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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305238F / NATO AGS
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	51.527	32.567	36.731	0.000	36.731	0.795	0.809	0.824	0.839	Continuing	Continuing
676001: NATO AGS	-	51.527	32.567	36.731	0.000	36.731	0.795	0.809	0.824	0.839	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program funds the U.S. contribution to the Alliance Ground Surveillance (AGS) system, a North Atlantic Treaty Organization (NATO), Direct Commercial Sale acquisition. AGS is an airborne ground surveillance capability that provides continuous, wide area surveillance in all weather conditions. It will provide NATO decision makers with near real time information and situational awareness concerning friendly, neutral and opposing ground and maritime forces to support mission planning and execution, including force protection and targeting. All NATO nations will have access to AGS collection data, creating opportunities for burden sharing with the processing and exploitation of Intelligence, Surveillance, and Reconnaissance (ISR) data.

The AGS program includes: air and ground segment acquisitions, operations of the NATO AGS Management Agency (NAGSMA), development of operations and support definition and establishment of an initial support capability. The air segment consists of five (5) air vehicles based on unique exportable configurations of the United States Air Force Global Hawk air frame, Navy Triton command and control architecture and the U.S. Multi-Platform Radar Technology Insertion Program (MP-RTIP) radar. The U.S. will also integrate new Maritime Moving Target and Inverse Synthetic Aperture Radar capability into the MP-RTIP radar for NATO AGS. The ground segment consists of fixed site and transportable/mobile ground stations for air vehicle Command and Control (C2), data exploitation and distribution. Operations and continuing In-Service Support will be funded through a future NATO Military Commanders' Capability Package funded within the NATO Security Investment Program (NSIP).

U.S. participation in NATO AGS was ratified by Secretary of Defense (SECDEF) signature/approval of the NATO AGS Program Memorandum of Understanding (PMOU) in June 2009 and includes 15 nations. In FY 2012, OSD transferred the NATO AGS program to the U.S. Air Force (USAF) for management and execution of the Research and Development effort.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Alliance Ground Surveillance weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

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.

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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	51.527	32.567	1.787	0.000	1.787
Current President's Budget	51.527	32.567	36.731	0.000	36.731
Total Adjustments	0.000	0.000	34.944	0.000	34.944
• 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	0.000	34.944	0.000	34.944

Change Summary Explanation

Funding increased due to contract award for maritime modes and program protection integration and testing.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
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<p>Title: Design / Development of NATO Alliance Ground Surveillance (AGS)</p> <p>Description: U.S. contribution to NATO for AGS development acquisition and initial fielding. Supports configuration changes at a system level and air vehicle exportability modifications.</p> <p>FY 2020 Plans: -Completing production/development and integration</p> <p>FY 2021 Plans: - Will support U.S. Government's contribution to NATO AGS Management Agency (NAGSMA) closeout costs.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Funding decreased due to imminent delivery of aircraft and transition to maritime mode updates.</p>	5.848	5.848	0.254
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<p>Title: Design/Development of Maritime Modes</p> <p>Description: Supports development and flight testing of maritime modes capability for RTIP and additional configuration changes that cannot be performed under the direct commercial sale contract between Northrop Grumman and NAGSMA.</p> <p>FY 2020 Plans:</p>	43.663	24.682	23.507
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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
<p>-Continuing development of maritime modes capability and additional configuration changes. Includes pre-contract negotiations and final award with Northrop Grumman.</p> <p>FY 2021 Plans: -Will continue development of Maritime Modes Capability and additional configuration changes. Will integrate new software into ground systems for test.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: N/A</p>				
<p>Title: Technical Support for NATO Alliance Ground Surveillance (AGS)</p> <p>Description: Provide engineering and logistics support for NATO AGS development, fielding, deferred capabilities, and obsolescence studies.</p> <p>FY 2020 Plans: -Continuing engineering, logistics and program office support for NATO AGS development and initial fielding.</p> <p>FY 2021 Plans: -Will continue engineering, logistics, and program office support for NATO AGS initial fielding. Will support evaluation of fielded aircraft to inform studies on sustainment requirements.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Funding decreased due to transition to the initial fielding phase of the program.</p>		0.981	1.002	0.103
<p>Title: Test and Evaluation Support for NATO Alliance Ground Surveillance (AGS)</p> <p>Description: Provide testing and evaluation via the Air Force Test Center.</p> <p>FY 2020 Plans: -Continuing flight test support to AGS development and initial fielding.</p> <p>FY 2021 Plans: -Will conduct Maritime Modes flight testing.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Funding increased due to flight testing of maritime mode updates.</p>		1.035	1.035	12.867
Accomplishments/Planned Programs Subtotals		51.527	32.567	36.731

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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 07 PE 0305220F: RQ-4 UAV	221.690	191.733	140.291	-	140.291	29.327	19.347	-	-	Continuing	Continuing

Remarks

E. Acquisition Strategy

Acquisition of the AGS system is being accomplished via a single delivery strategy. The system will be delivered via a fixed price direct commercial sale contract between Northrop Grumman Integrated System Sector International, Incorporated (NGISSII) & NATO, which was signed on 20 May 2012. The program is managed by the NATO AGS Management Agency (NAGSMA). A US contract will be utilized for the integration and testing of Maritime Modes and will be finalized in FY20.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305238F / NATO AGS	Project (Number/Name) 676001 / NATO AGS
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Product Development	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
NATO AGS Design / Development	SS/FFP	NATO AGS Management Agency : Brussels, Belgium	-	5.848	Oct 2018	5.848	Oct 2019	0.254	Oct 2020	-		0.254	Continuing	Continuing	-
MP-RTIP for NATO AGS Design / Development	SS/FFP	AFLCMC/HB : Hanscom AFB, MA	-	43.663	Dec 2018	24.682	Dec 2019	23.407	Dec 2020	-		23.407	Continuing	Continuing	-
Subtotal			-	49.511		30.530		23.661		-		23.661	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Support	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
NATO AGS Technical Support	SS/FFP	Multiple : Hanscom, WPAFB, OH	-	0.300	Oct 2018	0.300	Dec 2019	0.103	Oct 2020	-		0.103	Continuing	Continuing	-
Subtotal			-	0.300		0.300		0.103		-		0.103	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Test and Evaluation	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
NATO AGS Test and Evaluation Support	SS/FFP	Multiple: AFLCMC/WI, AFLCMC/HB, 412 TW, 88 CG : Hanscom, WPAFB, Edwards	-	1.035	Oct 2018	1.035	Oct 2019	12.867	Oct 2020	-		12.867	Continuing	Continuing	-
Subtotal			-	1.035		1.035		12.867		-		12.867	Continuing	Continuing	N/A

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Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Management Services	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
NATO AGS Management Services	SS/FFP	Multiple : Hanscom, WPAFB, Pax River	-	0.681	Jan 2019	0.702	Oct 2019	0.100	Oct 2020	-		0.100	Continuing	Continuing	-
Subtotal			-	0.681		0.702		0.100		-		0.100	Continuing	Continuing	N/A
Project Cost Totals			-	51.527		32.567		36.731		-		36.731	Continuing	Continuing	N/A

Remarks
 The Industrial Structure consists of Northrop Grumman (Northrop Grumman Integrated Systems Sector International, Incorporated - NGISSII) prime contractor, three subcontractors, and 15 participating nation industries that will receive direct work. There are no indirect offsets. The technical support of the NATO AGS program includes Advisory & Assistance Services to NATO. The test and evaluation support of the NATO AGS program includes the AFMC 412 Test Wing support of Flight Testing and Frequency Management by the AFMC 88 Communication Group. The management services support of the NATO AGS program includes MITRE Engineering, U.S. Navy's Triton program office support, U.S. government travel, and supplies.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305238F / NATO AGS	Project (Number/Name) 676001 / NATO AGS
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FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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

NATO AGS																																
Design and Development - NATO AGS																																
Aircraft #1 Ferry Flight to Main Ops Base (November 2019)																																
Aircraft #2 Delivery to NATO (December 2019)																																
Aircraft #3 & #4 Delivery to NATO (March 2020)																																
Aircraft #5 Delivery to NATO																																
System Level Performance Verification (December 2019 - February 2020)																																
IOC (March 2020)																																
FOC (September 2023)																																
Test & Eval Support to NATO AGS																																
Flight Test - NATO AGS (September 2019 - March 2020)																																
Design & Development- Maritime Mode																																
Tech Support - NATO AGS																																
Maritime Mode Test Support																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305238F / NATO AGS	Project (Number/Name) 676001 / NATO AGS
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NATO AGS				
Design and Development - NATO AGS	1	2019	4	2021
Aircraft #1 Ferry Flight to Main Ops Base (November 2019)	1	2020	1	2020
Aircraft #2 Delivery to NATO (December 2019)	1	2020	1	2020
Aircraft #3 & #4 Delivery to NATO (March 2020)	2	2020	2	2020
Aircraft #5 Delivery to NATO	3	2020	3	2020
System Level Performance Verification (December 2019 - February 2020)	1	2020	2	2020
IOC (March 2020)	2	2020	2	2020
FOC (September 2023)	4	2023	4	2023
Test & Eval Support to NATO AGS	1	2019	4	2020
Flight Test - NATO AGS (September 2019 - March 2020)	4	2019	2	2020
Design & Development- Maritime Mode	1	2019	2	2022
Tech Support - NATO AGS	1	2019	4	2023
Maritime Mode Test Support	2	2020	4	2022