Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force											Date: February 2016	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604422F / *Weather System Follow-on*							
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	123.681	30.890	56.044	118.953	0.000	118.953	151.650	153.330	61.893	36.903	89.000	822.344
644289: *Weather Satellite Follow-On*	123.681	30.890	56.044	118.953	0.000	118.953	151.650	153.330	61.893	36.903	89.000	822.344
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: 488												

A. Mission Description and Budget Item Justification

Weather System Follow-on (WSF) is the Department of Defense's (DoD) future weather system. The program will leverage a group of systems to provide timely, reliable, and high quality remote sensing capabilities that will make global environmental observations of atmospheric, terrestrial, oceanographic, solar-geophysical conditions and meet other requirements validated by the Joint Requirements Oversight Council.

Based on completion of the Space-Based Environmental Monitoring (SBEM) Analysis of Alternatives (AoA), capabilities will be developed to satisfy weather gaps for which no known mitigation exists to include Ocean Surface Vector Winds, Tropical Cyclone Intensity, and Low Earth Orbit Energetic Charged Particles. The earliest possible launch options are being integrated in the design for critical gaps.

DoD established WSF as a Pre-Major Defense Acquisition Program (MDAP) with the Air force as the lead component. Based on the SBEM AoA results, the WSF initial thrusts will be to enable:
1) DoD use of data collected by civil, international and other DoD space systems;
2) Timely weather collection over broad oceans in support of maneuvering forces;
3) Space weather capabilities to characterize operational orbits, space situational awareness, and the ionosphere.

Secondary investments may be supported to address weather gaps identified in the Meteorological and Oceanographic (METOC) Initial Capability Document (ICD).

This program is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P) because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604422F / *Weather System Follow-on*	

B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	39.901	76.108	109.623	0.000	109.623
Current President's Budget	30.890	56.044	118.953	0.000	118.953
Total Adjustments	-9.011	-20.064	9.330	0.000	9.330
• Congressional General Reductions	0.000	-0.064			
• Congressional Directed Reductions	0.000	-20.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-7.666	0.000			
• SBIR/STTR Transfer	-1.345	0.000			
• Other Adjustments	0.000	0.000	9.330	0.000	9.330

Change Summary Explanation

FY15:-$1.345 SBIR and -$7.666M reprogramming for higher Air Force priorities (including Wideband Global Satellite Communications, Advanced Extremely High Frequency, and Space Test and Training Range)
FY16:-$20.000M Congressional mark and -$0.064M FFRDC mark
FY17:+$9.330M net change (+$19.300M for revised acquisition strategy;-$9.970M adjusted for slow execution of prior year funding)

C. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: WSF	30.890	56.044	118.953

Description: In Phase I, the Air Force priority is to deliver the technology demonstration solution to mitigate projected WindSat mission End of Life (EOL). In order to achieve this goal, Space and Missile Systems Center/Remote Sensing (SMC/RS) is working with the Operationally Responsive Space (ORS) office to launch Compact Ocean Wind Vector Radiometer (COWVR) technology demonstration.

Phase II of the WSF program will more closely resemble the standard satellite acquisition. The Air Force intends to pursue a full and open competition with industry aimed at procuring the most affordable and capable Weather System Follow-on (WSF) Objective System to meet all three capability gaps. The WSF Objective System will be informed by COWVR performance on-orbit to determine whether the COWVR's new design on microwave sensor has the potential to significantly reduce the size, weight and power (SWaP) of the payload, thereby reducing the per mission cost of the system. Furthermore, the COWVR will include a technology transition strategy to strengthen industry competition for the WSF Objective System procurement. The WSF Objective System projected Initial Launch Capability (ILC) is FY22.

FY 2015 Accomplishments:

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604422F / *Weather System Follow-on*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Conducted WSF pre-acquisition activities to include requirements decomposition and market research. Approved to utilize ORS authorities to execute initial system procurement for ORS Compact Ocean Wind Vector Radiometer (COWVR) technology demonstration. Approved initial system acquisition strategy. Delivered the COWVR sensor. Funded program support activities. Completed Energetic Charged Particles (ECP) Market Research. ***FY 2016 Plans:*** Secure Air Force Requirements Oversight Council validation of WSF Capabilities Development Document (CDD). Release Request For Proposal (RFP) and conduct source selection for WSF Objective System (Payload, Bus, Integration and Ground segment). Approval of acquisition strategy from OSD AT&L. Support ORS in awarding launch service contract for ORS COWVR technology demonstration. Release ECP System RFP. Fund program support activities. Continue Program Office and related support activities, technical analysis and independent verification and validation of contractor. Continue enterprise SE&I. ***FY 2017 Plans:*** Launch ORS COWVR technology demonstration satellite. Award WSF Objective System contract. Modify existing ground segment and begin planning and transition to Enterprise Ground Services (EGS). Develop payload algorithms and purchase long-lead items for WSF Objective System. Compete launch service contract. Forecasted to complete ECP System CDR, award ECP System Risk Reduction Contract, and initiate ECP System PDR. Fund program support activities. Continue Program Office and related support activities, technical analysis and independent verification and validation of contractor. Continue enterprise Systems Engineering & Integration (SE&I).			
Accomplishments/Planned Programs Subtotals	30.890	56.044	118.953

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

DoD established Weather System Follow-on (WSF) as a pre-Major Defense Acquisition Program (MDAP). The acquisition strategy for WSF was informed by review and validation of the Space Based Environmental Monitoring Analysis of Alternatives results and the acquisition strategy development activities that were conducted in FY15. The WSF acquisition strategy focuses on streamlined acquisition process for providing materiel solutions to Ocean Surface Vector Winds (OSVW), Tropical Cyclone Intensity (TCI) & Low Earth Orbit (LEO) Energetic Charged Particles (ECP), as validated by the Joint Requirements Oversight Council; deliver microwave sensing solution to address DoD needs for OSVW and TCI capabilities and deliver space environment sensing solution to address LEO ECP capabilities for on-orbit attributions and anomaly resolutions. Impending WindSat mission End of Life (EOL) required WSF to approach the program acquisition in two phases; phase I to address imminent OSVW/TCI needs via the ORS COWVR technology demonstration option, while phase II involves a more robust set of capabilities for the WSF Objective System.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604422F / *Weather System Follow-on*

In Phase I, the Air Force intends to deliver a technology demonstration solution to address the immediate OSVW and TCI needs to mitigate WindSat EOL. In order to achieve this goal in a timely manner, WSF program funded Jet Propulsion Lab (JPL) to complete development of the COWVR sensor, and the payload is now ship-ready for integration with the spacecraft. The WSF program office is working in conjunction with ORS office to procure the space vehicle, launch vehicle and the launch service required for projected FY17 Initial Launch Capability (ILC). If successful, the COWVR microwave technology will inform later increments of the WSF Objective System and has the potential to significantly reduce the size, weight and power of the payload, thereby reducing the per mission cost of the system.

In Phase II, the program intends to procure the WSF Objective System, capable of meeting all three weather capability gaps, in a full and open competition environment, in order to foster industry competition for reduced overall program cost. Overall, there will be two WSF Objective System satellites to be procured, with first system ILC by FY22 to mitigate any potential weather coverage gaps. The second WSF Objective System launch ILC is currently projected for FY26.

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: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604422F / *Weather System Follow-on*	Project (Number/Name) 644289 / *Weather Satellite Follow-On*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Enterprise Systems Engineering & Integration	TBD	Various : TBD	0.000	0.000		4.059	Oct 2016	6.095	Oct 2017	0.000		6.095	0.000	10.154	-
Technical Mission Analysis	RO	Aerospace : El Segundo, CA	0.000	2.200	Mar 2015	4.951	Oct 2016	7.733	Oct 2017	0.000		7.733	0.000	14.884	-
ORS COWVR Technology Demonstration	C/CPAF	MEI : TBD	0.000	19.558	Aug 2015	28.513	Jan 2016	23.269	Jan 2017	0.000		23.269	0.000	71.340	-
WSF Objective System	TBD	TBD : TBD	0.000	0.000	Aug 2015	0.000	Apr 2016	59.681	Apr 2017	0.000		59.681	438.028	497.709	-
LEO ECP (Gap 11)	TBD	TBD : TBD	0.000	0.300	Jan 2015	4.919	Jan 2016	5.419	Apr 2017	0.000		5.419	0.000	10.638	-
Pre-Acquisition Activities	Various	Various : Various	103.432	0.000		0.000		0.000		0.000		0.000	0.000	103.432	-
		Subtotal	103.432	22.058		42.442		102.197		0.000		102.197	438.028	708.157	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Requirements/Engineering Analysis Support	RO	Defense Information Technical Center (DTIC)/Surviac Contract : El Segundo, CA	1.500	0.000		0.000		0.000		0.000		0.000	0.000	1.500	-
Engineering Risk Reduction Studies	Various	Various : TBD	1.171	0.000		0.000		0.000		0.000		0.000	0.000	1.171	-
		Subtotal	2.671	0.000		0.000		0.000		0.000		0.000	0.000	2.671	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Not specified.	TBD	Not specified. : TBD	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	-
		Subtotal	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604422F / *Weather System Follow-on*	Project (Number/Name) 644289 / *Weather Satellite Follow-On*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC	RO	Aerospace : Los Angeles, CA	11.863	6.000	Oct 2014	3.855	Oct 2015	3.971		0.000		3.971	24.700	50.389	-
Other Support	Various	Various : TBD	5.378	2.500	Nov 2014	1.621	Nov 2015	2.879		0.000		2.879	11.300	23.678	-
A&AS	Various	Various : TBD	0.337	0.332	Nov 2014	8.126	Nov 2015	9.906		0.000		9.906	40.500	59.201	-
		Subtotal	17.578	8.832		13.602		16.756		0.000		16.756	76.500	133.268	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	123.681	30.890		56.044		118.953		0.000		118.953	514.528	844.096	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604422F / *Weather System Follow-on*	**Project (Number/Name)** 644289 / *Weather Satellite Follow-On*

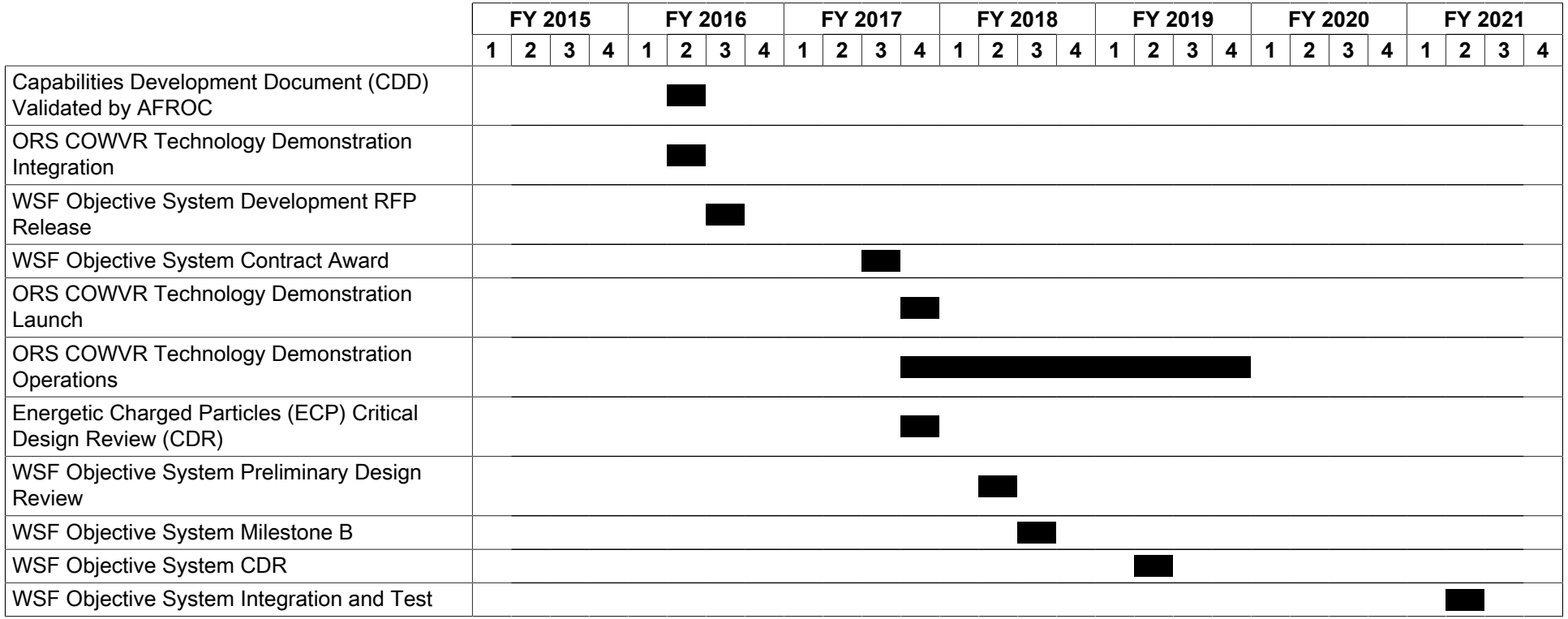

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604422F / *Weather System Follow-on*	**Project (Number/Name)** 644289 / *Weather Satellite Follow-On*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Capabilities Development Document (CDD) Validated by AFROC	2	2016	2	2016
ORS COWVR Technology Demonstration Integration	2	2016	2	2016
WSF Objective System Development RFP Release	3	2016	3	2016
WSF Objective System Contract Award	3	2017	3	2017
ORS COWVR Technology Demonstration Launch	4	2017	4	2017
ORS COWVR Technology Demonstration Operations	4	2017	4	2019
Energetic Charged Particles (ECP) Critical Design Review (CDR)	4	2017	4	2017
WSF Objective System Preliminary Design Review	2	2018	2	2018
WSF Objective System Milestone B	3	2018	3	2018
WSF Objective System CDR	2	2019	2	2019
WSF Objective System Integration and Test	2	2021	2	2021