Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy											Date: February 2016	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604214N *I AV-8B Aircraft - Engine Dev*							
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	329.464	24.558	27.668	33.664	-	33.664	39.078	32.150	23.084	17.259	Continuing	Continuing
0652: *AV-8B*	329.464	24.558	27.668	33.664	-	33.664	39.078	32.150	23.084	17.259	Continuing	Continuing

A. Mission Description and Budget Item Justification

The program provides for AV-8B Design, Development, Integration, and Test of various platform improvements such as: Engine Life Management Program (ELMP), Escape Systems, Joint Mission Planning System (JMPS), and Block upgrades to various mission systems and software, communications systems, navigation equipment, weapons carriage and countermeasures, and the Obsolescence Replacement (OR)/Readiness Management Plan (RMP) including structural, hydraulic, electrical, environmental, and mechanical systems. The JMPS is required as part of the Department of the Navy directed migration to a common Navy and Marine Corps mission planning system. OR/RMP represents all engineering activities for development and design to support aircraft safety flight clearances, concept explorations, responses to evolving threats, and developments to support Program Objective Memorandum. The program's Evolutionary Acquisition Strategy includes Design, Development, Integration, and Test activities under the consolidated effort of Block Developments: H6.1, H6.2 and follow-on block upgrades, to include a H7.0 block upgrade that will be required to implement full Link 16 capability. The H6.1 update provided enhancements and software corrections that improved the AV-8B platform combat effectiveness, survivability, and relevance through avionics processor upgrades, mission planning updates, and Litening Operational Flight Programs (OFP). A H6.2 update, including the Common Avionics Program, provides AV-8B a self-contained Global Positioning System navigation capability that is required to access preferred airspaces, and will include a Litening OFP V3, and initial Link 16 Precise Participant Location and Identification capability, which will provide interoperability, digital combat identification and increase situational awareness on the battlefield. Link 16 is a Top 10 item in the Operational Advisory and Systems Safety Groups. AV-8B funding supports peculiar flight test requirements. The Link 16 full integration effort, which will require an H7.0 OFP upgrade beyond H6.2, will provide information sharing capabilities and integration of an increased number of Link 16 messages and the ability to act on shared target track information. Connection to the Link 16 network is vital to the AV-8B's ability to operate within some Command and Control situations and Operational Plans, as designed today, as well as provide a tactical capability for the more effective and safe prosecution of both airborne and ground targets. Continued AV-8B combat relevance and ability to respond to evolving and emergent threats through end of service is critical to the Marine Air-Ground Task Force's ability to generate aviation combat power throughout the transition to F-35B. J-series, K-series, Tactical Targeting Network Technology, and other emerging datalink technology messages are required to support current and future mission threads. Linked performance on par with current tactical platforms as well as design to communicate with F-35 is required for the AV-8B to remain tactically relevant to transition. Unique Weapons and Countermeasures integration and stores expansion testing will be required, to include Advanced Precision Kill Weapons System, AIM-9X, ALE-43, and AIM-120 unique platform flight test which will be required to utilize updated AIM-120C variants on the AV-8B and utilize the AIM-120 in mixed stores loadouts. The ELMP is a comprehensive plan to increase safety of flight and operational readiness of the AV-8B F402-RR-408 Engine and accessories. PMA-257 will accomplish this mission by conducting Engineering Project Description investigations and performing a series of planned Endurance Tests to derive engineering improvements to the engine. The OR/RMP is required to ensure the AV-8B air vehicle's sustained mission availability, and safe and reliable operational readiness until end of service. Air vehicle sustainment requires component and system analyses, technical planning, identification, prioritization, and diagnosis of emergent problems and the allocation of resources for the development, testing and flight clearance of engineering solutions in the areas of flight, crew safety, and escape systems and structural integrity, obsolescence, systems reliability and maintainability, inventory preservation, alternative mission development, or other emergent material or equipment conditions affecting AV-8B systems readiness. Activities include research/analysis for system safety deficiency corrections, fuel system safety improvements, structural analyses, monitoring and integrity analysis, component compatibility, component and materials obsolescence analyses and

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604214N *I AV-8B Aircraft - Engine Dev*

mitigation development, explorations for aging equipment, reliability improvement analyses and design developments. FY 2017 continues development efforts and associated obsolescence and readiness requirements for ELMP, RMP, Link 16, weapons carriage/integration, and OFP updates.

B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	25.372	39.878	22.315	-	22.315
Current President's Budget	24.558	27.668	33.664	-	33.664
Total Adjustments	-0.814	-12.210	11.349	-	11.349
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-12.210			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.300	0.000			
• SBIR/STTR Transfer	-0.514	0.000			
• Program Adjustments	0.000	0.000	14.175	-	14.175
• Rate/Misc Adjustments	0.000	0.000	-2.826	-	-2.826

Change Summary Explanation

Cost:

FY 2017 Base Program Adjustment to Operational Flight Program (OFP) and Avionics Weapons Systems Development and Integration for Digital Interoperability.

Schedule:

H6.2 IOC moved from 4Q/17 to 2Q/18, H6.2 Development extended from 4Q/16 to 3Q/17, and H6.2 Test extended from 3Q/17 to 1Q/18 due to challenges with Global Positioning System navigation capability integration, as well as inclusion of initial Link 16 Precise Participant Location and Identification (PPLI) capability in the H6.2 Operational Flight Program.

H6.2 Software Delivery moved from 4Q/17 to 2Q/18 due to challenges with Global Positioning System navigation capability integration, as well as inclusion of initial Link 16 PPLI capability in the H6.2 OFP.

H7.0 IOC and H7.0 Software Delivery added in 4Q/20.

Link 16 Hardware Development completion moved from 1Q/19 to 1Q/18 due to requirement to complete Link 16 hardware development prior to H6.2 software delivery.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604214N *I AV-8B Aircraft - Engine Dev*

H7.0 Software Development start date moved from 1Q/16 to 3Q/16 and completion date extended from 1Q/18 to 4Q/19 due to challenges with H6.2 and inclusion of initial Link 16 PPLI capability into H6.2. H7.0 schedule and Link 16 full integration is adjusted based on H6.2 schedule changes.

H7.0 Link 16 DT/IT start date moved from 1Q/16 to 2Q/18 and completion date extended from 1Q/19 to 4Q/20 due to challenges with H6.2 and inclusion of initial Link 16 PPLI capability into H6.2. H7.0 schedule and Link 16 full integration is adjusted based on H6.2 schedule changes.

RMP Flight Test completion extended from 4Q/16 to 4Q/18 due to requirements for evaluation of new designs for the Main Landing Gear Hand Operating Strut in FY16-17, Brake Temperature and Outrigger Landing Gear Indicators in FY16, and Pitot Static Probe and new canopy transparency material in FY18.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214N / *AV-8B Aircraft - Engine Dev*	Project (Number/Name) 0652 / *AV-8B*	

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
0652: *AV-8B*	329.464	24.558	27.668	33.664	-	33.664	39.078	32.150	23.084	17.259	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program provides for AV-8B Design, Development, Integration and Test of the following improvements: The Engine Life Management Program (ELMP), Operational Flight Program (OFP) and Avionics/Weapons Integration, Escape System, and Readiness Management Plan (RMP). The ELMP is a comprehensive plan to increase safety of flight and operational readiness of the AV-8B F402-RR-408 Engine and Gas Turbine Starter, as well as other critical engine components. The Program Office will accomplish this mission through the Component Improvement Program, which entails Engineering Project Description investigations and a series of planned Endurance Tests to derive safety and reliability improvements to the engine and engine components. The Joint Mission Planning System is required as part of the Department of Navy directed migration to a common Navy and Marine Corps mission planning system. H6.1 provided enhancements and software corrections, and H6.2 (Common Avionics Program) provides Global Positioning System navigation capabilities, a Litening common OFP and initial Link 16 capability to include use of the APX-123, as well as software updates. H7.0 OFP will integrate full Link 16 capability and provide software updates. H7.0 will also integrate common avionics ADS-B (out), Mode 5, and Mode S Identification Friend or Foe capabilities. Other specific efforts include peculiar integration and flight test requirements such as AIM-120C flight test, as AIM-120A/B will become obsolete, as well as AIM-120 mixed stores flight test, unique weapons and countermeasures integration and stores expansion to include Advanced Precision Kill Weapons System, AIM-9X, ALE-43 and unique flight test of other avionics or weapons systems as they arise. The program is working closely with the Common Avionics Program and the Allies (Spain and Italy) on all efforts. RMP represents all engineering activities for development, design and test to support aircraft safety, flight clearance and concept exploration for resolution of emergent safety, service life, escape systems, compatibility, obsolescence, and readiness issues as well as response to fleet urgent operational requirements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Development of RMP Engineering Change Proposals	11.066	11.729	11.734	0.000	11.734
Articles:	-	-	-	-	-
Description: Develop obsolescence solutions to improve safety, structural integrity, and systems reliability of the AV-8B aircraft.					
FY 2015 Accomplishments: Extensions to AV-8B End of Service date require extensive obsolescence mitigation efforts to preclude aircraft on ground. The program began in PB14 and continued to address known, predicted, and emergent obsolescence equipment issues. Systems engineering supported ongoing and emergent analysis and design/ development efforts required to identify ECP requirements to correct systems safety, structural integrity, and readiness issues. Began design of Brake Temperature monitoring system to prevent brake fires and improve safety. Began the development of Improved Main Landing Gear strut servicing indication system to improve					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214N / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
safety and reliability. Conducted system engineering study and design work for Outrigger Landing Gear service indicating system to improve safety and reliability. Began system engineering analyses and design for GR-9 component compatibility. ***FY 2016 Plans:*** Extension to AV-8B End of Service date requires continued obsolescence mitigation efforts to preclude aircraft on ground. The program began in PB15 and will continue to address known, predicted, and emergent obsolescence equipment issues. Systems engineering will support ongoing and emergent analysis and design/ development efforts required to identify Engineering Change Proposal requirements to correct systems safety, structural integrity, compatibility, and readiness issues. Continue fatigue life tracking analyses and algorithm update development. Complete design of Brake Temperature monitoring system to prevent brake fires and improve safety. Continue the development of Improved Gun Shutoff Valve, Hand Operating Strut, Brake Temperature and Main Landing Gear Strut Servicing Indication Systems and Environmental Control System capacity (Turbine) improvements. Continue system engineering analyses and design for GR-9 component compatibility and Heads Up Display combining glass. Begin Vinson/Advanced Narrowband Digital Voice Terminal Cryptographic Modernization obsolescence remediation to improve safety and reliability. ***FY 2017 Base Plans:*** Extension to AV-8B End of Service date requires continued obsolescence mitigation efforts to preclude aircraft on ground. The program will continue to address known, predicted, and emergent obsolescence equipment issues, continuing efforts from prior years and develop replacements for the Pitot Static Probe, obsolete canopy transparency and composite materials components including landing gear doors. Continue fatigue life tracking analyses and algorithm update development. Continue Vinson/Advanced Narrowband Digital Voice Terminal Cryptographic Modernization obsolescence remediation to improve safety and reliability. Systems engineering will support ongoing and emergent analysis and design/development/test efforts required to identify Engineering Change Proposal requirements to correct systems safety, structural integrity, compatibility, and readiness issues including efforts required to respond to evolving and emergent threats, mission systems, communications systems, navigation equipment, weapons carriage and countermeasures, structural, hydraulic, electrical, environmental, and mechanical systems. ***FY 2017 OCO Plans:*** N/A					
Title: Operational Flight Program (OFP) and Avionics Weapons Systems Development and Integration	7.206	9.487	16.267	0.000	16.267
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214N / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Description: Develop, integrate, and test aircraft OFP updates, mission planning updates, Litening Pod software updates/capability expansions, support aircraft avionics development efforts, integrate and test unique weapons systems and countermeasures such as AIM-120C, AIM-9X, Advanced Precision Kill Weapon System, ALE-43, and other weapons/avionics systems as they arise, perform stores expansion testing, and conduct Digital Interoperability (to include Link 16) development, integration, and test efforts. Evaluate future capability expansions via studies and analyses. ***FY 2015 Accomplishments:*** Funds provided for future capability expansion studies and analyses, peculiar flight test requirement, and aircraft Operational Flight Program (OFP)/Litening Pod software updates and developmental test as part of the H6.2 upgrade. Began Global Positioning System performance test in to support H6.2 upgrade development testing, and associated telemetry analysis. Began developmental testing of second Mission Systems Computer processor card that will be used in H6.2. ***FY 2016 Plans:*** Funds will provide for future capability expansion studies and analyses, peculiar flight test requirements to include weapons/countermeasures/stores expansion integration and testing, and aircraft OFP/Litening Pod software updates and developmental test as part of the H6.2 upgrade. Continue developmental testing of second Mission Systems Computer processor card. Begin H7.0 OFP/Link 16 integration efforts. ***FY 2017 Base Plans:*** Funds will provide for future capability expansion studies and analyses efforts, efforts required to respond to evolving and emerging threats, peculiar flight test requirements to include various required weapons/ countermeasures/stores expansion integration and testing such as AIM-120, AIM-9X, ALE-43, Advanced Precision Kill Weapon System, and other weapons/avionics systems as they arise, aircraft Operational Flight Program/Litening Pod software updates, initial Link 16 capability integration and developmental/integrated test as part of the H6.2 upgrade. Continue Link 16 hardware and software integration and test efforts in conjunction with H6.2 OFP. Continue H7.0 OFP/Link 16 software integration efforts. ***FY 2017 OCO Plans:*** N/A					
Title: F402-RR-408 Engine Safety and Reliability Enhancements	6.286	6.452	5.663	0.000	5.663
Articles:	-	-	-	-	-
Description: Improve Safety and Reliability of the F402-RR-408 Engine for the AV-8B Harrier.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214N / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
FY 2015 Accomplishments: The engineering Component Improvement Program (CIP) conducted investigations to develop improvements and develop design solutions for correction of deficiencies and issues resulting from safety, obsolescence and structural fatigue for the engine and accessories. ***FY 2016 Plans:*** The engineering CIP will conduct investigations to develop improvements and develop design solutions for correction of deficiencies and issues resulting from safety, obsolescence, and structural fatigue for the engine and accessories. ***FY 2017 Base Plans:*** The engineering Component Improvement Program (CIP) will conduct investigations to develop improvements and develop design solutions for correction of deficiencies and issues resulting from safety, obsolescence, and structural fatigue for the engine and accessories. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	24.558	27.668	33.664	0.000	33.664

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• APN/0514: *AV-8B Series Modification*	54.066	78.128	60.818	-	60.818	38.953	37.751	36.911	36.449	135.472	1,689.620

Remarks

D. Acquisition Strategy

All efforts under obsolescence replacement Readiness Management Program provide investigations and analysis of testing and flight clearance authorization necessary to assess overall system capability and integration of projects. Funding for the Engine Life Management Program will be placed on a cost-type contract to Rolls-Royce to address safety of flight issues, top readiness degraders, engine removal and mission failure drivers in order to improve Fleet readiness and reduce cost of ownership. It is also developed to assess life management program issues and design fixes for any service revealed deficiencies. The program's Evolutionary Acquisition Strategy includes Design, Development, Integration and Test activity under the consolidated effort of Block Developments: H2.0, H4.0, H5.0, H6.0, H6.1, H6.2, H7.0 and following Operational Flight Programs (OFP). The development and integration of Joint Mission Planning System occurred concurrently with H2.0. H4.0 Block improvements included the Tactical Aircraft Moving Map Capability. H5.0 Block Upgrade provided Dual Mode Laser Guided Bomb, Litening Centerline/Station 4 (improvement of current weapons carriage capability). H6.0 Block Upgrade provided ALE-47 countermeasures system integration, and weapon carriage expansion. The program is

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214N / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*

working closely with the Allies (Spain and Italy) and the Common Avionics Program on H6.1 and H6.2 efforts. The H6.1 update provided enhancements and software corrections that improve the AV-8B platform combat effectiveness, survivability, and relevance through avionics processor upgrades and Litening Common Operational Flight Program. The H6.2 update is being accomplished in conjunction with the Common Avionics Program and provides a Global Positioning System Navigation capability for AV-8B, a Litening Common Operational Flight Program, and initial Link 16 capability to include the use of APX-123. Full Link 16 integration will require an H.7.0 Operational Flight Program subsequent to H6.2 and will provide the AV-8B and Link 16 capability. H7.0 will also be accomplished in conjunction with Common Avionics Program and will integrate ADS-B (out), Mode 5, and Mode S. Peculiar flight test efforts to include weapons integration such as AIM-120, AIM-9X, Advanced Precision Kill Weapons Systems, ALE-43, other avionics/weapons systems as they arise, and stores expansion effort will be conducted by NAWCWD and AV-8B flight test squadrons.

E. Performance Metrics

Achieve Engine Life Management Program Rolls-Royce Component Improvement Program cost plus fixed fee contract award 1st Quarter FY 2017.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214N / *AV-8B Aircraft - Engine Dev*	Project (Number/Name) 0652 / *AV-8B*	

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
Primary Hardware Development - ELMP	C/CPFF	Rolls-Royce PLC : Bristol, GB	29.368	1.886	Dec 2014	1.887	Dec 2015	1.684	Dec 2016	-		1.684	7.874	42.699	42.699
Primary Hardware Development - ELMP	C/FFP	ONTIC (Goodrich) PS : Pitstone, GB	5.811	0.050	Mar 2015	0.300	Mar 2016	0.220	Mar 2017	-		0.220	1.530	7.911	7.911
Primary Hardware Development - OFP	WR	NAWCWD : China Lake, CA	46.204	0.000		2.312	Jan 2016	9.371	Dec 2016	-		9.371	Continuing	Continuing	Continuing
Primary Hardware Development - RMP	WR	NAWCAD : Patuxent River, MD	0.234	0.346	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Primary Hardware Development - RMP	C/FFP	Boeing : St. Louis, MO	0.391	0.123	Jan 2015	0.000		0.000		-		0.000	0.776	1.290	1.290
Primary Hardware Development - OFP	C/FFP	Boeing : St. Louis, MO	0.000	0.000		4.224	Jan 2016	1.200	Dec 2016	-		1.200	4.595	10.019	10.019
Primary Hardware Development - ELMP	Various	Various : Various	0.000	0.452	May 2015	0.000		0.000		-		0.000	0.000	0.452	0.452
Systems Engineering - RMP	C/FFP	Boeing : St. Louis, MO	23.080	2.554	Jan 2015	4.324	Jan 2016	8.620	Jan 2017	-		8.620	18.793	57.371	57.371
Systems Engineering - RMP	WR	NAWCWD : China Lake, CA	3.343	0.090	Nov 2014	0.091	Nov 2015	0.711	Nov 2016	-		0.711	Continuing	Continuing	Continuing
Systems Engineering - RMP	WR	NAWCAD : Patuxent River, MD	4.171	1.911	Nov 2014	1.624	Nov 2015	1.664	Nov 2016	-		1.664	Continuing	Continuing	Continuing
Systems Engineering - OFP	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.050	Nov 2016	-		0.050	Continuing	Continuing	Continuing
Systems Engineering - RMP	WR	TBD : Other Gov	0.000	0.104	Jan 2015	0.106	Jan 2016	0.111	Jan 2017	-		0.111	Continuing	Continuing	Continuing
Systems Engineering - OFP	TBD	TBD : TBD	0.000	0.000		0.000		0.050	Dec 2016	-		0.050	Continuing	Continuing	Continuing
Prior year cost no longer funded in the FYDP	Various	Various : Various	42.888	0.000		0.000		0.000		-		0.000	0.000	42.888	-
		Subtotal	155.490	7.516		14.868		23.681		-		23.681	-	-	-

Remarks

1. FY17 increase in Primary Hardware Development OFP at NAWCWD China Lake is due to ramp up of Link 16 integration efforts.
2. FY17 increase in RMP Systems Engineering due to FY17 efforts to develop pitot static probe, replacement canopy transparency and composite materials components. FY16 RMP Systems Engineering efforts were reprioritized to fund required AV-8B Flight Test Fixed costs at NAWCWD China Lake.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214N / *AV-8B Aircraft - Engine Dev*	Project (Number/Name) 0652 / *AV-8B*	

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
3. FY17 increase to Systems Engineering OFP due to ramp up of Link 16 integration efforts.															

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
Software Development - RMP	C/CPFF	Boeing : St. Louis, MO	0.000	0.277	May 2015	0.476	Jan 2016	0.318	Jan 2017	-		0.318	2.488	3.559	3.559
Software Development - RMP	WR	NAWCWD : China Lake, CA	13.939	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development - OFP	WR	NAWCWD : China Lake, CA	0.000	0.953	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support - RMP	WR	NAWCAD : Patuxent River, MD	0.091	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support - OFP	WR	NAWCAD : Patuxent River, MD	0.030	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Studies and Analysis - OFP	WR	NAWCWD : China Lake, CA	0.162	0.258	Nov 2014	0.000		0.229	Nov 2016	-		0.229	Continuing	Continuing	Continuing
Studies and Analysis - RMP	C/FFP	Boeing : St. Louis, MO	0.000	0.997	Jan 2015	0.000		0.000		-		0.000	2.708	3.705	3.705
Studies and Analysis - OFP	C/FFP	Boeing : St. Louis, MO	0.000	1.865	Aug 2015	2.044	Jan 2016	0.000		-		0.000	0.000	3.909	3.909
Prior year cost no longer funded in the FYDP	Various	Various : Various	40.019	0.000		0.000		0.000		-		0.000	0.000	40.019	-
		Subtotal	54.241	4.350		2.520		0.547		-		0.547	-	-	-

Remarks

4. RMP Software Development effort reflects continuing fatigue life tracking analyses and algorithm development.
5. FY17 increase to OFP Studies and Analysis at NAWCWD China Lake is for future capability expansion studies and analyses.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214N / *AV-8B Aircraft - Engine Dev*	Project (Number/Name) 0652 / *AV-8B*	

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
Developmental Test & Evaluation - RMP	C/CPFF	Boeing : St. Louis, MO	1.500	3.450	Jan 2015	0.833	Jan 2016	0.000		-		0.000	0.000	5.783	5.783
Developmental Test & Evaluation - RMP	WR	NAWCWD : China Lake, CA	39.093	0.758	Jan 2015	3.727	Jan 2016	0.051	Jan 2017	-		0.051	Continuing	Continuing	Continuing
Developmental Test & Evaluation - OFP	WR	NAWCWD : China Lake, CA	9.357	2.877	Jan 2015	0.000		3.870	Jan 2017	-		3.870	Continuing	Continuing	Continuing
Developmental Test & Evaluation - RMP	WR	NAWCAD : Patuxent River, MD	0.460	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation - RMP	WR	FRC-E : Cherry Point, NC	0.170	0.000		0.250	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation - OFP	C/FFP	GE Aviation : Cincinnati, OH	0.000	0.774	Sep 2015	0.000		0.000		-		0.000	0.000	0.774	0.774
Operational Test & Evaluation - OFP	WR	COMOPTEVFOR : Norfolk, VA	23.161	0.097	Dec 2014	0.406	Jan 2016	0.555	Jan 2017	-		0.555	Continuing	Continuing	Continuing
Operational Test & Evaluation - OFP	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.200	Jan 2016	0.000		-		0.000	0.000	0.200	0.200
Prior year cost no longer funded in the FYDP	Various	Various : Various	5.076	0.000		0.000		0.000		-		0.000	0.000	5.076	-
		Subtotal	78.817	7.956		5.416		4.476		-		4.476	-	-	-

Remarks

6. FY16 increase to RMP Developmental Test & Evaluation efforts is due to reprioritization of RMP Systems Engineering efforts to fund required AV-8B Flight Test Fixed costs at NAWCWD China Lake.
7. FY17 increase to OFP Developmental Test & Evaluation efforts is to fund required AV-8B Flight Test Fixed costs at NAWCWD China Lake.
8. Operational Test & Evaluation OFP in FY17 for H7.0 OFP/Link 16 integration efforts to support unique flight testing and Link 16/H6.2/H7.0 efforts.

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
Engineering & Tec SRVC (Non-FFRDC) - RMP	C/CPFF	Engility : Chantilly, VA	0.205	0.312	Dec 2014	0.112	Dec 2015	0.098	Dec 2016	-		0.098	0.000	0.727	0.727
Engineering & Tec SRVC (Non-FFRDC) - ELMP	C/CPFF	Zenetex : Herndon, VA	1.027	0.830	May 2015	1.115	Jun 2016	1.139	Jun 2017	-		1.139	0.000	4.111	4.111

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214N / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*

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
Engineering & Tec SRVC (Non-FFRDC)	C/CPFF	Various : Various	6.373	1.078	Dec 2014	1.175	Dec 2015	1.220	Dec 2016	-		1.220	0.000	9.846	9.846
Government Engineering Support - ELMP	WR	NAWCAD : Patuxent River, MD	5.307	1.200	Nov 2014	1.812	Nov 2015	1.447	Nov 2016	-		1.447	Continuing	Continuing	Continuing
Government Engineering Support - OFP	WR	NAWCAD : Patuxent River, MD	1.501	0.297	Nov 2014	0.221	Nov 2015	0.696	Nov 2016	-		0.696	Continuing	Continuing	Continuing
Government Engineering Support	WR	Various : Various	5.552	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Government Engineering Support - ELMP	WR	NAWCWD : China Lake, CA	0.070	0.751	Dec 2014	0.025	Dec 2015	0.027	Dec 2016	-		0.027	Continuing	Continuing	Continuing
MGT & PROF SUPPT SRVC (NON-FFRDC)	C/CPFF	Various : Various	8.529	0.134	Dec 2014	0.256	Dec 2015	0.233	Dec 2016	-		0.233	12.542	21.694	21.694
Travel	WR	Various : Various	1.135	0.134	Oct 2014	0.148	Oct 2015	0.100	Oct 2016	-		0.100	Continuing	Continuing	Continuing
Prior year cost no longer funded in the FYDP	Various	Various : Various	11.217	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	40.916	4.736		4.864		4.960		-		4.960	-	-	-

Remarks

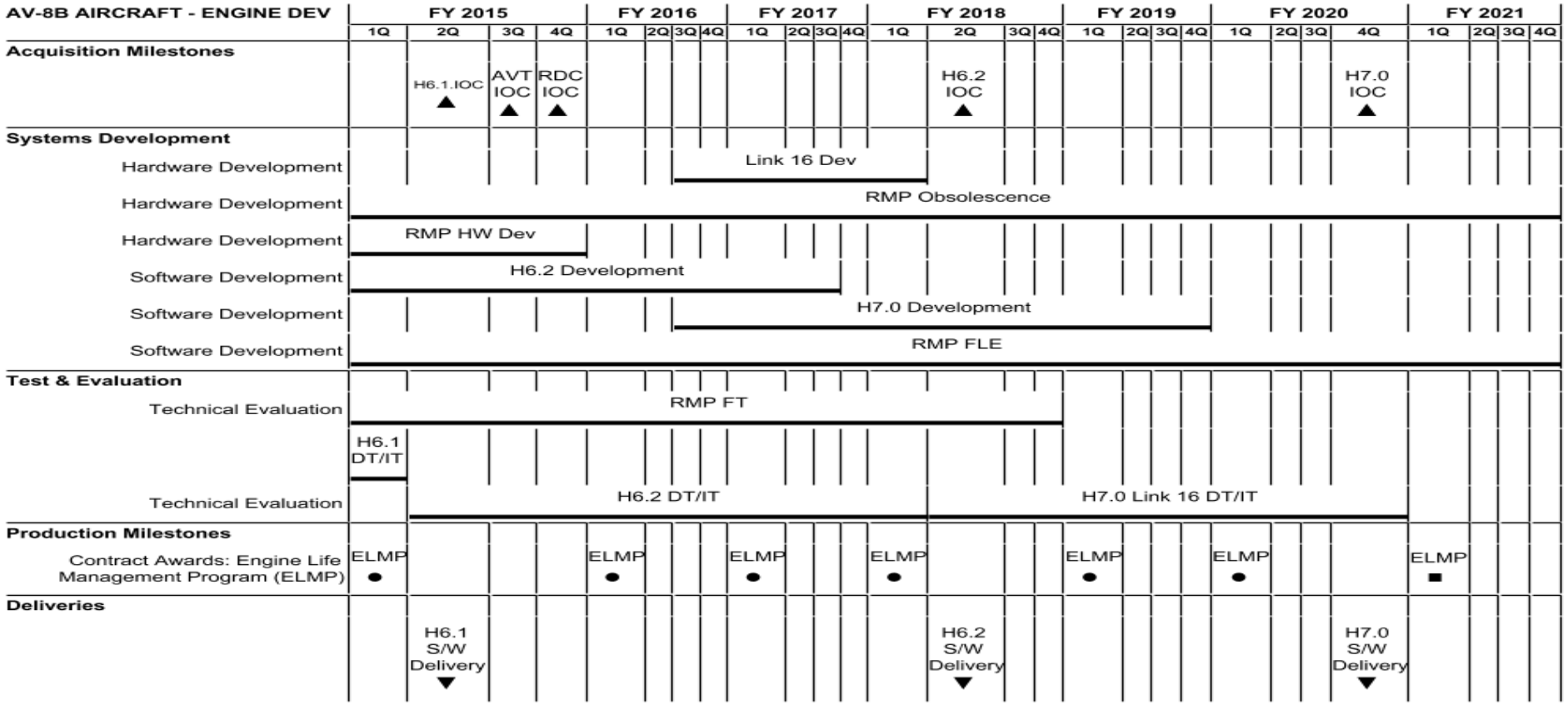
9. FY17 increase of OFP Government Engineering Support at NAWCAD Patuxent River is due to ramp up of Link 16 integration efforts.

	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
Project Cost Totals	329.464	24.558		27.668		33.664		-		33.664	-	-	-

Remarks

FY16 adjustments across all cost categories reflect Fact of Life changes to H7.0 OFP/Link 16 integration and reduction of AIM-120 efforts.

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214N / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*



2017PB - 0604214N - 0652

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214N / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AV-8B AIRCRAFT - ENGINE DEV				
Acquisition Milestones: RDC IOC	4	2015	4	2015
Acquisition Milestones: H6.1 IOC	2	2015	2	2015
Acquisition Milestones: H6.2 IOC	2	2018	2	2018
Acquisition Milestones: AVT IOC	3	2015	3	2015
Acquisition Milestones: H7.0 IOC	4	2020	4	2020
Systems Development: Hardware Development: Link 16 Development	3	2016	1	2018
Systems Development: Hardware Development: RMP Obsolescence Development	1	2015	4	2021
Systems Development: Hardware Development: RMP Hardware Dev	1	2015	4	2015
Systems Development: Software Development: H6.2 Development	1	2015	3	2017
Systems Development: Software Development: H7.0 Development	3	2016	4	2019
Systems Development: Software Development: RMP Fatigue Life Expended Development	1	2015	4	2021
Test & Evaluation: Technical Evaluation: RMP Flight Test	1	2015	4	2018
Test & Evaluation: Technical Evaluation: H6.1 DT/IT	1	2015	1	2015
Test & Evaluation: Technical Evaluation: H7.0 Link 16 DT/IT	2	2018	4	2020
Test & Evaluation: Technical Evaluation: H6.2 DT/IT	2	2015	1	2018
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY15	1	2015	1	2015
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY16	1	2016	1	2016
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY17	1	2017	1	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214N / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY18	1	2018	1	2018
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY19	1	2019	1	2019
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY20	1	2020	1	2020
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY21	1	2021	1	2021
Deliveries: H6.1 S/W Delivery	2	2015	2	2015
Deliveries: H6.2 S/W Delivery	2	2018	2	2018
Deliveries: H7.0 S/W Delivery	4	2020	4	2020

THIS PAGE INTENTIONALLY LEFT BLANK