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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305238F I NATO AGS							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	44.729	51.527	32.567	0.000	32.567	1.787	0.796	0.810	0.825	Continuing	Continuing
676001: NATO AGS	-	44.729	51.527	32.567	0.000	32.567	1.787	0.796	0.810	0.825	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 similar U.S. assets.

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.

As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is \$14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.

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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget		44.729	51.527	32.567	0.000	32.567
Current President's Budget		44.729	51.527	32.567	0.000	32.567
Total Adjustments		0.000	0.000	0.000	0.000	0.000
• 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	0.000	0.000	0.000
Change Summary Explanation Funding increased due to MP-RTIP system development, integration, initial testing efforts and inflation.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2018	FY 2019	FY 2020
Title: Design / Development of NATO Alliance Ground Surveillance (AGS)				10.160	5.848	5.848
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.						
FY 2019 Plans: - Aircraft #1-5 will be delivered to NATO						
FY 2020 Plans: -Completing production/development and integration						
FY 2019 to FY 2020 Increase/Decrease Statement: N/A						
Title: Design/Development of Maritime Modes				32.723	43.663	24.682
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.						
FY 2019 Plans:						

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
- Will continue development of maritime modes capability and additional configuration changes that cannot be performed under the direct commercial sale contract between Northrop Grumman and NAGSMA  <b>FY 2020 Plans:</b> - Will continue development of maritime modes capability and additional configuration changes that cannot be performed under the direct commercial sale contract between Northrop Grumman and NAGSMA  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Funding decreased due to progress made in MP-RTIP system development, integration, and initial testing efforts.				
<b>Title:</b> Technical Support for NATO Alliance Ground Surveillance (AGS)  <b>Description:</b> Provide engineering and logistics support for NATO AGS development and initial fielding.  <b>FY 2019 Plans:</b> - Will continue engineering, logistics and program office support for NATO AGS development and initial fielding.  <b>FY 2020 Plans:</b> - Will continue engineering, logistics and program office support for NATO AGS development and initial fielding.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Funding increased due to inflation and preparations to receive aircraft.		0.784	0.981	1.002
<b>Title:</b> Test and Evaluation Support for NATO Alliance Ground Surveillance (AGS)  <b>Description:</b> Provide testing and evaluation via the Air Force Test Center.  <b>FY 2019 Plans:</b> - Continue flight testing on the aircraft  <b>FY 2020 Plans:</b> - Continues flight test support  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> N/A		1.062	1.035	1.035
<b>Accomplishments/Planned Programs Subtotals</b>		44.729	51.527	32.567

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<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• RDTE 07 PE 0305220F: RQ-4 UAV	222.693	221.690	191.733	-	191.733	243.252	-	-	-	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b> 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).											
<b>F. Performance Metrics</b> Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305238F / NATO AGS				Project (Number/Name) 676001 / NATO AGS					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NATO AGS Design / Development	SS/FFP	NATO AGS Management Agency : Brussels, Belgium	-	10.160	Oct 2017	5.848	Oct 2018	5.848	Oct 2019	-		5.848	Continuing	Continuing	-
MP-RTIP for NATO AGS Design / Development	SS/FFP	AFLCMC/HB : Hanscom AFB, MA	-	32.723	Dec 2017	43.663	Dec 2018	24.682	Dec 2019	-		24.682	Continuing	Continuing	-
Subtotal			-	42.883		49.511		30.530		-		30.530	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NATO AGS Technical Support	SS/FFP	Multiple : Hanscom, WPAFB, OH	-	0.213	Dec 2017	0.300	Oct 2018	0.300	Dec 2019	-		0.300	Continuing	Continuing	-
Subtotal			-	0.213		0.300		0.300		-		0.300	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NATO AGS Test and Evaluation Support	SS/FFP	Multiple: AFLCMC/ WI, AFLCMC/HB, 412 TW, 88 CG : Hanscom, WPAFB, Edwards	-	1.062	May 2018	1.035	Oct 2018	1.035	Oct 2019	-		1.035	Continuing	Continuing	-
Subtotal			-	1.062		1.035		1.035		-		1.035	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NATO AGS Management Services	SS/FFP	Multiple : Hanscom, WPAFB, Pax River	-	0.571	Jan 2018	0.681	Jan 2019	0.702	Oct 2019	-		0.702	Continuing	Continuing	-

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Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	0.571		0.681		0.702		-		0.702	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	44.729		51.527		32.567		-		32.567	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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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Air Force	<b>Date:</b> February 2019
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305238F / NATO AGS	<b>Project (Number/Name)</b> 676001 / NATO AGS
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
<b>NATO AGS</b>																												
Design and Development - NATO AGS																												
Aircraft #1 Ferry Flight to Main Ops Base (March 2019)																												
Aircraft #2 Delivery to NATO (April 2019)																												
Aircraft #3, #4 & #5 Delivery to NATO (May 2019)																												
System Level Performance Verification																												
IOC (September 2019)																												
FOC (September 2023)																												
Test & Eval Support to NATO AGS																												
Flight Test - NATO AGS																												
Design & Development- Maritime Mode																												
Ground Station Delivery																												
Tech Support - NATO AGS																												
Maritime Mode Test Support																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Air Force			<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305238F / NATO AGS	<b>Project (Number/Name)</b> 676001 / NATO AGS	

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>NATO AGS</b>				
Design and Development - NATO AGS	1	2018	4	2019
Aircraft #1 Ferry Flight to Main Ops Base (March 2019)	2	2019	2	2019
Aircraft #2 Delivery to NATO (April 2019)	3	2019	3	2019
Aircraft #3, #4 & #5 Delivery to NATO (May 2019)	3	2019	3	2019
System Level Performance Verification	3	2019	2	2020
IOC (September 2019)	1	2020	1	2020
FOC (September 2023)	4	2023	4	2023
Test & Eval Support to NATO AGS	1	2018	4	2020
Flight Test - NATO AGS	1	2018	1	2019
Design & Development- Maritime Mode	1	2018	2	2022
Ground Station Delivery	1	2018	1	2018
Tech Support - NATO AGS	1	2018	4	2023
Maritime Mode Test Support	3	2019	4	2020