Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force											Date: May 2017	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0401130F / *C-17 Aircraft (IF)*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	36.082	12.430	34.287	0.000	34.287	49.547	10.584	10.746	25.356	Continuing	Continuing
672569: *C-17A Aircraft*	-	36.082	12.430	34.287	0.000	34.287	49.547	10.584	10.746	25.356	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0401130F, project 672569, Command and Control Capsules (Roll -On Conference Capsule (ROCC) formerly referred to as Silver Bullet Replacement), is a new start.
This program, BA 07 PE 0401130F, project 672569, Real Time In Cockpit (RTIC), is a new start.
This program, BA 07 PE 0401130F, project 672569, Fixed Installation Satellite Antenna (FISA), is a new start.

A. Mission Description and Budget Item Justification

The FY 2018 funding request was reduced by $37.276M million to account for the availability of prior year execution balances.

The C-17 can perform the entire spectrum of airlift missions and is specifically designed to operate effectively and efficiently in both strategic and theater environments. Airlift provides essential flexibility when responding to contingencies on short notice anywhere in the world. It is a major element of America's national security strategy and constitutes the most responsive means of meeting mobility requirements. Specific tasks associated with the airlift mission include deployment, employment, sustaining support, retrograde, and combat redeployment. Not only can the C-17 deliver outsize cargo to austere tactical environments, but it also reduces ground time during airland operations. The C-17 will perform its airlift mission well into this century.

C-17 RDT&E funding efforts support, but are not limited to: Aircraft performance improvements and airspace access mandates (i.e., Communications/Navigation Improvements); flight test activities and facilities; development of solutions for obsolescence and safety of flight issues; systems engineering/program management administration support; support for avionics laboratories; block development/change management; proposal preparation for new projects; cost estimating and engineering/acquisition studies not related to requirements generation.

In FY18 the major efforts are: Replacement Heads-Up Display (RHUD), Fire Filter Mitigation, and Beyond Line of Sight (BLOS).

Filter Fire Mitigation which is a redesign of the shutoff valve.

BLOS includes, but is not limited to: Narrowband tactical satellite communications Mobile User Objective System (MUOS); both Aero-I/Aero-H multi-channel voice and data upgrades delivered via an intermediate-gain antenna; next-generation Military GPS receiver (M-Code); and upgrades for Ku/Ka band satellite communications.

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force	Date: May 2017
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Command and Control Capsules to replace non-airworthy Silver Bullet Capsules includes development/design. Effort will allow US Government senior leaders and staff to work, communicate, and rest in airworthy capsules during long range missions into threat areas, with the protection of the C-17A Globemaster III's defensive systems capability.

Real Time In Cockpit (RTIC) enhancements integrate a situational awareness (SA) capability that allows aircrew to communicate with ground crew during airlift, airdrop, and other joint operations.

Fixed Installation Satellite Antenna (FISA) enables high bandwidth satellite communications, allowing for greater, in flight situational awareness.

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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	48.807	12.430	71.563	0.000	71.563
Current President's Budget	36.082	12.430	34.287	0.000	34.287
Total Adjustments	-12.725	0.000	-37.276	0.000	-37.276
• 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	-2.181	0.000			
• SBIR/STTR Transfer	-10.544	0.000			
• Other Adjustments	0.000	0.000	-37.276	0.000	-37.276

Change Summary Explanation

FY16: Funding was reduced by $12.725M. $2.181M for a reprogramming and $10.544M for Small Business Innovation Research (SBIR).

FY18: The FY 2018 funding request was reduced by $37.276M million to account for the availability of prior year execution balances.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Replacement Heads-up Display	13.712	5.901	4.370
Description: Replacement Heads-up Display (RHUD) project develops, integrates and installs a new HUD providing supportability/improved reliability & maintainability while providing growth to support future planned capability improvements.			

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force	Date: May 2017
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0401130F / *C-17 Aircraft (IF)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
RHUD was removed from the Common Configuration (CC) major thrust to allow management greater program visibility and oversight. Starting with the FY16 RHUD funds will be displayed in this thrust. ***FY 2016 Accomplishments:*** Continued development of RHUD preflight test hardware and software development. Support for on-going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation are included in the overall program cost. ***FY 2017 Plans:*** Continued development of RHUD. Program will conduct primary flight test and acceptance. Support for software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation are included in the overall program cost. ***FY 2018 Plans:*** Completes RHUD. FY18 funds are for risk reduction support for second flight test and associated engineering design adjustments. Support for on-going flight test, software labs, system engineering, program management and engineering/ acquisition studies not related to requirements generation are included in the overall program cost.			
Title: Filter Fire Mitigation (formerly referred to as Extended Range Onboard Inert Gas Generating System II) ***Description:*** Filter Fire Mitigation is a program that redesigns the OBIGGS II shutoff valve and makes software changes to the Warning and Caution Computer (WCC). It includes support for on-going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation. ***FY 2016 Accomplishments:*** Redesigned OBIGGS II shut off valve to eliminate the potential for OBIGGS II filter fires and improve fuel efficiency. It included support for on-going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation.	22.370	-	-
Title: Beyond Line of Sight ***Description:*** Beyond Line-Of-Sight (BLOS) modernization modification is a development, integration, and retrofit program for C-17 communications. BLOS modifies and improves hardware and software for voice and data communications on the C-17. The program will modify both integrated aircraft avionics as well as back-end mission communications and could utilize both military and commercial satellite systems to extend communication ranges. The current efforts include but are not limited to Aero-I/Aero-H modernization (multi-channel voice and data delivered via an intermediate-gain antenna), increased broadband and	0.000	6.529	16.592

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force	Date: May 2017
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C. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
secure data capability. It includes support for on-going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation. ***FY 2016 Accomplishments:*** N/A ***FY 2017 Plans:*** BLOS efforts will include work on: Narrowband tactical satellite communications Mobile User Objective System (MUOS); both Aero-I/Aero-H multi-channel voice and data upgrades delivered via an intermediate-gain antenna; next-generation military GPS receiver (M-Code); upgrades for Ku/Ka band satellite communications; and upgrades to the ARC-210 radio. It will include support for on-going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation. ***FY 2018 Plans:*** BLOS efforts will include work on: Narrowband tactical satellite communications Mobile User Objective System (MUOS); both Aero-I/Aero-H multi-channel voice and data upgrades delivered via an intermediate-gain antenna; next-generation military GPS receiver (M-Code); upgrades for Ku/Ka band satellite communications; and upgrades to the ARC-210 radio. It will include support for on-going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation.			
Title: Command and Control Capsules (Roll -On Conference Capsule (ROCC) formerly referred to as Silver Bullet Replacement) ***Description:*** Command and Control Capsules to replace non-airworthy Silver Bullet Capsules includes development/design. Effort will allow US Government senior leaders and staff to work, communicate, and rest in airworthy capsules during long range missions into threat areas, with the protection of the C-17A Globemaster III's defensive systems capability. Specifically, development phase of the Roll-On Conference Capsule (ROCC), (formerly referred to as the Silver Bullet Replacement (SBR) program) will require non-recurring engineering, manufacture of the prototype capsule and testing to define an airworthy configuration for the Capsules. Final design will permit safe occupancy and use of SBR Capsules and Steel Eagle equipment during all phases of flight to include unpressurized flight conditions. Support for flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation are included in the overall cost. ***FY 2018 Plans:*** Roll-On Conference Capsules (ROCC)(formerly referred to as Silver Bullet Replacement (SBR) Capsules) development/design begins in FY18 and completes in FY20. Development phase of SBR program will require non-recurring engineering, manufacture	-	-	13.000

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force	Date: May 2017
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C. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
of the prototype capsule and testing to define an airworthy configuration for the capsules. It will include flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation.			
Title: Real Time In Cockpit (RTIC) ***Description:*** Real Time In Cockpit (RTIC) Development of a Link-16 capability (air to air data transfer) and implementation/ integration of ARC-210 Gen 6 radios. It includes support for on-going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation. ***FY 2018 Plans:*** Real Time In Cockpit (RTIC) Development of a Link-16 capability (air to air data transfer) and implementation/integration of ARC-210 Gen 6 radios. It includes support for on-going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation.	-	-	0.125
Title: Fixed Installation Satellite Antenna (FISA) ***Description:*** Fixed Installation Satellite Antenna (FISA) includes SATCOM system which includes an antenna, radome, LRUs, wiring, and patch panel which enables high bandwidth satellite communications, allowing for greater, in flight situational awareness. It includes support for on-going flight test, software labs, system engineering, program management and engineering/ acquisition studies not related to requirements generation. ***FY 2018 Plans:*** Fixed Installation Satellite Antenna (FISA) includes SATCOM system which includes an antenna, radome, LRUs, wiring, and patch panel which enables high bandwidth satellite communications, allowing for greater, in flight situational awareness. It includes support for on-going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation.	-	-	0.200
Accomplishments/Planned Programs Subtotals	36.082	12.430	34.287

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• APAF: BA05: Line Item # C01700: *C-17A*	43.697	21.555	125.525	0.000	125.525	125.352	134.964	98.077	96.839	0.000	597.032
• APAF: BA07: Line Item # C01700: *C-17A*	15.054	23.559	12.028	0.000	12.028	6.310	0.000	0.000	0.000	0.000	54.951

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force	Date: May 2017
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0401130F / *C-17 Aircraft (IF)*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• APAF: BA06: Line Item # 000999: *Initial Spares/Repair Parts*	13.970	9.400	73.248	0.000	73.248	12.955	19.343	13.852	14.012	0.000	168.984
• APAF: BA03: Line Item # 834070: *Mobility Command and Control*	0.000	0.000	0.000	0.000	0.000	10.603	0.000	0.000	0.000	0.00	10.603

Remarks

E. Acquisition Strategy

The C-17 Acquisition Strategy is based on several separate contracts to support the entire scope of the C-17 weapon system. Globemaster Operational Enhancement (GLOBE) is an indefinite delivery, indefinite quantity (IDIQ) contract used to purchase services and research articles (through delivery orders) to support all RDT&E with our prime contractor. In addition, purchase orders are used to support flight test activities within the projects at Edwards AFB. Additional contract vehicles could be utilized as required.

F. Performance Metrics

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.

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force		Date: May 2017
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0401130F / *C-17 Aircraft (IF)*	**Project (Number/Name)** 672569 / *C-17A Aircraft*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C-17 RHUD- Replacement Heads Up Display	Various	Boeing : Long Beach, CA	-	13.712	Nov 2015	5.901	Nov 2016	4.370	Nov 2017	0.000		4.370	0.000	23.983	23.983
C-17 Filter Fire Mitigation- (formerly referred to as Extended Range Onboard Inert Gas Generating System II)	Various	Boeing : Long Beach, CA	-	22.370	Mar 2017	0.000		0.000		0.000		0.000	0.000	22.370	22.370
C-17 BLOS- Beyond Line of Sight	Various	Boeing : Long Beach, CA	-	0.000		6.529	Jul 2017	16.592	Nov 2017	0.000		16.592	Continuing	Continuing	-
C-17 ROCC- Roll -On Conference Capsule- (formerly referred to as Command and Control Capsules) (Silver Bullet Replacement)	C/CPIF	Small Business : TBD	-	0.000		0.000		13.000	Jun 2018	0.000		13.000	0.000	13.000	-
C-17 Common Configuration- Real Time In Cockpit (RTIC)	C/TBD	TBD : TBD	-	0.000		0.000		0.125	Jun 2018	0.000		0.125	0.000	0.125	-
C-17 Common Configuration- Fixed Installation Satellite Antenna (FISA)	Various	BOEING : Long Beach, CA	-	0.000		0.000		0.200	Jun 2018	0.000		0.200	0.000	0.200	-
		Subtotal	-	36.082		12.430		34.287		0.000		34.287	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force			Date: May 2017
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401130F / *C-17 Aircraft (IF)*	Project (Number/Name) 672569 / *C-17A Aircraft*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	36.082		12.430		34.287		0.000		34.287	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force		Date: May 2017
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0401130F / *C-17 Aircraft (IF)*	**Project (Number/Name)** 672569 / *C-17A Aircraft*

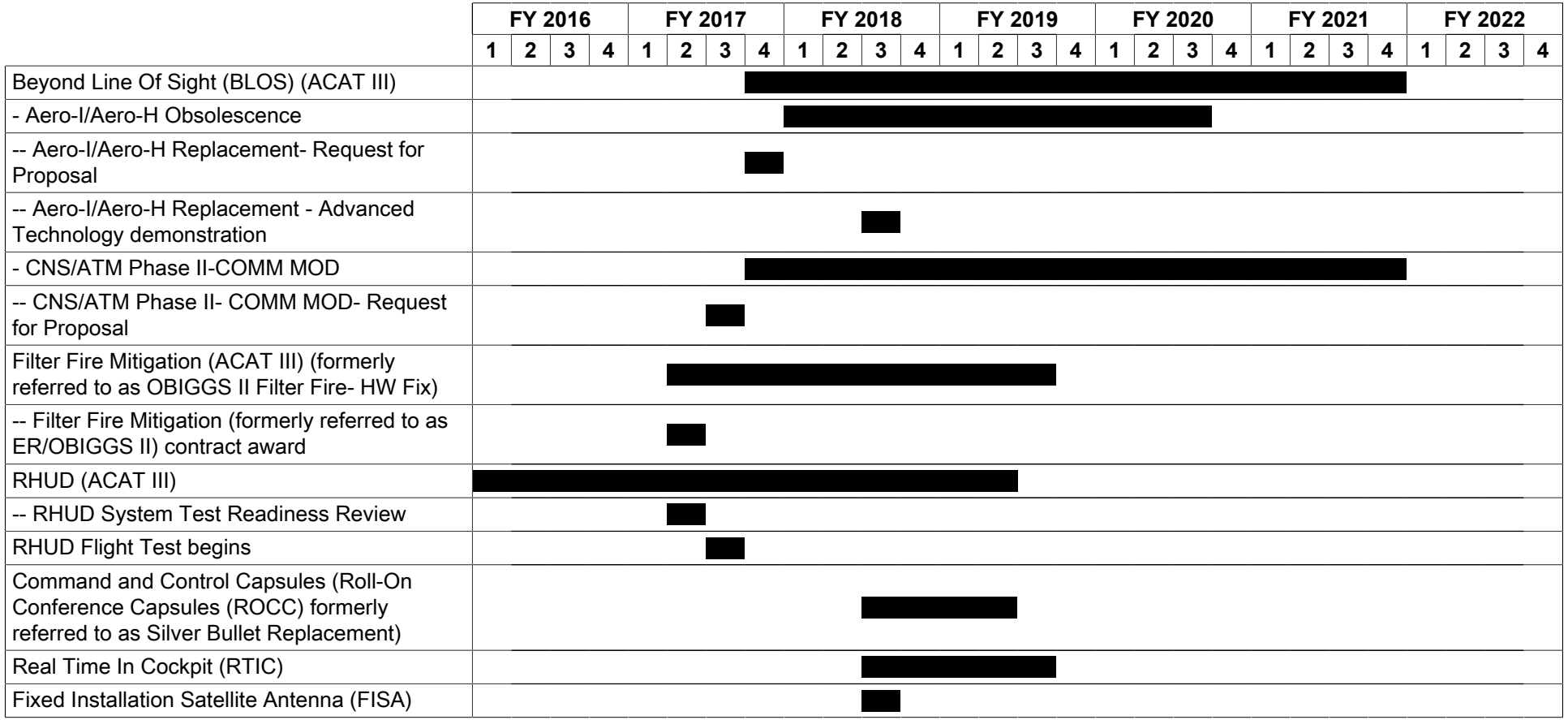

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force		Date: May 2017
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0401130F / *C-17 Aircraft (IF)*	**Project (Number/Name)** 672569 / *C-17A Aircraft*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Beyond Line Of Sight (BLOS) (ACAT III)	4	2017	4	2021
- Aero-I/Aero-H Obsolescence	1	2018	3	2020
-- Aero-I/Aero-H Replacement- Request for Proposal	4	2017	4	2017
-- Aero-I/Aero-H Replacement - Advanced Technology demonstration	3	2018	3	2018
- CNS/ATM Phase II-COMM MOD	4	2017	4	2021
-- CNS/ATM Phase II- COMM MOD- Request for Proposal	3	2017	3	2017
Filter Fire Mitigation (ACAT III) (formerly referred to as OBIGGS II Filter Fire- HW Fix)	2	2017	3	2019
-- Filter Fire Mitigation (formerly referred to as ER/OBIGGS II) contract award	2	2017	2	2017
RHUD (ACAT III)	1	2016	2	2019
-- RHUD System Test Readiness Review	2	2017	2	2017
RHUD Flight Test begins	3	2017	3	2017
Command and Control Capsules (Roll-On Conference Capsules (ROCC) formerly referred to as Silver Bullet Replacement)	3	2018	2	2019
Real Time In Cockpit (RTIC)	3	2018	3	2019
Fixed Installation Satellite Antenna (FISA)	3	2018	3	2018