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 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 1203906SF *I NCMC - TW/AA System*							
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	-	4.369	7.249	25.545	0.000	25.545	25.611	26.731	25.763	26.269	0.000	141.537
67A051: *Space Superiority - Advanced Intelligence Systems*	-	4.369	7.249	25.545	0.000	25.545	25.611	26.731	25.763	26.269	0.000	141.537
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 7, PE 1203906SF, project 67A051, ITW/AA System of Systems Integration, is a new start.
This program, BA 7, PE 1203906SF, project 67A051, Missile Warning/Missile Track Enhancement, is a new start.

A. Mission Description and Budget Item Justification

This program element supports development activities for the North American Aerospace Defense Command (NORAD) Cheyenne Mountain Complex (NCMC) - Integrated Tactical Warning Attack Assessment (ITW/AA) system that provides timely, unambiguous, and continuous warning and attack assessment of air, missile and space threats to North America, and geographical theaters. This system integrates and correlates missile launch and air surveillance information from certified sources to assess the nature of an enemy launch/attack and issue warnings to the President of the United States, Canadian National Leadership, United States Secretary of Defense, National Military Command Center and war-fighting Combatant Commanders. NCMC-ITW/AA and Legacy Space Command and Control (C2) systems provide NORAD/US Northern Command (USNORTHCOM), US Strategic Command (USSTRATCOM), and US Space Command (USSPACECOM) command structures with the information management, decision aids, and connectivity required to monitor, assess, plan, and execute assigned strategic, space operations, and missile defense missions. It provides Nuclear C2 (NC2) and detonation detection.

The Combatant Commanders Integrated Command and Control System (CCIC2S) is a unique, integrated NC2 and Air and Space C2 "system of systems," providing data communication between external sensors and end users, mission processing for air and missile warning mission, and space operations functions. The system supports national strategic objectives with ITW/AA and provides missile, space, and air warning, cueing, and engagement information to strategic and theater combatant commanders. The system consists of terrestrial and space-based sensor outputs, NC2 and Air and Space C2 nodes, and communications and dissemination links, connecting the US and Canadian defense information networks.

ITW/AA C2 integration of Command and Control, Battle Management, and Communications (C2BMC) feeds is a continuation of previous efforts to address additional non-traditional sources to enhance the overall ITW/AA situational picture for the Combatant Command (CCOM). Utilizing the data from Global Data Integration (GDI) and C2BMC will provide additional situation data for the commander to address missile warning threats to the homeland and to decrease the decision time from minutes to seconds in a high threat environment that includes emerging threats from our advisories.

Missile Warning/Missile Track Enhancement is a new effort to include mission critical data from other non-traditional high fidelity sources to address current and future emerging threats that are non-traditional ballistic missile threats. In order to address the new threat to the homeland, it is necessary to expand the available sources to update the ITW/AA situational picture for the CCOM and provide the necessary data for sound decisions for the Nuclear C3 (NC3) community.

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 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1203906SF *I NCMC - TW/AA System*

The ITW/AA System of Systems Integration provides critical systems engineering support for ITW/AA interface verification, system deployment, change control management, monitoring and testing. It also supports risk reduction activities for evolving ITW/AA capabilities. This effort includes the development of an ITW/AA Assessment Management System (AMS) for planning configuration control and interoperability. It also includes development of an Emerging Threat Lab (ETL) using modern technology, agile processes, and automation to consolidate ITW/AA-related intelligence on current missile threats, integrate strategic and theater missile warning data, consolidate algorithms to identify and characterize threats. It also supports the Chief Scientist Office (CSO) in building algorithms and models which provide the capability for warfighters to determine timely and unambiguous missile warning for the National Command Authorities. This effort also includes Project Tombstone to improve the quality of test assessments and exercises, providing for a greater understanding of how our systems will respond in today's wartime environment. These System of Systems Integration efforts combine to ensure the attack assessments covering air, missile, and space threats continue to be accurate, timely, unambiguous and continuous, providing key decision makers the information and time they need to make decisions in case of attacks against the homeland.

Space acquisition must respond with speed and agility to emerging adversary threats. Space Systems Command (SSC) is transforming 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 capabilities.

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

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	9.858	7.274	13.520	0.000	13.520
Current President's Budget	4.369	7.249	25.545	0.000	25.545
Total Adjustments	-5.489	-0.025	12.025	0.000	12.025
• 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	-5.200	0.000			
• SBIR/STTR Transfer	-0.289	0.000			
• Other Adjustments	0.000	-0.025	12.025	0.000	12.025

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 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1203906SF *I NCMC - TW/AA System*

Change Summary Explanation

FY 2022: -5.200M decrease to support higher Space Force priorities.
FY 2023: -0.025M decrease for FFRDC.
FY 2024: -0.089M 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. +12.000 for enhancements to the NCMC TW/AA system to incorporate/ provide data to the Overhead Persistent InfraRed Ground Enterprise.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: ITW/AA C2 Integration of C2BMC Feeds	4.369	7.249	0.000
Description: Obtain and assess non-ITW/AA (Global Data Integration) and non-traditional data sources (C2BMC and theater) for integration into CCIC2S and Processing and Display System Migration (PDSM) to display a more complete event picture. Improve source data accuracy for missile warning mission and translate for integration into CCIC2S that will enhance mission displays and improve impact prediction. Create multiple display options for the operator and reduce ambiguity between missile defense and missile warning displays. Provide program office support and other related support activities, including but not limited to technical analysis, prototyping, user evaluations, and independent certification testing.			
FY 2023 Plans: Continue upgrades to add additional non-ITW/AA data for emerging threats. Complete C2BMC connectivity effort. Continue harmonization of displays between Strategic Missile Warning, Theater Missile Warning, and Missile Defense, and nontraditional source data integration to provide a seamless event-tracking and common operating picture. Continue to leverage/integrate new data sources that come online and correlate with missile defense and missile warning display changes to meet emerging adversary threats. Implement changes/enhancements to Missile Warning (MW) systems. Further details classified. 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 2024 Plans: N/A			
FY 2023 to FY 2024 Increase/Decrease Statement:			

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 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1203906SF *I NCMC - TW/AA System*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
FY 2024 decreased due to completion of C2 Integration of C2BMC Feeds effort.			
Title: ITW/AA System of Systems Integration	-	0.000	12.000
Description: The ITW/AA System of Systems Integration coordinates and facilitates between multiple ITW/AA System Program Offices within the USSF and USAF to ensure these systems are integrated properly and the overarching ITW/AA Weapon System is providing timely, unambiguous, accurate, and continuous warning, assessment, and characterization information on atmospheric, ballistic missile, and space attacks to the President and Secretary of Defense of the United States, Allies, Joint Staff, combatant commands, and other users through all levels of conflict. Ensure the ITW/AA requirements receive the necessary level of ITW/AA change control management related to interface analyses, integration issues, and collaboration with key stakeholders for continued mission data integrity and accuracy. ***FY 2023 Plans:*** N/A ***FY 2024 Plans:*** Coordination across ITW/AA community to ramp up configuration change control, architecture management, and future initiative integration requiring additional effort to facilitate standardized review, assessment, coordination, control, planning, and baseline management of interface requirements to meet new United States Space Command Instruction 3422.01. Initiate Project Tombstone to further develop agile scenario development, specializing in creating and maintaining test/training scenarios for MW, Missile Defense (MD), Space Domain Awareness (SDA) sensors and supporting systems/infrastructure. Tombstone responsible for maintaining the existing scenarios with the most up-to-date information, building new developmental and operational test scenarios and supporting updates to scenario building tools and test analysis tools to further increase warfighter effectiveness in MD/MW/SDA domains. Testing and integration of additional data feeds into the ETL, analysis of these feeds to develop models/algorithms to increase effectiveness of multiple MW threat estimates and attack assessments. Assessment Management System development and initial fielding across USSF/USAF MW, MD, and Air Warning (AW) systems. Effort requires modernization of antiquated health system requirements alignment across multiple organizations. 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			

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 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1203906SF *I NCMC - TW/AA System*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
support, studies, technical analysis, experimentation, prototyping, etc. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 increased due to New Start of ITW/AA System of Systems Integration effort.			
Title: Missile Warning/Missile Track Enhancement ***Description:*** Integrate new data source to include Ballistic Missile Defense Communication Node (BCN) and Ground-Based Midcourse Defense (GMD) Communications Network (GCN) of the Missile Defense Agency (MDA) C2BMC integration element of the Ballistic Missile Defense System (BMDS). Enhance existing displays to incorporate new sensor with existing data, modernize database content with additional multi-domain meta-data to improve threat assessment and attack characterizations required to address new sensor data. Establish a highly scalable data repository and storage to develop a Data Lake to allow for easy integration and analysis of the new data types as well as be structured, prepped/tagged to enable future requirements. Improves source data accuracy for missile warning mission and translate for integration into CCIC2S that will enhance mission displays and improve impact prediction. Creates multiple display options for the operator and reduces ambiguity between missile defense and missile warning displays. ***FY 2023 Plans:*** N/A ***FY 2024 Plans:*** Funds the analysis, solution, and software coding of integration, processing, and display of high-fidelity data from non-ITW/AA and non-traditional sensor sources, resolving ambiguity and improving prediction accuracy, thus increasing the time critical National Command Authorities nuclear responses decision space. Addresses emergent space based missile threats and other capability gaps identified in the Global Threat Characterization Assessment recommendations. Enhances missile defense and missile warning information supporting a common operating picture. Harmonizes the displays between strategic Missile Warning, and Missile Defense. Integrates non-traditional source data to provide a seamless event-tracking and common operating picture. 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 New Start of Missile Warning/Missile Track Enhancement effort.	-	0.000	13.545
Accomplishments/Planned Programs Subtotals	4.369	7.249	25.545

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 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1203906SF *I NCMC - TW/AA System*

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

ITW/AA C2 Integration of C2BMC Feeds initial effort was competitively awarded from an existing software services Indefinite Delivery/Indefinite Quantity (IDIQ) contract in Q4 FY 2021. This effort will provide incremental deliveries to the ITW/AA sustainment provider for incorporation into the operational system. The use of experimentation, prototyping, risk reduction, and other efforts to develop new or re-purpose existing capabilities will be accomplished through multi-source acquisitions.

USSF is developing acquisition strategies for the Missile Warning/Missile Track Enhancement and ITW/AA System of Systems Integration, but will maximize open competition as much as possible.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 7	**R-1 Program Element (Number/Name)** PE 1203906SF / *NCMC - TW/AA System*	**Project (Number/Name)** 67A051 / *Space Superiority - Advanced Intelligence Systems*

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
Product Development of ITW/AA C2 Integration of C2BMC Feeds	C/CPIF	LEIDOS : Colorado Springs, CO	-	4.033	Jan 2022	6.861	Jan 2023	-		-		-	Continuing	Continuing	-
Product Development of Missile Warning/Missile Track Enhancement	C/TBD	TBD : TBD	-	-		-		9.651	Mar 2024	-		9.651	Continuing	Continuing	-
Product Development of ITW/AA System of Systems Integration	C/TBD	TBD : TBD	-	-		-		8.520	Jan 2024	-		8.520	Continuing	Continuing	-
Product Development of Emerging Threat Lab	C/TBD	TBD : TBD	-	-		-		1.500	Jan 2024	-		1.500	Continuing	Continuing	-
SBIR/STTR	TBD	TBD : TBD	-	-		-		0.890		-		0.890	Continuing	Continuing	-
		Subtotal	-	4.033		6.861		20.561		-		20.561	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
A&AS	C/CPIF	Various : Colorado Springs, CO	-	0.336	Jan 2022	0.388	Jan 2023	4.742	Jan 2024	-		4.742	Continuing	Continuing	-
Other Support	TBD	Not specified. : TBD	-	-		-		0.242	Jan 2024	-		0.242	Continuing	Continuing	-
		Subtotal	-	0.336		0.388		4.984		-		4.984	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	4.369		7.249		25.545		-		25.545	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 7	**R-1 Program Element (Number/Name)** PE 1203906SF / *NCMC - TW/AA System*	**Project (Number/Name)** 67A051 / *Space Superiority - Advanced Intelligence Systems*

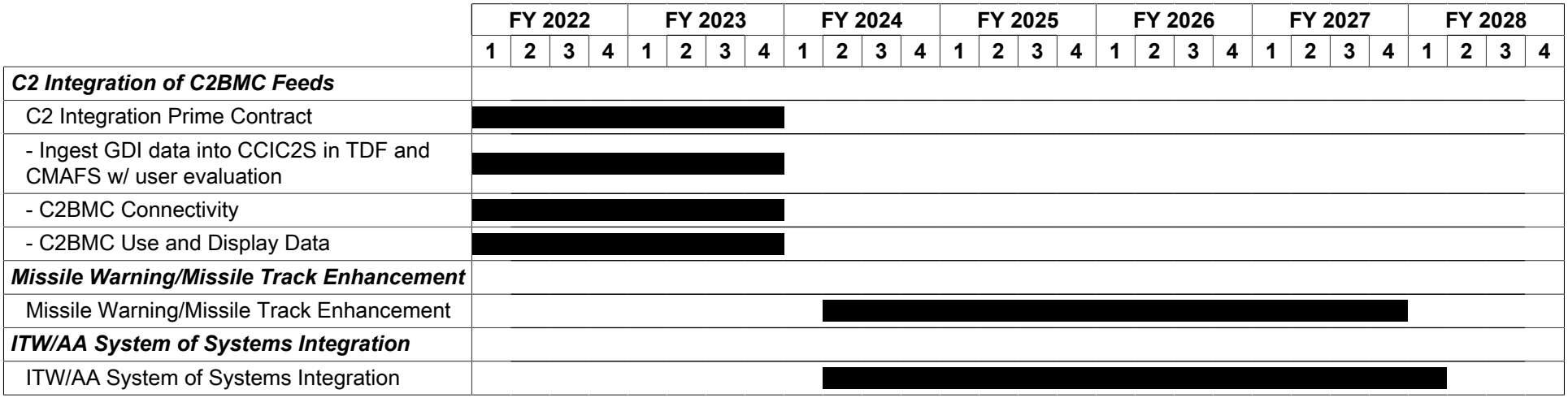

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 7	**R-1 Program Element (Number/Name)** PE 1203906SF / *NCMC - TW/AA System*	**Project (Number/Name)** 67A051 / *Space Superiority - Advanced Intelligence Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
C2 Integration of C2BMC Feeds				
C2 Integration Prime Contract	1	2022	4	2023
- Ingest GDI data into CCIC2S in TDF and CMAFS w/ user evaluation	1	2022	4	2023
- C2BMC Connectivity	1	2022	4	2023
- C2BMC Use and Display Data	1	2022	4	2023
Missile Warning/Missile Track Enhancement				
Missile Warning/Missile Track Enhancement	2	2024	4	2027
ITW/AA System of Systems Integration				
ITW/AA System of Systems Integration	2	2024	1	2028