / BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 1206448SF / *Resilient Missile Warning Missile Tracking - Integrated Ground Segment*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.000	0.000	505.569	0.000	505.569	560.467	582.989	575.860	535.923	Continuing	Continuing
657124: *Resilient MW/MT*	-	0.000	0.000	505.569	0.000	505.569	560.467	582.989	575.860	535.923	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The FY 2023 enacted budget transferred all FY 2023 funds from PE 1206448SF, Resilient Missile Warning Missile Tracking - Integrated Ground Segment, to RDT&E Program Element (PE) 1206446SF, Resilient Missile Warning Missile Tracking - Low Earth Orbit (LEO), RDT&E PE 1206447SF, Resilient Missile Warning Missile Tracking - Medium Earth Orbit (MEO), and Procurement, Space Force (PROC, SF) Line Item SDALCH, Space Development Agency Launch.

A. Mission Description and Budget Item Justification

The United States Space Force (USSF) Space Systems Command (SSC) and Space Development Agency (SDA) are collaborating to deliver Overhead Persistent Infrared (OPIR) capabilities, in concert with Department of Defense (DoD) and Intelligence Community (IC) partners, to support a proliferated space architecture, resilient-by-design, capable of operating through contested environments. SSC's Resilient MW/MT - MEO space and ground efforts pivot the Department of the Air Force's (DAF) legacy missile warning force design to a more resilient multi-orbit approach to counter advanced missiles, hypersonic glide vehicles, and fractional orbital bombardment threats. MW/MT - MEO is anchored in Missile Warning and Missile Defense Capability Development Document (CDD) requirements validated by the Joint Requirements Oversight Council (JROC). Constellation resiliency is foundational to the DAF's Resilient Missile Warning / Tracking force design; therefore, the OPIR Family of Systems, including MW/MT - MEO, is designed to work cohesively to gain and maintain custody of a spectrum of missile threats.

The MEO program will deploy space assets in multiple epochs to allow for incremental capability delivery and to ensure competition throughout the lifecycle of the program. Resilient MW/MT - MEO will bolster legacy Space Based Infrared Satellite (SBIRS) and Next-Gen OPIR capabilities and will independently satisfy all mission area CDD requirements for both missile warning and tracking by FY 2031. FY 2024 funding supports space segment long-lead parts purchases, space vehicle bus and main mission payload assembly, integration and test, and early on-orbit initialization studies for up to three (3) vendors to support the first Epoch 1 launch in FY 2026. Furthermore, FY 2024 funding supports ground segment mission data processing application development, command and control software and facilities build, and ground entry point site construction by EOY FY 2025 to support on-orbit initialization.

To support the LEO Space layer specific ground functions, SDA's ground segment provides constellation management, ground-based data processing, dissemination, and management, space-to-ground verification and ground-based interoperability testing, support operations, and other integration activities for the SDA Tracking Layer and integrates it with the Missile Warning/Missile Tracking/Missile Defense (MW/MT/MD) enterprise. As a part of the Proliferated Warfighter Space Architecture (PWSA), the LEO MW/MT/MD ground segment leverages the Tranche 1 (T1) Transport Layer, and T1 Operations and Integration (O&I) Centers to provide MW/MT data to the Warfighter anywhere in the world. The T1 Tracking Layer, awarded in FY 2022, is the minimum viable product proliferated satellite constellation to provide global access for tracking of Hypersonic Glide Vehicles and other advanced missile threats. This program element funds required upgrades to the SDA ground segment in order to provide command and control, mission data processing, low latency data dissemination, support operations, and other ground functions to support the capabilities for T1 and future tranches.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 1206448SF *I Resilient Missile Warning Missile Tracking - Integrated Ground Segment*

Using a Combined Program Office (CPO) construct, SSC, SDA, and the Missile Defense Agency (MDA) are teaming to develop and implement a system-of-systems integration strategy across for MW/MT/MD constellations supporting LEO, MEO, and GEO/Polar orbit regimes. Resilient MW/MT - MEO Epoch 1 is comprised of multiple space and ground lines of effort to include following ground items:
- Develop mission data processing, on contract as of December 2022 and mission unique ground software.
- Perform the operations and integration of the space vehicles into the operations center for command and control at the Tools, Applications, and Processing (TAP) lab. Plan to have operations and integration contract award for MEO no later than 3Q FY 2023.
- Develop command and control software to enable traditional tracking, telemetry, commanding, tipping, and cueing across multiple collection layers. On contract as of December 2022. Additional ground applications (such as the ground resource manager) planned as part of the Operations and Integration contract in Summer 2023.
- Acquire, build, install, test, and operate ground-based antennas for uplink/downlink of commands and mission data. At least two sites and six apertures are required for Epoch 1. On contract as of February 2023.
- Test, assess, and validate sensor performance on the ground and on-orbit to ensure track data is integrated by Program of Record (PoR) data and fusion operational programs such as Future Operationally Resilient Ground Evolution (FORGE) (PE 1206440SF), Ballistic Missile Defense OPIR Architecture, other classified partners and missions, research and development multi-intelligence fusion (PE 1206442SF), and intelligence characterization. SV testing is on contract as of December 2022. Fusion software studies underway with FORGE program as of March 2023. Additional studies planned with Ballistic Missile Defense OPIR Architecture to start in FY 2024.
- Mature integrated digital model: support SSC's role as the mission area integrator, perform resiliency analyses, baseline future requirements, and assess performance against current and new targets. On contract as of May 2021.

Space acquisition teams must respond with speed and agility to emerging adversary threats. 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.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver MW/MT capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 1206392SF and 1206398SF.

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

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 1206448SF *I Resilient Missile Warning Missile Tracking - Integrated Ground Segment*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.000	390.596	463.489	0.000	463.489
Current President's Budget	0.000	0.000	505.569	0.000	505.569
Total Adjustments	0.000	-390.596	42.080	0.000	42.080
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	-390.596	42.080	0.000	42.080

Change Summary Explanation

FY 2023: -390.6M; transferred from PE 1206448SF, Resilient Missile Warning Missile Tracking - Integrated Ground Segment, to RDT&E Program Element (PE) 1206446SF, Resilient Missile Warning Missile Tracking - Low Earth Orbit (LEO), PE 1206447SF, Resilient Missile Warning Missile Tracking - Medium Earth Orbit (MEO) due to Congressional direction, and PROC, SF, Line Item SDALCH, Space Development Agency Launch.

FY 2024: -1.522M; to realign funding to APPN 3410, PE 1207804SF (SAG 13C), for fiscal policy compliance as Space Systems Command (SSC) establishes Headquarters functions and a Chief Information Office (CIO) for integrated cybersecurity.

FY 2024: +10.000M; to support OPIR Enterprise Ground Enhancements.

FY 2024: +31.480M; realigned funding from MEO PE 1206447SF and LEO PE 1206446SF for MW/MT to Full Operational Capability (FOC).

FY 2024: +2.122M; inflation Rates for Non-Pay and Non-Fuel Purchases.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Missile Warning (MW)/ Missile Tracking (MT) Ground Low Earth Orbit (LEO)	0.000	0.000	252.785
Description: Expands the existing Proliferated Warfighter Space Architecture (PWSA) to meet the Command and Control (C2), Mission Data Processing (MDP), Enterprise Integration, and Support Operations requirements for the Tranche 1 (T1) Tracking Layer and Tranche 2 (T2) Tracking Layer. The LEO MW/MT ground segment provides constellation management, ground-based data processing, dissemination, and management, space-to-ground verification and ground-based interoperability testing, support operations, and other integration activities for the SDA T1 Tracking Layer and integrates with the MW/MT/MD enterprise. This			

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 1206448SF *I Resilient Missile Warning Missile Tracking - Integrated Ground Segment*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
includes the connection of T1 Operations centers with legacy and emerging MW/MT/MD capabilities to disseminate MW/MT/MD data in common message formats for rapid response to advanced missile threat. ***FY 2023 Plans:*** Funding for Ground efforts in FY 2023 was realigned to LEO PE 1206446SF. ***FY 2024 Plans:*** Continue executing the PWSA T1 programs initiated in FY 2022 to complete the LEO MW/MT ground segment required to support launches starting in FY 2025 and capability demonstration starting in FY 2026. Complete a Ground Readiness Review (GRR) to ensure integration with the Operations Centers and prepare for Missile Warning/ Missile Tracking integration. Continue developing the ground segment for T1. Begin planning to expand the T1 ground system to accommodate more satellite vehicles, greater volumes of sensor data, and add fire control sensors to deliver Missile Defense capability in addition to Missile Warning and Tracking in future tranches. This line supports investments in facilities, hardware, network management, Ground Entry Points (GEPs), Optical Ground Terminals (OGT), software development, mission payloads, contract services, and any other integration requirements to support the MW/MT/MD enterprise. These efforts will leverage and expand upon existing Mission Data Processing Applications (MDPAPs) and Joint OPIR Ground initiatives to ensure rapid processing and dissemination to global warfighting community. In addition, this effort will support the planning and execution of performance and integration risk mitigation activities associated with C2 challenges, MDP expansion, and interagency integration. Other activities may include, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, etc. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2023 ground efforts were executed out of RDT&E, PE 1206446SF. The FY 2024 continues funding the ground segment and delivery of the T1 and T2 Tracking Layers.			
Title: Missile Warning (MW)/ Missile Tracking (MT) - Ground - Medium Earth Orbit (MEO)	0.000	0.000	252.784
Description: The Force Design and AoA laid out the initial framework and funding for the Space Force to aggressively pursue MEO satellites and ground by using spiral development to continue competition, control costs, insert technology when mature, and deliver capability incrementally. To responsively deliver capabilities, this PE will fund continued development of the MEO efforts through two (2) launches in late calendar year 2026 and operations in support of an initial warfighting capability for the combined LEO and MEO ground architecture. Initial Warfighting Capability is comprised of validating through on-orbit measurements the ability for regional tracking, mission management and control, and coordinated regional warning and access. After performance validation is complete, sensors will feed data directly to operational warning and defense systems. The initial warfighting capability will provide			

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 1206448SF / *Resilient Missile Warning Missile Tracking - Integrated Ground Segment*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
sensitivity to detect emerging threats, accurate tracking to contain maneuvering targets, and deliver data within the required latency to close the kill-chain solution. ***FY 2023 Plans:*** Funding for Ground efforts in FY 2023 was realigned to MEO PE 1206447SF. ***FY 2024 Plans:*** Vendors will work with the chosen MDP and C2 Ops floor centers to integrate their ground architecture solutions in preparation for pre-launch and early orbit testing. GEP contractor will construct and connect dedicated GEPs in Continental United States (CONUS) and Outside Continental United States (OCONUS) locations with an expected completion in time to support Epoch 1 launch and early orbit operations. Expand development for C2 and MDP to meet the initial warfighter capability for sensitivity, accuracy, and latency of the MW/MT MEO space layer. In FY 2024 the TAP lab will begin to be outfitted with, hardware, software, and ground. Investments in FY 2024 will continue for GEP construction, contract services, operations and integration support, and any other general ground infrastructure required to standup an instantiation of the minimum viable ground infrastructure to support Epoch 1 space vehicles. Vendors will begin to incorporate an instantiation of the FORGE MDPAF for MDP and appropriate C2 solutions. Vendors will also leverage and expand upon existing Mission Data Processing Applications and Joint OPIR Ground initiatives to ensure rapid processing and dissemination of Epoch 1 sensor tracks to the global warfighting community. Develop initial integration modelling and simulation test cases and run for early integration testing with fusion and correlation operational warning and tracking systems. Plan and execute performance and integration risk mitigation activities associated with C2 challenges, MDP expansion, and interagency integration. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, etc. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 increased due to ramping up ground software developments (mission data processing/command and control), performing early integration with the operations center, and building ground antennas all to support the Epoch 1 Initial Warfighting Capability.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	505.569

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• 1206447SF: *Resilient Missile Warning Missile Tracking - Medium Earth Orbit (MEO)*	-	408.527	-	-	-	363.709	367.092	1,224.222	1,059.145	Continuing	Continuing

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 1206448SF *I Resilient Missile Warning Missile Tracking - Integrated Ground Segment*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• 1206442SF: *Next Generation OPIR*	-	97.770	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

E. Acquisition Strategy

LEO: SDA will continue execution of contracts competitively awarded in FY 2022 using funds from RDT&E program elements 1206310SDA, 1206410SDA, and 1206446SF. The SDA T1 programs will execute approved acquisition strategies to deliver a LEO proliferated constellation under the Middle Tier of Acquisition prototyping pathway. Additionally, SDA will begin T2 activities during this period, which will include warfighter council approval of acquisition plans, and award of T2 contracts. The T1 Tracking Layer will be the initial capability to support the architecture derived from the Missile Warning and Missile Defense OPIR Enterprise CDD, validated by the Joint Requirements Oversight Council (JROC) in May 2019. T2 will expand on the T1 Tracking Layer with additional satellites and fire control capability to support global coverage in LEO for the MW/MT/MD mission in order to close the kill chain with low latency. The MW/MT/MD - Ground - LEO project will leverage the efforts in all of the SDA T1 programs to provide low latency MW/MT/MD data to the enterprise.

MEO: The Space Force will deliver mission data processing and command and control software development under current contracts competitively awarded in FY 2021 under the NG OPIR PE 1206442SF. Consistent updates to the C2 and MDP software will be expected and Ground antenna contracts will be executing in FY 2024 led in collaboration with mission partners. The program office is leveraging a competitively awarded operations center and integration contract combined with mission partners. The program developed an acquisition strategy for all of Epoch 1 scope: vehicles 1-6; additional vehicles to meet performance baseline (at least 3); command and control software; mission data processing software; operations and integration, and at least 6 ground antennas for command & telemetry.

The Epoch 1 requirements are derived from the Missile Warning and Missile Defense OPIR Enterprise CDD, validated by the JROC in May 2019. Epoch 1 serves as the first delivery of capability targeting polar warning and regional tracking coverage with launches in late FY 2026. Future epochs are planned for competitive awards and a follow-on acquisition strategy still in development.

The acquisition strategy for the space and mission-unique ground portions of Epoch 1 were approved by the PEO for Space Sensing in May 2022.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206448SF / *Resilient Missile Warning Missile Tracking - Integrated Ground Segment*	**Project (Number/Name)** 657124 / *Resilient MW/MT*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LEO: MW/MT Tracking Data Management	Various	multiple : multiple	-	-		-		53.300	Jan 2024	-		53.300	Continuing	Continuing	-
LEO: Enterprise Integration	Various	multiple : multiple	-	-		-		82.400	Mar 2024	-		82.400	Continuing	Continuing	-
LEO: MW/MT Ground Operations and Integration	Various	multiple : multiple	-	-		-		117.084	Nov 2023	-		117.084	Continuing	Continuing	-
MEO: Ground, Test, and Integration, Vendor 1	Various	Raytheon : El Segundo, CA	-	-		-		61.004	Dec 2023	-		61.004	Continuing	Continuing	-
MEO: Ground, Test, and Integration, Vendor 2	Various	Millennium : El Segundo, CA	-	-		-		67.938	Dec 2023	-		67.938	Continuing	Continuing	-
MEO: Ground Entry Point (GEP)	MIPR	Northrop Grumman : Fairfax, VA	-	-		-		71.000	Jan 2024	-		71.000	Continuing	Continuing	-
MEO: Operations and Integration (O&I)	Various	TBD : TBD	-	-		-		15.000	Jan 2024	-		15.000	Continuing	Continuing	-
MEO: Data Fusion	Various	TBD : TBD	-	-		-		21.000	Jan 2024	-		21.000	Continuing	Continuing	-
MEO: Enterprise SE&I	Various	Various : TBD	-	-		-		2.524	Dec 2023	-		2.524	Continuing	Continuing	-
MEO: Technical Mission Analysis	RO	Aerospace : El Segundo, CA	-	-		-		1.343	Jan 2024	-		1.343	Continuing	Continuing	-
		Subtotal	-	-		-		492.593		-		492.593	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MEO: FFRDC	RO	Aerospace Corp. : El Segundo, CA	-	-		-		3.245	Jan 2024	-		3.245	Continuing	Continuing	-
MEO: A&AS	Various	Various : Various	-	-		-		9.731	Nov 2023	-		9.731	Continuing	Continuing	-
		Subtotal	-	-		-		12.976		-		12.976	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206448SF / *Resilient Missile Warning Missile Tracking - Integrated Ground Segment*	**Project (Number/Name)** 657124 / *Resilient MW/MT*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		505.569		-		505.569	Continuing	Continuing	N/A

Remarks

Submitted FY 2024 Technical Adjustment for PE 1206446SF, Resilient Missile Warning Missile Tracking - Low Earth Orbit (LEO) and to PE 1206447SF, Resilient Missile Warning Missile Tracking - Medium Earth Orbit (MEO).

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206448SF / *Resilient Missile Warning Missile Tracking - Integrated Ground Segment*	**Project (Number/Name)** 657124 / *Resilient MW/MT*

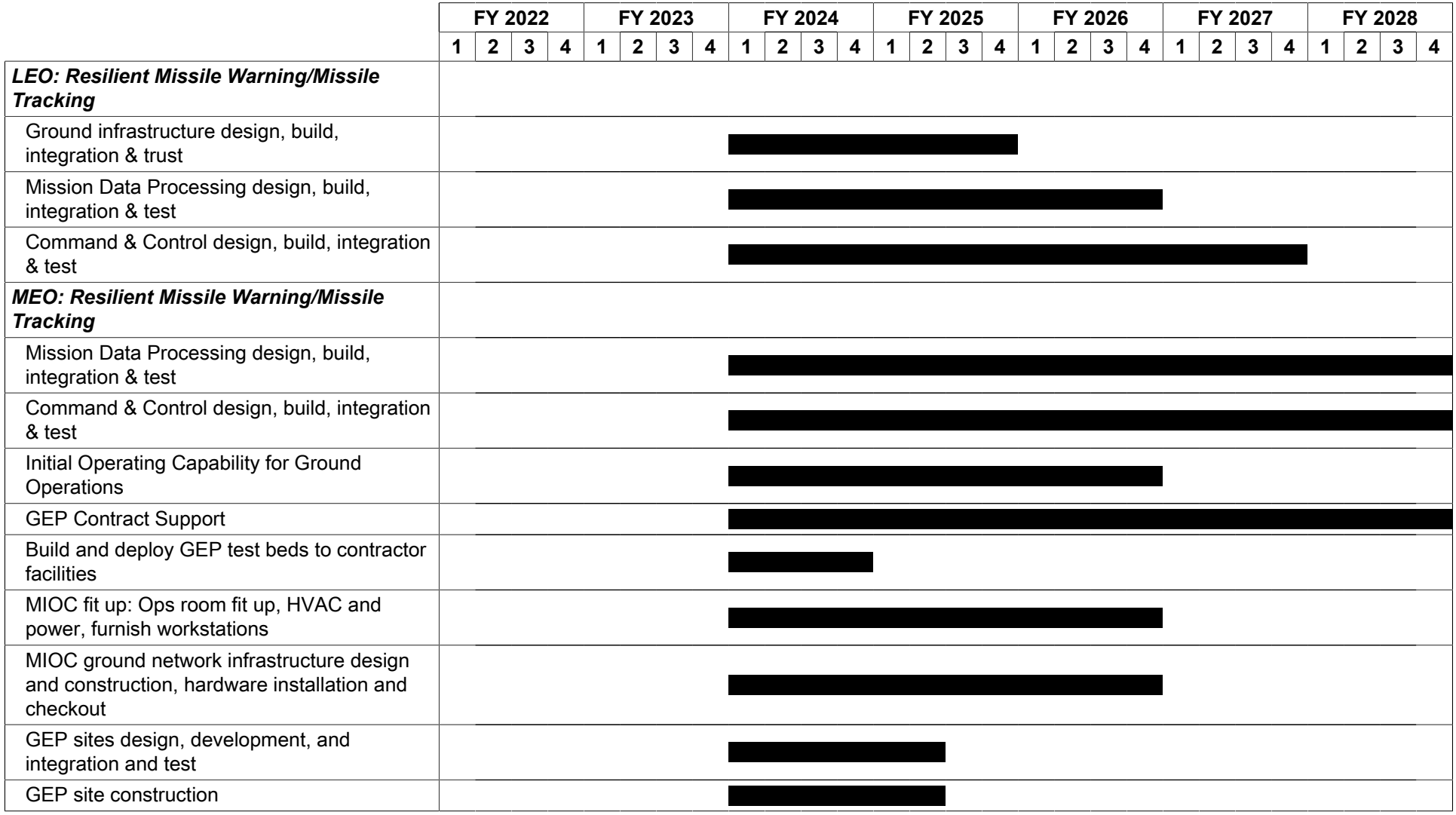

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206448SF / *Resilient Missile Warning Missile Tracking - Integrated Ground Segment*	**Project (Number/Name)** 657124 / *Resilient MW/MT*

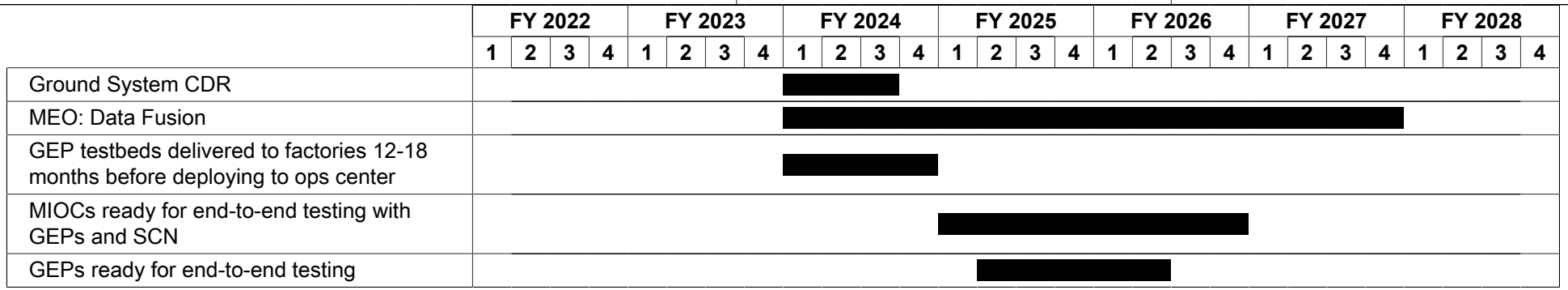

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 5	**R-1 Program Element (Number/Name)** PE 1206448SF / *Resilient Missile Warning Missile Tracking - Integrated Ground Segment*	**Project (Number/Name)** 657124 / *Resilient MW/MT*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
LEO: Resilient Missile Warning/Missile Tracking				
Ground infrastructure design, build, integration & trust	1	2024	4	2025
Mission Data Processing design, build, integration & test	1	2024	4	2026
Command & Control design, build, integration & test	1	2024	4	2027
MEO: Resilient Missile Warning/Missile Tracking				
Mission Data Processing design, build, integration & test	1	2024	4	2028
Command & Control design, build, integration & test	1	2024	4	2028
Initial Operating Capability for Ground Operations	1	2024	4	2026
GEP Contract Support	1	2024	4	2028
Build and deploy GEP test beds to contractor facilities	1	2024	4	2024
MIOC fit up: Ops room fit up, HVAC and power, furnish workstations	1	2024	4	2026
MIOC ground network infrastructure design and construction, hardware installation and checkout	1	2024	4	2026
GEP sites design, development, and integration and test	1	2024	2	2025
GEP site construction	1	2024	2	2025
Ground System CDR	1	2024	3	2024
MEO: Data Fusion	1	2024	4	2027
GEP testbeds delivered to factories 12-18 months before deploying to ops center	1	2024	4	2024
MIOCs ready for end-to-end testing with GEPs and SCN	1	2025	4	2026
GEPs ready for end-to-end testing	2	2025	2	2026