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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604633A / <i>Air Traffic Control</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	5.543	3.383	4.405	-	4.405	-	-	-	-	-	-
586: <i>Air Traffic Control</i>	-	5.543	3.383	4.405	-	4.405	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Program Element (PE) 0604633A Air Traffic Control funds continuous efforts in the development of modernized tactical Air Traffic Control (ATC) systems that enable safety of aircraft operations. ATC systems are required to achieve or maintain compliance with civil, military, domestic and international ATC mandates and combat identification requirements.

The Tactical Airspace Integration System (TAIS) is the Army's program of record for Airspace Control and enroute Air Traffic Services. It requires development, testing and integration of new software for Air Traffic Control and Airspace Control in order to maintain compatibility and interoperability with the Army Mission Command Information System and coalition partners. TAIS includes development and testing of improvements to incorporate emerging Air Force interfaces, ability to simultaneously connect to multiple sensor systems to receive and process situational awareness information, the capability to connect to sensors to enhance available situational awareness thus reducing risk to aviation and ground forces, and to implement new software features for use in multiple computing environments. TAIS will evolve through Common Operating Environment (COE) convergence to facilitate Air Space Total Awareness for Rapid Tactical Execution (ASTARTE) and Joint All Domain Command and Control (JADC2).

The Air Traffic Navigation Integration and Coordination System (ATNAVICS) is a highly mobile Airport Surveillance Radar and Precision Approach Radar system that provides Air Traffic Services at Army airfields and landing sites at Division, Corps, and Echelons above Corps to include services for Joint and Allied aircraft. ATNAVICS integrates capabilities to control aircraft both Outside of the Continental United States and in the Continental United States. ATNAVICS is upgrading the Interrogation Identification Friend-or-Foe (IFF) system to maintain international airspace compatibility, capture flight information through the reception of aircraft self-reporting data broadcasts, and process into an interconnected air picture.

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B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	5.781	3.511	9.823	-	9.823
Current President's Budget	5.543	3.383	4.405	-	4.405
Total Adjustments	-0.238	-0.128	-5.418	-	-5.418
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.238	-0.128			
• Adjustments to Budget Years	-	-	-5.418	-	-5.418

Change Summary Explanation

Fiscal Year 2022 reflects a decrease in funding to better align with Army Air Traffic Control requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604633A / Air Traffic Control				Project (Number/Name) 586 / Air Traffic Control			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
586: Air Traffic Control	-	5.543	3.383	4.405	-	4.405	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 586 Air Traffic Control funds continuous efforts in the development of modernized tactical Air Traffic Control (ATC) systems that enable safety of aircraft operations. ATC systems are required to achieve or maintain compliance with civil, military, domestic and international ATC mandates and combat identification requirements.

The Tactical Airspace Integration System (TAIS) is the Army's program of record for Airspace Control and enroute Air Traffic Services. It requires development, testing and integration of new software for Air Traffic Control and Airspace Control in order to maintain compatibility and interoperability with the Army Mission Command Information System and coalition partners. TAIS includes development and testing of improvements to incorporate emerging Air Force interfaces, ability to simultaneously connect to multiple sensor systems to receive and process situational awareness information, the capability to connect to sensors to enhance available situational awareness thus reducing risk to aviation and ground forces, and to implement new software features for use in multiple computing environments. TAIS will evolve through Common Operating Environment (COE) convergence to facilitate Air Space Total Awareness for Rapid Tactical Execution (ASTARTE) and Joint All Domain Command and Control (JADC2).

The Air Traffic Navigation Integration and Coordination System (ATNAVICS) is a highly mobile Airport Surveillance Radar and Precision Approach Radar system that provides Air Traffic Services at Army airfields and landing sites at Division, Corps, and Echelons above Corps to include services for Joint and Allied aircraft. ATNAVICS integrates capabilities to control aircraft both Outside of the Continental United States and in the Continental United States. ATNAVICS is upgrading the Interrogation Identification Friend-or-Foe system to maintain international airspace compatibility, capture flight information through the reception of aircraft self-reporting data broadcasts, and process into an interconnected air picture.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2020	FY 2021	FY 2022
Title: Tactical Airspace Integration System (TAIS)	2.810	2.418	4.405
Description: TAIS is the Army's program of record for Airspace Control and enroute Air Traffic Services. It requires development, testing and integration of new software for Air Traffic Control and Airspace Control in order to maintain compatibility and interoperability with the Army Mission Command Information System and coalition partners. TAIS includes development and testing of improvements to incorporate emerging Air Force interfaces, ability to simultaneously connect to multiple sensor systems to receive and process situational awareness information, the capability to connect to sensors to enhance available situational awareness thus reducing risk to aviation and ground forces, and to implement new software features for use in multiple computing environments. TAIS will evolve through Common Operating Environment (COE) convergence to facilitate Air Space Total Awareness for Rapid Tactical Execution (ASTARTE) and Joint All Domain Command and Control (JADC2).			

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604633A / Air Traffic Control	Project (Number/Name) 586 / Air Traffic Control

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>FY 2021 Plans: Develop Joint All Domain Command and Control Airspace Control (AC) capabilities and AC service extension using Mission Command Information System and Tactical Assault Kit frameworks, plugins, and services. Develop a solution to utilize common and enterprise services in all Computing Environments. Begin development for integration and direct machine interfaces to emerging Artificial Intelligence assisted decision making aids.</p> <p>FY 2022 Plans: Develop Airspace Control embedded operator training capability. Continue development of Joint All Domain Command and Control AC capabilities and AC service extension using Mission Command Information System and Tactical Assault Kit frameworks and plugins services. Continue development of a solution to utilize common and enterprise services in all Computing Environments. Continue development for integration and direct machine interfaces to emerging Artificial Intelligence assisted decision making aids.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: FY2022 funding increases to develop embedded Airspace Control operator training capability, ASTARTE and JADC2.</p>			
<p>Title: Air Traffic Navigation Integration and Coordination System (ATNAVICs) Modernization</p> <p>Description: The ATNAVICs is a highly mobile Airport Surveillance Radar and Precision Approach Radar system that provides Air Traffic Services at Army airfields and landing sites at Division, Corps, and Echelons above Corps to include services for Joint and Allied aircraft. ATNAVICs integrates capabilities to control aircraft both Outside of the Continental United States and in the Continental United States. ATNAVICs is upgrading the IFF system to maintain international airspace compatibility, capture flight information through the reception of aircraft self-reporting data broadcasts, and process into an interconnected air picture.</p> <p>FY 2021 Plans: Complete RMF compliance efforts and product support analysis efforts.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding decreases in FY 2022 due to completion of RMF compliance efforts.</p>	2.733	0.965	-
Accomplishments/Planned Programs Subtotals	5.543	3.383	4.405

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• AA0050: Air Traffic Control	32.738	26.408	21.759	-	21.759	-	-	-	-	-	-
Remarks											

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D. Acquisition Strategy

This project is comprised of multiple systems supporting ATC development and test efforts. While the detailed acquisition strategy varies by program, the general strategy for each program is to complete development and testing efforts through contract modifications, engineering service tasks, and new/follow-on contracts. ATC systems are required to achieve or maintain compliance with civil, military, domestic and international air traffic control and upcoming Next Gen requirements and mandates as well as current aircraft self-reporting transponders.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604633A / Air Traffic Control	Project (Number/Name) 586 / Air Traffic Control
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TAIS Software Development (TTS/ASTARTE/JADC2)	SS/T&M	General Dynamics C4S : Huntsville, AL	37.832	2.810	May 2020	2.418	May 2021	2.910	Jan 2022	-		2.910	Continuing	Continuing	Continuing
TAIS EASI Software Development	MIPR	S3I : Redstone Arsenal, AL	-	-		-		1.334	Feb 2022	-		1.334	Continuing	Continuing	Continuing
TAIS Cyber/JITC Testing	MIPR	Redstone Test Center/CCDC : Redstone Arsenal, AL	-	-		-		0.161	Jan 2022	-		0.161	Continuing	Continuing	Continuing
ATNAVICS Modernization, TPX-59	Various	Various : Various	24.600	2.733	Jan 2020	0.965	Jan 2021	-		-		-	0.000	28.298	-
Subtotal			62.432	5.543		3.383		4.405		-		4.405	Continuing	Continuing	N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	62.432	5.543	3.383	4.405	-	4.405	Continuing	Continuing	N/A

Remarks
 PM: Program Management
 TAIS: Tactical Airspace Integration System
 ATNAVICS: Air Traffic Navigation Integration and Coordination System

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604633A / <i>Air Traffic Control</i>	Project (Number/Name) 586 / <i>Air Traffic Control</i>
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Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TAIS Software Development																												
TAIS																												
ATNAVICS Modernization TPX-59																												
TPX-59																												

Note
 TAIS: Tactical Airspace Integration System
 ATNAVICS: Air Traffic Navigation Integration and Coordination System

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604633A / <i>Air Traffic Control</i>	Project (Number/Name) 586 / <i>Air Traffic Control</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
TAIS Software Development	1	2015	4	2026
ATNAVICS Modernization TPX-59	3	2017	4	2021

Note

TAIS: Tactical Airspace Integration System
 ATNAVICS: Air Traffic Navigation Integration and Coordination System