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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>
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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	1,079.851	52.841	53.049	1.300	-	1.300	1.913	1.903	1.790	1.827	Continuing	Continuing
0572: <i>JT Service/NV Std Avionics CP/SB</i>	892.201	41.631	39.880	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	973.712
1857: <i>Calibration Standards</i>	12.564	1.582	1.653	1.300	-	1.300	1.913	1.903	1.790	1.827	Continuing	Continuing
2311: <i>Stores Planning and Weaponing Module</i>	159.154	9.088	10.941	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	179.183
2312: <i>Common Helicopters</i>	15.932	0.540	0.575	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	17.047

Note

Starting in FY17 the Common Helicopters (PU 2312) and Stores Planning and Weaponing Module (PU 2311) will be moved to Mission Planning PE (0605215N). Starting in FY17 the JT Service/NV Std Avionics CP/SB (PU 0572) PE (0604215N) will be moved to a new Common Avionics PE (0605217N).

A. Mission Description and Budget Item Justification

Decrease in STANDARDS DEVELOPMENT by \$0.053M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

This project provides for the identification, study, design, development, demonstration, test, evaluation, and qualification of standard avionics capabilities for Navy use, and wherever practicable, use across all Services and Foreign Military Sales. Such air combat electronics developments include communications and airborne networking, navigation and sensors, flight avionics, safety systems, and flight mission information systems for both forward fit and retrofit aircraft. These efforts continue to maintain federated systems while encouraging transition of procurements to support a modular system for enhanced performance and affordability. Consideration is given up front to reduce acquisition costs through larger procurement quantities that satisfy multi-aircraft customer requirements and that reduce life cycle costs in the areas of reliability, maintainability, and training. This project also provides a Navy-wide program to develop required calibration standards (hardware) in all major measurement technology areas in support of Navy Hull, Mechanical and Electrical (HM&E) systems as well as Navy Weapons systems, ground and air, throughout the Fleet. It funds Navy lead-service responsibilities in the Department of Defense and Joint Services Metrology Research and Development program. This project supports the military requirement to verify the performance of all test systems used to validate the operation of HM&E as well as Navy Weapon Systems with calibration standards traceable to the National Institute of Standards and Technology.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production decision.

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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	53.706	53.059	69.896	-	69.896
Current President's Budget	52.841	53.049	1.300	-	1.300
Total Adjustments	-0.865	-0.010	-68.596	-	-68.596
• Congressional General Reductions	-	-0.010			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.023	0.000			
• SBIR/STTR Transfer	-0.842	0.000			
• Program Adjustments	0.000	0.000	-68.204	-	-68.204
• Rate/Misc Adjustments	0.000	0.000	-0.392	-	-0.392

Change Summary Explanation

Technical: Not applicable.

Schedule:

0572:

Tactical Communications: Title corrected from Joint Precision Approach Landing System Software (S/W) Integration to Operation Flight Plan S/W Integration.

Ground Proximity Warning Systems/Terrain Awareness Warning System (GPWS/TAWS II): H-60 TAWS II Software Development extended duration from 4Q/15 through 4Q/16 based on projected platform integration schedule.

Military Flight Quality Assurance: Test and Evaluation, MH-53R/S, M/CH-53E, AH-1Z, UH-1Y, Phase 2 Test extended from 3Q/15 to 4Q/15 due to longer testing required for a number of defects found. Phase 2 Test Readiness Review moved from 1Q/15 to 3Q/15 due to integration test took longer than planned due to number of defects found. Deliveries for H-60R/S, CH-53E, AH-1Z and UH-1Y reflect new date of 2Q/15 to align with F/A-18 procurement order.

"Mid Air Collision Avoidance Capability: Re-planned FY16-FY21 program as a result of the Business Case Analysis to properly aligned program. Material Development Decision/Acquisition Strategy Review (MDD/ASR) moved from 2Q/16 to 1Q/17. Added Capability Development Document (CDD) Draft added in 4Q16. Added Requirements Development from 1Q/16 to 4Q/16.

Starting in FY17 the JT Service/NV Std Avionics CP/SB (PU 0572) PE (0604215N) will be moved to a new Common Avionics PE (0605217N).

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2311: Stores Planning and Weaponing Module V3.1 IOC was delayed from 4Q14 to 3Q15 to align with the F/A-18 platform software release. FY17 and out schedule is included in the Mission Planning PE 0605215N.		
2312: Common Helicopters schedule FY17 and out is included in Mission Planning PE 0605215N.		

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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 0604215N / Standards Development	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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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
0572: JT Service/NV Std Avionics CP/SB	892.201	41.631	39.880	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	973.712
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Starting in FY17 the JT Service/NV Std Avionics CP/SB (PU 0572) PE (0604215N) will be moved to a new Common Avionics PE (0605217N).

A. Mission Description and Budget Item Justification

Joint Services/Navy Standard Avionics Components and Subsystems: This project provides for the identification, study, design, development, demonstration, test, evaluation, and qualification of standard avionics capabilities for Navy use, and wherever practicable, use across all Services and Foreign Military Sales. Standard avionics capabilities under development include the Joint Service Review Committee for Avionics Standardization (JSRC-AS), Communication Navigation Surveillance/Air Traffic Management (CNS/ATM), Tactical Communications (TACCOM), Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II), Military Flight Operations Quality Assurance (MFOQA), Collaborative Warfare (CW), Avionics Component Improvement Program (AvCIP), Mid Air Collision Avoidance Capability (MCAC), and Avionics Architectures Team (AAT). Participation in Human Factors Quality Management Board ensures Navy safety upgrades and mandatory safety improvements for naval aircraft.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Joint Service Review Committee for Avionics Standardization (JSRC-AS)	0.792	0.990	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: The JSRC-AS program supports Congressional and Assistant Secretary of the Navy for Research, Development and Acquisition direction to control the growing proliferation of unique avionics and improve coordination among the services through the identification, development, and promotion of investigative and development efforts across the services and U.S. Coast Guard. The JSRC-AS supports the development, analysis and review of new avionics requirements with potential for joint service application. The JSRC-AS consists of an O-6 Level principal from each service and U.S. Coast Guard, as well as the appropriate staff, to support joint service working group efforts. The JSRC-AS reports to the O-7 level tri-service Aviation Common Systems Board who reports to the O-9 level Joint Aeronautical Commanders Group.					
FY 2015 Accomplishments:					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Provided leadership in support of the Navy's interest to the JSRC-AS tri-service committee promoting commonality and joint programs with focus on interoperability, communications, navigation, Joint Services avionics obsolescence management, and update of the Core Avionics Master Plan.</p> <p>FY 2016 Plans: Provide leadership in support of the Navy's interest to the JSRC-AS tri-service committee promoting commonality and joint programs with focus on interoperability, communications, navigation, Joint Services avionics obsolescence management, and update of the Core Avionics Master Plan.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Communication Navigation Surveillance/Air Traffic Management (CNS/ATM)</p> <p align="right">Articles:</p>	0.458	1.488	0.000	0.000	0.000
<p>Description: This program will conduct and support CNS/ATM research, studies, development, integration, demonstration, test and evaluation efforts for naval aviation platforms in development. Platform integration of Mode Select (S), 8.33 kHz, Reduced Vertical Separation Minimum (RVSM), Required Navigation Performance Area Navigation (RNP/RNAV) to include M Code, and Automatic Dependent Surveillance-Broadcast Out (ADS-BO) functional integration and certification efforts into naval aircraft. Assist with insertion of communication, navigation, surveillance, and supporting technologies and conduct capability certification on developmental platforms such as F-35, CH-53K, and Unmanned Air Systems. Capabilities include Mode S, 8.33 kHz, RVSM, RNP/RNAV, ADS-BO, and other civil and military capabilities.</p> <p>FY 2015 Accomplishments: Assist with insertion and integration of CNS/ATM technologies and certification of developmental platforms. Evaluate Automated Dependent Surveillance Broadcast Out (ADS-BO) technologies and develop solutions to support platform integrations. Develop CNS/ATM Common Components to support Required Navigation Performance Area Navigation (RNP RNAV) developmental platform requirements. Continue integration/certification of Mode Select, 8.33 kHz, Reduced Vertical Separation Minimum, RNP/RNAV, and ADS-BO) into CH-53K.</p> <p>FY 2016 Plans:</p>	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Assist with insertion and integration of CNS/ATM technologies and certification of developmental platforms. Evaluate ADS-B (Out) technologies and develop solutions to support platform integrations. Develop CNS/ATM Common Components to support Required Navigation Performance Area Navigation (RNP RNAV) developmental platform requirements. Begin integration/certification of Mode Select, 8.33 kHz, Reduced Vertical Separation Minimum, RNP/RNAV, and ADS-B (Out) into CH-53K. Research and develop Global Positioning System (GPS) enhancements to support CNS/ATM RNP RNAV improvements. Research and develop Automatic Dependent Surveillance-Broadcast Out System Design Assurance requirements as well as compatibility with the emerging GPS M Code and its impact on RNP RNAV.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Tactical Communications (TACCOM)</p> <p align="right">Articles:</p> <p>Description: This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to ensure tactical communication systems and capabilities are developed and available to support naval aviation requirements. Perform tactical communication platform integration studies and activities to determine technical and cost effective solutions across naval aviation. Develop tactical communications (voice/data) requirements, concepts and systems which have application across naval aviation. Support all necessary tasks to ensure evolution of legacy communications systems incorporating programmable Communication Security/Information Assurance, mandated National Security Agency (NSA) Crypto Modernization initiatives, Combat Net Radio (CNR) Variable Message Format (VMF), Beyond Line-of-Sight, Satellite Communication (SATCOM) Modernization including Mobile User Objective System (MUOS), High Frequency, Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) civil interoperability, and Joint Precision Approach Landing System (JPALS) data link into the ARC-210 system. Support for networking requirements development and prototyping, Integrated Waveform (IW), Intelligence Broadcast System over modern Code Division Multiple Access based satellite channels, Tactical Networks, Data Links, and Link 16.</p> <p>FY 2015 Accomplishments:</p>	10.671	12.519	0.000	0.000	0.000
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>RT-1939A and RT-1990A received NSA and JITC certifications. Fielding of RT-1939A and RT-1990A on Naval Aviation platforms has begun. Began Software Development with MUOS capable ancillaries. Continue development of air to ground, IW, and Variable Message Format/Combat Net radio capabilities.</p> <p>FY 2016 Plans: Initiate Satellite Communications Modernization and continue development of Digital Interoperability SATCOM Software capability to include Mobile User Objective System (MUOS). Continue Joint Precision Approach Landing System Software integration with airborne capabilities for a common capabilities release. Initiate design of Crypto Engine. Complete Joint Interoperability Test Command certification to deliver VMF Software. Continue development of Air to Ground (VMF Software) Interoperability.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II)</p> <p align="right">Articles:</p> <p>Description: This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to meet naval aviation GPWS/TAWS II requirements. These requirements span all operational modes and operational environments, to include Degraded Visual Environment. Perform GPWS/TAWS II platform integration studies and activities to determine technical and cost effective solutions across naval aviation. Develop GPWS/TAWS II solutions tailored to platform performance and range of military operations. Develop simulation models for use at Manned Flight Simulator (MFS) or other simulation environments as required for platform tailoring, including procurement of test article hardware. Evaluate aircraft simulation models for suitability in GPWS/TAWS II development effort. Develop GPWS/TAWS II algorithms utilizing simulation environments as real-time hardware and pilot in the loop tool. Develop and evaluate algorithm interfaces necessary for integration of the algorithm within platform host computer. Develop software code to execute GPWS/TAWS II algorithm in host platforms.</p> <p>FY 2015 Accomplishments: Continue Terrain Awareness Warning System (TAWS) II with obstacles software development and platform integration for H-60. Completed Developmental Testing (DT)of H-1 Ground Proximity Warning System.</p> <p>FY 2016 Plans:</p>	4.383	8.137	0.000	0.000	0.000
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Deliver formal software build of TAWS II system to H-60. Complete beta testing of TAWS II in Manned Flight Simulator or other simulation environment. Complete Phase 1 DT in MH-60R/S. FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A					
Title: Military Flight Operations Quality Assurance (MFOQA) Articles: Description: This program will develop a MFOQA baseline software integration framework using Government procured software modules to perform functions such as flight data analysis, post mission aircrew debrief, aircraft maintenance and system troubleshooting and mishap investigation to meet naval aviation requirements. Additional efforts will include software development and integration for fleet wide shore based and shipboard MFOQA implementation. Evaluate aircraft recorder systems and requirements to meet current and future MFOQA requirements. Prepare and conduct MFOQA acquisition events such as Systems Readiness Review, Agile Technical Reviews, Developmental Testing, and follow-on Decision Reviews in support of initial Rotary Wing (Phase 2) platforms. FY 2015 Accomplishments: Complete Phase 2 Agile software development, software integration and test. Continue working toward deployment decision review and initiate deployment to rotary wing squadrons. FY 2016 Plans: N/A FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A	1.978	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Title: Collaborative Warfare (CW) Articles: Description: The CW component is a Research & Development effort to identify targeting gaps and determine the warfighting benefit of integrating networked capabilities into naval aircraft to fill those gaps.	0.168	0.176	0.000	0.000	0.000
Articles:	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>The CW component also addresses targeting gaps for naval aircraft to operate more effectively with other military services. The following efforts are included: 1) A comprehensive naval aviation Tactical Networking Requirements Strategy that maps fleet gaps and requirements to cross-platform naval aviation solutions. The Naval Effects Cross Domain Targeting Capabilities Based Assessment concept refinement Joint Capability Integration Development System activity will be integrated into this effort. 2) Netted sensors proof of concept prototype demonstrations leveraging the Navy's Fleet Experimentation campaign. 3) Support of integration of Netted Sensors/Sensor Fusion into naval aviation Integrated Capabilities Packages supporting multi-mission capability enhancements to include input to the N81 Offensive Anti-Surface Warfare Targeting and Weapons Control study that ensures naval aviation Intelligence, Surveillance and Reconnaissance delivers a complete kill chain. 4) Provide resource sponsor oversight on an Office of Naval Research Future Naval Capability Enabling Capability for an Advanced Tactical Data Link (ATDL) for naval aviation. 5) Continue work on the Joint Tactical Networking Concept of Employment (JTN CONEMP) that aligns Navy ATDL and Joint Aerial Layer Network - Maritime with USAF future strategies.</p> <p><i>FY 2015 Accomplishments:</i> Execute TRIDENT WARRIOR 15 netted sensors evolution to decentralized multi-intelligence correlation architecture. Continue executing tactical networking strategy activities to define future Program Objective Memorandums and analytic agendas. Develop requirements, standards, and architectures in support of new and updated netted-sensors' Concept of Operations and capabilities.</p> <p><i>FY 2016 Plans:</i> Continue executing tactical networking strategy activities to define future Program Objective Memorandums and analytic agendas. Develop requirements, standards, and architectures in support of new and updated netted-sensors' Concept of Operations and capabilities.</p> <p><i>FY 2017 Base Plans:</i> N/A</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> Avionics Component Improvement Program (AvCIP)</p> <p align="right"><i>Articles:</i></p> <p><i>Description:</i> Investigate high value Return On Investment component improvement candidate projects in support of NAVAIR Commander's third focus area - Improve "capital A" Affordability. Stop operating and sustainment cost growth by reducing costs for fielded systems and implementing life-cycle cost reduction</p>	5.088	4.972	0.000	0.000	0.000
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>initiatives as part of new systems development. This program positions resources for next year application to fast-track corrections to existing problematic systems. Projects address critical readiness issues (significant back-orders or impending sustainability failures that threaten to down aircraft), functional performance obsolescence issues (system failing to support mission requirement), and top sustainment cost drivers (out of proportion annual maintenance or repair costs). Resources enable design and development of technology insertion and product redesign or replacement to meet readiness goals, meet mission objectives, or reduce overall sustainment costs. Candidate projects are submitted via a rigorous template, reviewed by a panel of Avionics professionals, and selected based upon urgency, warfighting contributions, breadth of application and scope of Return On Investment. Resources cover non-recurring engineering elements (including design and development, prototypes, platform integration, test and evaluation), program management and associated logistics elements (including technical data preparation, support equipment, provisioning, and training). Analysis shows that funding applied under this program between 2006 and 2014 will enable sustainment and procurement cost avoidances exceeding a five to one margin by 2025.</p> <p>FY 2015 Accomplishments: Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters).</p> <p>FY 2016 Plans: Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters).</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Mid Air Collision Avoidance Capability (MCAC)</p> <p align="right">Articles:</p> <p>Description: This program will conduct research, studies, and development, integration, demonstration, test and evaluation efforts to meet Naval Aviation MCAC requirements. These requirements span all operational modes and operational environments, to include Degraded Visual Environment. Perform MCAC platform integration studies and activities to determine technical and cost effective solutions across Naval Aviation. Develop MCAC solutions tailored to platform performance and range of military operations. Develop simulation models for use at Manned Flight Simulator (MFS) or other simulation environments as required for platform tailoring, including</p>	2.399	3.460	0.000	0.000	0.000
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>procurement of test article hardware. Evaluate aircraft simulation models for suitability in MCAC development effort. Develop MCAC solutions utilizing simulation environments as real-time hardware and pilot in the loop tools. Develop and evaluate interfaces necessary for integration of MCAC within platform host environment.</p> <p>FY 2015 Accomplishments: Completed Analysis of Alternatives and conducted additional market research to supplement AoA findings.</p> <p>FY 2016 Plans: Begin requirements development and draft Capability Development Document (CDD).</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Avionics Architectures Team (AAT)</p> <p align="right">Articles:</p> <p>Description: The Avionics Architecture Team (AAT) provides hardware and software (HW/SW) standards and product line development and management for a common HW/SW operating environments to establish testable open architecture requirements in accordance with NDAA Section 801 Open Architecture language, DoD Directive 5000.1, N6/N7 Naval Open Architecture Requirements Letter 9010, Ser. N6N7/5U916276, and SECNAVINST 5000.2E. The Future Airborne Capability Environment (FACE) Technical Standard is developed through Navy, Army, Air Force, Industry and Academia collaboration in accordance with Public Law 104-113. The Hardware Open Systems Technologies (HOST) standard is being developed through government and academia collaboration and will be provided to industry for prototyping efforts. The AAT provides Subject Matter Experts to define and architect a set of Open Architecture Standards and product lines, design guidance, development and integration tools, acquisition strategy, contracting guidance and cost estimates. The results will enable Department of Defense (DoD) weapons systems to systematically reuse HW/SW and deliver scalable, portable and interoperable war fighting capabilities at a faster rate, reducing redundant development costs and increasing competition. Infrastructure components and frameworks built to these standards will support CNS/ATM capability upgrades on various platforms by enabling integration of common, non-proprietary applications. The AAT initiatives enable the government's role as Lead Systems Integrator, per the Weapons System Acquisition Reform Act (WSARA) 2009, and cost effectively manage data rights for reuse across the DoD.</p>	15.694	8.138	0.000	0.000	0.000
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Future Airborne Capability Environment (FACE) Program Title changed to Avionics Architectures to define Naval open architecture that includes FACE and Hardware Open Systems Technologies (HOST).					
<p><i>FY 2015 Accomplishments:</i> Provide development support, systems engineering and program management for design and acquisition strategy implementation guidance. Investigate revisions to the FACE technical standard to meet emerging technologies and new platform requirements. Assist developmental platforms with strategies for and implementation of the FACE technical standard. Subject Matter Expert support for platform integration and competitive source selection.</p> <p><i>FY 2016 Plans:</i> Provide development support, mission based engineering, systems engineering and program management for design and acquisition strategy implementation guidance. Investigate revisions to the Future Airborne Capability Environment (FACE) and Hardware Open Systems Technologies (HOST) standards to meet emerging technologies and new platform requirements. Assist platforms with strategies for modular functional decomposition and implementation of FACE and HOST standards. Subject Matter Expert support for platform integration and competitive source selection. Academia prototyping and demonstration efforts for FACE and HOST initiatives.</p> <p><i>FY 2017 Base Plans:</i> N/A</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
Accomplishments/Planned Programs Subtotals	41.631	39.880	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN/0577: <i>Common Avionics Changes</i>	146.084	169.590	164.839	-	164.839	148.275	156.777	113.777	137.956	302.860	3,506.643

Remarks

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D. Acquisition Strategy

Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) program is a system of systems. The program will encompass the integration of various systems which will be procured utilizing existing contracts for integration on forward-fit and retrofit platforms to provide CNS/ATM functionality. Tactical Communications (TACCOM) is utilizing a firm fixed price contract to Rockwell Collins for research and development of the ARC-210 Gen 5/6 and other Navy contract vehicles for integration studies. The Navy will integrate systems and components to satisfy platform requirements to achieve tactical communication capability as determined by analyses. Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II) Software Modules will be developed by a Government Software Product Team in collaboration with Industry where required. Military Flight Operations Quality Assurance (MFOQA) Government activities include integrating a combination of existing aircraft hardware, ground support equipment, Commercial Off The Shelf (COTS), government off the shelf hardware and software products. MFOQA program interfaces will be created to share data captured by the automated maintenance systems (e.g., Automated Maintenance Environment, Health and Usage Monitoring Systems) and existing databases. The Navy conducted a full and open competition for the MFOQA software development, integration and support contract as well as the COTS software data analysis product. Follow-on Sole Source Product Contracts were awarded to complete MFOQA development, as required. Avionics Component Improvement Program (AvCIP) will annually review, compete and select candidate component improvement proposals according to urgency, criticality of warfighting contributions, technical risk, breadth of application, and scope of Return On Investment (ROI). Projects are selected by a panel of Avionics management experts, including representatives from OPNAV N98, NAVAIR, NAVICP, and the Fleet. Projects are executed by managers in platform or commodity offices that own the component. The AvCIP program management team manages project selection, allocates funds, monitors multiple project executions against proposed spend plans, and tracks solution performance and achievement of projected ROIs over time using Fleet maintenance and component performance databases. Cost avoidances are coordinated with OPNAV N98 to balance Flying Hour Program costs. Component improvement solutions include modular hardware, software and material upgrades. Resources cover engineering elements (including design and development, prototypes, platform integration, test and evaluation), program management and associated logistics elements (including technical data preparation, support equipment, provisioning, and training). Mid Air Collision Avoidance Capability (MCAC) is the capability umbrella which encompasses all systems designed and developed which aid in air-to-air collision avoidance. Systems include but are not limited to Traffic Collision Avoidance Systems and Mid Air Collision Avoidance Systems. Mid Air Collision Avoidance Capability Software Modules will be developed by a Government Software Product Team in collaboration with Industry where required. Avionics Architectures Team (AAT) will provide acquisition strategy guidance and support to platforms implementing open systems architectures to address open architecture requirements.

E. Performance Metrics

Joint Service Review Committee for Avionics (JSRC-AS) - Provide leadership in support of the Navy's interest to the JSRC tri-service committee promoting commonality and joint programs with focus on interoperability, communications, Communication Navigation Surveillance/Air Traffic Management (CNS/ATM), Joint Services avionics obsolescence management and the update of the Core Avionics Master Plan. Support and participate in Naval Aviation Requirements Group panels, Operational Advisory Group, and Human Factors Quality Management Board.

CNS/ATM - Successfully complete platform integration, test, and certifications.

Tactical Communications (TACCOM) - Achieve Joint Interoperability Test Command and National Security Agency certifications on system developmental efforts to meet operational requirements.

Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II) - Develop algorithm and software to meet platform specific requirements, successfully complete flight test, and deliver product on schedule. Successfully complete Milestone B.

Military Flight Operations Quality Assurance (MFOQA) - Successfully complete Milestone C and Initial Operational Capability on schedule; successfully complete Phase 2 development and fleet introduction.

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
<p>Collaborative Warfare (CW) - Identify collaborative warfighting capability gaps and ensure the development of the most intelligent, cost effective, and timely solutions to fill those gaps.</p> <p>Avionics Component Improvement Program (AvCIP) - Successful project competition and selection, execution of allocated funds, fielding of solutions, and documentation of component performance enhancement and benefits.</p> <p>Mid Air Collision Avoidance Capability (MCAC) - Achieve program acquisition milestones on cost and schedule meeting platform requirements.</p> <p>Avionics Architectures - Provide leadership in support of the Navy's interest to the Future Airborne Capability Environment (FACE) Consortium. Participate in technical and business working groups within the FACE Consortium to foster solutions that promote interoperable and integrated warfighting capability for all services. Successfully functionally decompose, prototype and demonstrate FACE conformant applications and FACE compatible operating environments. Develop technical specifications for Hardware Open System Technologies (HOST). Prototype and demonstrate HOST avionics components.</p>		

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Primary Hardware Dev	WR	NAWCAD : Patuxent River, MD	3.612	1.379	Dec 2014	1.068	Feb 2016	0.000		-		0.000	0.000	6.059	-
Primary Hardware Dev	Various	Various : Various	61.412	4.721	Mar 2015	5.605	Mar 2016	0.000		-		0.000	0.000	71.738	-
Aircraft Integration TACCOM	SS/FFP	Rockwell Collins : Cedar Rapids, IA	57.049	7.178	Jun 2015	6.309	Feb 2016	0.000		-		0.000	0.000	70.536	70.536
Aircraft Integration GPWS	SS/CPIF	Lockheed Martin : Owego, NY	0.000	0.000		2.895	Feb 2016	0.000		-		0.000	0.000	2.895	2.895
Systems Engineering MFOQA	WR	NSWC Carderock : Bethesda, MD	2.395	0.292	Nov 2014	0.000		0.000		-		0.000	0.000	2.687	2.687
Systems Engineering	WR	NAWCAD : Patuxent River, MD	31.637	2.412	Dec 2014	4.367	Feb 2016	0.000		-		0.000	0.000	38.416	-
Systems Engineering AAT	MIPR	DTIC : Ft. Belvoir, Va	0.000	11.479	Mar 2015	1.849	Jan 2016	0.000		-		0.000	0.000	13.328	13.328
Systems Engineering	Various	Various : Various	0.614	1.476	Mar 2015	1.880	Mar 2016	0.000		-		0.000	0.000	3.970	-
Prior year Prod Dev costs no longer funded in FYDP	Various	Various : Various	465.983	0.000		0.000		0.000		-		0.000	0.000	465.983	-
Subtotal			622.702	28.937		23.973		0.000		-		0.000	0.000	675.612	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Software Development TACCOM	TBD	Rockwell Collins : Cedar Rapids, IA	0.000	0.000		0.951	Feb 2016	0.000		-		0.000	0.000	0.951	-
Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	18.197	1.528	Dec 2014	0.751	Feb 2016	0.000		-		0.000	0.000	20.476	-
Prior year Support costs no longer funded in FYDP	Various	Various : Various	54.655	0.000		0.000		0.000		-		0.000	0.000	54.655	-
Subtotal			72.852	1.528		1.702		0.000		-		0.000	0.000	76.082	-

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Developmental Test and Evaluation	Various	Various : Various	13.868	0.231	Apr 2015	0.926	Apr 2016	0.000		-		0.000	0.000	15.025	-
Prior year T&E costs no longer funded in FYDP	Various	Various : Various	39.111	0.000		0.000		0.000		-		0.000	0.000	39.111	-
Subtotal			52.979	0.231		0.926		0.000		-		0.000	0.000	54.136	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Contractor Engineering Support	Various	Various : Various	74.320	5.834	Jun 2015	6.745	Feb 2016	0.000		-		0.000	0.000	86.899	-
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	23.362	2.703	Mar 2015	3.365	Mar 2016	0.000		-		0.000	0.000	29.430	-
Program Management Support	WR	NAWCAD : Patuxent River, MD	23.211	2.328	Mar 2015	3.121	Mar 2016	0.000		-		0.000	0.000	28.660	-
Travel	WR	NAVAIR : Patuxent River, MD	1.239	0.070	Nov 2014	0.048	Feb 2016	0.000		-		0.000	0.000	1.357	-
Prior year Mgmt costs no longer funded in FYDP	Various	Various : Various	21.536	0.000		0.000		0.000		-		0.000	0.000	21.536	-
Subtotal			143.668	10.935		13.279		0.000		-		0.000	0.000	167.882	-

	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	892.201	41.631	39.880	0.000	-	0.000	0.000	973.712	-

Remarks
 Prior Year costs from PB16 to OSD17 have been adjusted to reflect actuals.
 Starting in FY17 the JT Service/NV Std Avionics CP/SB (PU 0572) PE (0604215N) will be moved to a new Common Avionics PE (0605217N).

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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COMMUNICATION, NAVIGATION, SURVEILLANCE/AIR TRAFFIC MGMT (CNS/ATM)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Systems Development					Evaluate ADS-BO technologies/develop solutions to support platform integrations																							
					Develop CNS/ATM Common Component to support RNP RNAV developmental platform requirements																							
Test and Evaluation																												
Integration/Certification of 8.33 kHz, MODE S, Reduced Vertical Separation Minimums (RVSM), RNP/RNAV, and ADS-B (Out)					CH-53K																							
					CNS/ATM technologies/certification of developmental platforms																							
Production Milestones																												
Deliveries																												

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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TACTICAL COMMUNICATIONS (TACCOM)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Systems Development																												
Test and Evaluation																												
Production Milestones																												
Deliveries																												

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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GROUND PROXIMITY WARNING SYSTEM/TERRAIN AWARENESS WARNING SYSTEM (GPWS/TAWS)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones																												
Systems Development																												
Systems Development	H-60 TAWS II Software Development																											
Test and Evaluation																												
Developmental Testing	H-1 GPWS DT																											
Operational Testing																												
Production Milestones																												
Deliveries																												

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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MILITARY FLIGHT OPERATION QUALITY ASSURANCE (MFOQA)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Phase 1 = F/A-18C/D/E/F and EA-18G Phase 2 = MH-60R/S, M/CH-53E, AH-1Z, UH-1Y																																
Acquisition Milestones																																
Milestones				Phase 2 Fielding Decision ◆																												
Systems Development																																
Software Development																																
Reviews	Phase 2 SYS INTEG																															
Development Contract Awards																																
Test and Evaluation																																
F/A-18 Testing Reviews																																
MH-53R/S, M/CH-53E, AH-1Z, UH-1Y Testing				Phase 2 Test																												
Reviews				Phase 2 TRR ■																												
Production Milestones																																
Production Fielding				Phase 1 Fielding																												
Deliveries																																
H-60R/S				1 SQDN Phase 2																												
CH-53E				1 SQDN Phase 2																												
AH-1Z, UH-1Y				1 SQDN Phase 2																												

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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COLLABORATIVE WARFARE (CW)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
JCIDS Activities																												
Netted Sensors CONOPS, Standards and Architectures/Requirements Development	CONOPS, Standards and Architectures/Requirements Development																											
Naval Aviation Tactical Networking Requirements	Naval Aviation Tactical Networking Requirements																											
Netted Sensors Demonstrations																												
Capabilities-Based Assessment																												
Systems Development																												
Test and Evaluation																												
Production Milestones																												
Deliveries																												

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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AVIONICS COMPONENT IMPROVEMENT PROGRAM (AvCIP)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones																																
Funding Allocation	▼				▼																											
Proposal Collection	—				—																											
Proposal Evaluation		▼				▼																										
Proposal Prioritization and Selection			▼				▼																									
Contract Establishment & Execution Plan			—				—																									
Systems Development																																
Test and Evaluation																																
Production Milestones																																
Deliveries																																

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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MID AIR COLLISION AVOIDANCE CAPABILITY (MCAC)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones			AOA Complete ▼					CDD Draft ▼																				
Systems Development							Requirements Development																					
Test and Evaluation																												
Production Milestones																												
Deliveries																												

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
COMMUNICATION, NAVIGATION, SURVEILLANCE/AIR TRAFFIC MGMT (CNS/ATM)				
Systems Development: Evaluate ADS-BO technologies and develop solutions to support platform integrations	1	2016	4	2016
Systems Development: Develop CNS/ATM Common Component to support RNP RNAV developmental platform requirements	1	2015	4	2016
Test and Evaluation: Integration/Certification of 8.33 kHz, MODE S, Reduced Vertical Separation Minimums (RVSM), RNP/RNAV, and ADS-B (Out): Integration/Cert 8.33 kHz, MODE S, RVSM, RNP RNAV CH-53K	1	2016	4	2016
Test and Evaluation: Integration/Certification of 8.33 kHz, MODE S, Reduced Vertical Separation Minimums (RVSM), RNP/RNAV, and ADS-B (Out): Integration/Cert 8.33 kHz, MODE S, RVSM, RNP RNAV	1	2015	4	2016
TACTICAL COMMUNICATIONS (TACCOM)				
Systems Development: GEN 5 Integrated Waveform Satellite Communications (SATCOM) S/W Development Phase 2	2	2015	4	2016
Systems Development: GEN 5 SATCOM P3I S/W Assessment/Development	1	2015	4	2015
Systems Development: OFP S/W Integration	4	2015	4	2016
Systems Development: Crypto Engine Design	1	2016	4	2016
Test and Evaluation: GEN 5 JITC Certification3	1	2016	1	2016
Test and Evaluation: GEN 5 JITC Certification4	4	2016	4	2016
Production Milestones: GEN 5 Evol S/W Release5	1	2015	1	2015
Production Milestones: GEN 5 Evol S/W Release6	1	2016	1	2016
GROUND PROXIMITY WARNING SYSTEM/TERRAIN AWARENESS WARNING SYSTEM (GPWS/TAWS)				
Systems Development: H-60 TAWS II Software Development	1	2015	4	2016
Test and Evaluation: Developmental Testing: H-1 GPWS DT	1	2015	1	2015

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test and Evaluation: Developmental Testing: H-60 TAWS II DT (Phase I and II)	3	2016	4	2016
MILITARY FLIGHT OPERATION QUALITY ASSURANCE (MFOQA)				
Acquisition Milestones: Milestones: Phase 2 Fielding Decision	4	2015	4	2015
Systems Development: Reviews: Phase 2 Sys Integration	1	2015	1	2015
Test and Evaluation: MH-53R/S, M/CH-53E, AH-1Z, UH-1Y Testing: Phase 2 Test	2	2015	4	2015
Test and Evaluation: Reviews: Phase 2 TRR	3	2015	3	2015
Production Milestones: Production Fielding: Phase 1 Fielding	1	2015	4	2015
Deliveries: H-60R/S: 1 Squadron R&D	2	2015	4	2015
Deliveries: CH-53E: 1 Squadron R&D	2	2015	4	2015
Deliveries: AH-1Z, UH-1Y: 1 Squadron R&D	2	2015	4	2015
COLLABORATIVE WARFARE (CW)				
Acquisition Milestones: Netted Sensors CONOPS, Standards and Architectures/ Requirements Development: Netted Sensors CONOPS, Standards, and Architectures/ Requirements Development	1	2015	4	2016
Acquisition Milestones: Naval Aviation Tactical Networking Requirements: Naval Aviation Tactical Networking Requirements	1	2015	4	2016
Acquisition Milestones: Netted Sensors Demonstrations: Trident Warrior 15	1	2015	3	2015
AVIONICS COMPONENT IMPROVEMENT PROGRAM (AvCIP)				
Acquisition Milestones: Funding Allocation: Funding Allocation 15	1	2015	1	2015
Acquisition Milestones: Funding Allocation: Funding Allocation 16	1	2016	1	2016
Acquisition Milestones: Proposal Collection: Proposal Collection 15	1	2015	2	2015
Acquisition Milestones: Proposal Collection: Proposal Collection 16	1	2016	2	2016
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation 15	2	2015	2	2015
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation 16	2	2016	2	2016
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection 15	3	2015	3	2015

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection 16	3	2016	3	2016
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan 15	3	2015	4	2015
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan 16	3	2016	4	2016
<i>MID AIR COLLISION AVOIDANCE CAPABILITY (MCAC)</i>				
Acquisition Milestones: AOA Complete	3	2015	3	2015
Acquisition Milestones: CDD Draft	4	2016	4	2016
Systems Development: Requirements Development	1	2016	3	2016

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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 0604215N / <i>Standards Development</i>				Project (Number/Name) 1857 / <i>Calibration Standards</i>			
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
1857: <i>Calibration Standards</i>	12.564	1.582	1.653	1.300	-	1.300	1.913	1.903	1.790	1.827	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

OPNAV sponsored (by instruction), Navy-wide program which addresses Metrology related RDT&E issues for navy weapon systems, shipboard platforms, Naval Air, and Fleet Ground Marines. It supports development of calibration standards (equipment, procedures and technical data) required to resolve Metcal related safety, obsolescence, new and emerging technology support and cost reduction issues. It funds Navy unique and lead service responsibilities in DoD and Joint Services Metrology Research Programs to develop calibration solutions. The line supports development of measurement requirements to verify performance of all test systems used to validate the operation of Navy weapon Systems with calibration standards traceable to the National Institute of Standards and Technology to calibrate, sustain and ensure performance accuracy.

This program also provides benefits and efficiencies in a joint collaborative environment within the Tri-Services. Projects are identified and defined so that they will meet the universal requirement. Development efforts are integrated in order to achieve the common capabilities required at minimum cost. This is also a regular and common business practice within the Navy Metrology Community where R&D efforts are communicated and integrated into the multiple testing and Monitoring Systems. This is done in support of Program Managers, Sponsors, and Principle Executive officers. As a result, common requirements are established, duplication of efforts are eliminated, and best value, high quality Metcal products are produced for the Navy.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Calibration Standards	1.582	1.653	1.300	0.000	1.300
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
(\$.907) Continue development calibration standards in support of electro optical standards (hardware) in support of safety of flight operations.					
(\$.428) Continue development of calibration standards (hardware) in support of Physical Mechanical standards in support of Shipboard Flight Operations and NAVAIR Oxygen systems.					
(\$.247) Continue development of analytical metrology (processes) in support of automated interval and uncertainty analysis.					
FY 2016 Plans:					
(\$1.287) Continue development calibration standards in support of electro optical standards (hardware) in support of safety of flight operations.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 1857 / <i>Calibration Standards</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
(\$.256) Continue development of calibration standards (hardware) in support of Physical Mechanical standards in support of Shipboard Flight Operations and NAVAIR Oxygen systems.					
(\$.110) Continue development of analytical metrology (processes) in support of automated interval and uncertainty analysis.					
<i>FY 2017 Base Plans:</i>					
(\$.755) Continue development calibration standards in support of electro optical standards (hardware) in support of safety of flight operations.					
(\$.288) Continue development of calibration standards (hardware) in support of physical mechanical standards in support of Shipboard Flight Operations and NAVAIR Oxygen systems.					
(\$.257) Continue development of analytical metrology (processes) in support of automated interval and uncertainty analysis.					
<i>FY 2017 OCO Plans:</i>					
N/A					
Accomplishments/Planned Programs Subtotals	1.582	1.653	1.300	0.000	1.300

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

N/A

Remarks

D. Acquisition Strategy

Funds provide for in-service engineering initiation of metrology research and developmental efforts of unique non-commercial hardware standards in the development of six key thrust technological areas which correspond to Physical Mechanical, Electro-Optical, Analytical Metrology, Electrical/Electronic systems, Chembio Defense, Microwave/Millimeter wave. These standards will ensure measurement accuracy in advanced and emerging combat weapon systems and associated test equipment. These hardware test standards will also provide for cost effective and efficient system maintenance and calibration measurements that reduce wrong test decisions and will result in lower maintenance cost and higher system performance reliability.

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 1857 / <i>Calibration Standards</i>
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E. Performance Metrics

The U.S. Navy Metrology RDT&E Program will continue the research and development of 5 projects in progress in the technology areas of Physical Mechanical, Electro Optical, and Analytical Metrology for the purpose of ensuring measurement accuracy in new emerging technology measurement requirements of Navy weapon systems. Success measures will be articulated through program goals and a balance score card strategy system.

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 1857 / <i>Calibration Standards</i>
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
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

Proj 1857																												
Electro optical standards (hardware) Night Vision Gain Definition																												
Electro optical standards (hardware) FTIR -15C Black body Spectral Calibration																												
Electro optical Standards (hardware) development in High Energy Laser Standards																												
Physical Mechanical standards (hardware) development in Plasma Cleaning																												
Physical Mechanical standards (hardware) development in Nuclear Magnetic Resonance																												
Physical Mechanical standards (hardware) development in Oxygen Cleaning																												
Fiber Optic Return Loss StandARds																												
Analytical Metrology (processes) Reliability Engineering Process Development for Initial Intervals																												

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 1857 / <i>Calibration Standards</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 1857</i>				
Electro optical standards (hardware) Night Vision Gain Definition	1	2015	4	2015
Electro optical standards (hardware) FTIR -15C Black body Spectral Calibration	1	2015	4	2016
Electro optical Standards (hardware) development in High Energy Laser Standards	1	2016	4	2018
Physical Mechanical standards (hardware) development in Plasma Cleaning	1	2015	4	2018
Physical Mechanical standards (hardware) development in Nuclear Magnetic Resonance	1	2015	4	2018
Physical Mechanical standards (hardware) development in Oxygen Cleaning	1	2015	2	2016
Fiber Optic Return Loss StandaRds	1	2015	4	2018
Analytical Metrology (processes) Reliability Engineering Process Development for Initial Intervals	1	2016	4	2018

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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 0604215N / <i>Standards Development</i>				Project (Number/Name) 2311 / <i>Stores Planning and Weaponneering Module</i>			
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
2311: <i>Stores Planning and Weaponneering Module</i>	159.154	9.088	10.941	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	179.183
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Starting in FY17, the Stores Planning and Weaponneering Module PU 2311 will be moved to Mission Planning PE (0605215N).

A. Mission Description and Budget Item Justification

The Naval Aircraft Weaponneering Components project, now referred to as the Weaponneering and Stores Planning (WASP) components, are integrated software products that allow aircrew to determine the best combinations of weapons and delivery conditions to achieve the desired level of target damage, eliminate weapon delivery solutions that violate aircraft Type/Model/Series (T/M/S) specific safety-of-flight envelopes, and perform detailed weapons employment planning. WASP is approved by Air Warfare Division (N98) as a flight clearance implementation system for the F/A-18 A, A+, B, C, D, D (RC), E, F, EA-18G; potential support for other platforms, to include F-35. WASP components will alert pilots if their planned weapon release conditions meet flight clearance limits, will result in bomb-to-bomb collisions, bomb-to-aircraft collisions, aircraft overstress, or excessive risk of aircraft loss/damage in the event of fuze early bursts. Weapon employment planning is fundamental to the Joint Capability Area of Force Application and joint mission areas of Strike and Amphibious Warfare. WASP provides the Navy and Marine Corp with weaponneering capabilities that are critical requirements for Interdiction, Armed Reconnaissance and Close Air Support mission planning. Therefore, WASP product availability is critical to successful employment of the Joint Mission Planning System (JMPS) for the F/A-18 A-F and EA-18G. The WASP product encompasses a multitude of Government Furnished Information software components and tools (aircraft target maneuver simulations, weapon flyout models, target probability of damage calculators). WASP products will require updates as emergent requirements for new aircraft T/M/S, stores and weapons are approved, and new flight clearances and flight restrictions are issued by Naval Air Systems Command Headquarters (NAVAIRSYSCOM).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Product Development	3.860	4.325	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Includes associated system engineering design, development, installation, integration and software development for WASP components V3.0A, V3.1, V3.1A, V3.1B, V3.1C, V3.1D, V3.2, V3.2A, V3.2B, V3.3, V4.0 to support F/A-18 A-F; and V3.1 and later to support EA-18G. Naval Air Warfare Center Weapons Division (NAWCWD), Joint Software Support Activity (JSSA) will develop and maintain the AV-8B Weapons and Release Planning (WARP) tool. Define requirements to integrate WASP components into the JMPS. Provide domain engineering support for weapons separation, aircraft loads, flutter, fuzing and safe escape for application to WASP. Provide analysis of new requirements, allocation of requirements, design oversight, and life cycle					

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 2311 / <i>Stores Planning and Weaponneering Module</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>management of the WASP program. Develop new aircraft configuration, aircraft loading, weapon optimization, store release and delivery planning components for F/A-18 A-F and EA-18G new flight clearances and flight restrictions issued by NAVAIRSYSCOM. Provide configuration management, system administration, quality assurance, documentation, metrics and software risk management for WASP. Acquire, integrate and modify numerous Government Furnished Information (GFI) software components and tools (aircraft target maneuver simulations, weapon flyout models, target probability of damage calculators, etc.) that are used for the WASP software development. Integrate WASP with Joint Standoff Weapon/Joint Direct Attack Munitions/Standoff Land-Attack Missile - Expanded Response and other weapons mission planning systems as required.</p> <p>FY 2015 Accomplishments: Continue V3.2 development, begin development of V3.3, and release multiple database updates.</p> <p>FY 2016 Plans: Complete development of V3.3, and release multiple database updates. Begin V4.0 development which incorporates planned architectural and usability improvements.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Test and Evaluation (T&E)</p> <p align="right">Articles:</p> <p>Description: Provide test and evaluation for unit and system level testing; functional qualification testing; safety of flight certification testing; integration and standards compliance testing for WASP versions V3.0A, V3.1, V3.1A, V3.1B, V3.1C, V3.1D V3.2, V3.2A, V3.2B and V3.3. Provide Joint Mission Planning System Mission Planning Environment Integration test support. Provide testing and test support to ensure all (to include internally developed software, externally developed GFI) components comply with Department of Navy (DoN) and Department of Defense (DoD) software mandates and directives. These include Integrated Shipboard Network System IT-21, DoD Information Assurance Certification and Accreditation Process, Navy Marine Corps Intranet (NMCI) and DoD Information Technology Portfolio Repository. All Fleet released software must comply with DoN and DoD software directives or will not be allowed to run on ship Local Area Networks or NMCI.</p> <p>FY 2015 Accomplishments:</p>	2.104	3.286	0.000	0.000	0.000
	-	-	-	-	-

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 2311 / <i>Stores Planning and Weaponneering Module</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Complete test and evaluation of WASP V3.2 in order to release to fleet in FY16. Complete test and evaluation of multiple database updates. Analyze test requirements for V3.3.</p> <p>FY 2016 Plans: Complete test and evaluation of WASP major V3.3 in order to release to fleet in FY17. Complete test and evaluation of multiple database updates. Analyze test requirements.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Program Management/Systems Engineering</p> <p align="right">Articles:</p> <p>Description: Provide program management and systems engineering support, which includes requirements definition and analysis, compliance with Naval Air Systems Command systems engineering technical review processes, Weaponneering and Stores Planning (WASP) acquisition documentation development and support, cost, schedule and performance management, contracting support (providing contract administration, preparing contract packages for award), compliance with external directives and providing financial support (accept, obligate, commit, and track funding). Provide travel for WASP Government personnel. Continue performing project management support for this program throughout the Future Years Defense Program/Plan.</p> <p>FY 2015 Accomplishments: Continue project management and systems engineering support to the WASP for future releases of WASP to the fleet. Additional support will be required for multiple database releases.</p> <p>FY 2016 Plans: Continue project management and systems engineering support to the WASP for future releases of WASP to the fleet. Additional support will be required for multiple database releases.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans:</p>	3.124	3.330	0.000	0.000	0.000
	-	-	-	-	-

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 2311 / <i>Stores Planning and Weaponneering Module</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	9.088	10.941	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDTE/3858,5302,5380: <i>Air Force Mission Planning Systems</i>	60.679	55.835	78.323	-	78.323	75.567	75.113	87.771	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Weaponneering and Stores Planning (WASP) products, delivered annually, were developed in-house by NAVAIR consisting of Naval Air Warfare Center Aircraft Division and Naval Air Warfare Center Weapons Division engineers and support contractors. The team has now migrated to a smaller government team that provides functional expertise in aircraft safety-of-flight (air-vehicle stores compatibility, weapons separation, aircraft aerodynamic flutter, ground/flight loads, authorized fuze arm times, aircraft safe escape), guided weapons employment and weapons effects against targets, with the majority of the software development conducted by various contractors. The Government, engineering, test, and support teams (test facilities, functional qualification testing and certification/accreditation test) are supplemented with contractor labor.

E. Performance Metrics

Average time to plan a flight: Threshold value is < 1 hour average time to plan a flight that includes full aircraft loadout and weapons delivery safe escape planning. Objective value is < 15 minutes average time to plan a flight that includes full aircraft loadout and weapons delivery safe escape planning. End product is a pilot's z-diagram knee board card.

Interoperability: Threshold value is 100% stand alone value. Objective value is 100% stand alone value.

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 2311 / <i>Stores Planning and Weaponering Module</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	WR	Air Force Seek Eagle : Eglin Air Force Base, FL	0.310	0.050	Jan 2015	0.081	Jan 2016	0.000		-		0.000	0.000	0.441	-
Primary Software Development	C/CPFF	DCS Corp : Alexandria, VA	11.805	3.561	Jan 2015	3.765	Jan 2016	0.000		-		0.000	0.000	19.131	19.131
SEAL Software Development	C/CPFF	ManTech : Various	1.539	0.249	Jan 2015	0.479	Jan 2016	0.000		-		0.000	0.000	2.267	2.267
Prior year Prod Dev cost no longer funded in Future Years Defense Program/ Plan	Various	Various : Various	83.463	0.000		0.000		0.000		-		0.000	0.000	83.463	-
Subtotal			97.117	3.860		4.325		0.000		-		0.000	0.000	105.302	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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 & Evaluation Civilian & OCC	WR	NAWCAD : Patuxent River, MD	21.828	1.100	Nov 2014	2.254	Nov 2015	0.000		-		0.000	0.000	25.182	-
Test & Evaluation MANTECH & WYLE	C/CPFF	Various : Various	11.938	1.004	Jan 2015	1.032	Jan 2016	0.000		-		0.000	0.000	13.974	13.974
Prior Year T&E costs no longer funded in Future Years Defense Program/ Plan (FYDP)	Various	Various : Various	0.377	0.000		0.000		0.000		-		0.000	0.000	0.377	-
Subtotal			34.143	2.104		3.286		0.000		-		0.000	0.000	39.533	-

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 2311 / <i>Stores Planning and Weaponering Module</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Program Management Support Tecelote, shared costs, Materials	WR	Naval Air Warfare Center Aircraft Division NAWCAD : Patuxent River, MD	10.065	0.500	Nov 2014	0.578	Nov 2015	0.000		-		0.000	0.000	11.143	-
Government Engineering Support Civilian Sys Eng	WR	NAWCAD : Patuxent River, MD	7.869	0.873	Nov 2014	0.875	Nov 2015	0.000		-		0.000	0.000	9.617	-
Program Management Support Brandes & MANTECH	Various	Various : Various	2.056	0.225	Feb 2015	0.289	Feb 2016	0.000		-		0.000	0.000	2.570	-
Government Engineering Support: Guided Weapons	WR	Naval Air Warfare Center Weapons Division NAWCWD : China Lake, CA	1.156	0.023	Nov 2014	0.023	Nov 2015	0.000		-		0.000	0.000	1.202	-
Travel	WR	NAWCAD : Patuxent River, MD	1.301	0.007	Nov 2014	0.015	Nov 2015	0.000		-		0.000	0.000	1.323	-
Systems Engineering Support	Various	Wyle : Huntsville, AL	4.382	1.350	Dec 2014	1.550	Dec 2015	0.000		-		0.000	0.000	7.282	7.282
Govt Engineering Support: Mission Planning Environment Integration	WR	NAWCWD : Point Mugu, CA	0.402	0.146	Jan 2015	0.000		0.000		-		0.000	0.000	0.548	-
Prior year Mgmt costs no longer funded in FYDP	Various	Various : Various	0.663	0.000		0.000		0.000		-		0.000	0.000	0.663	-
Subtotal			27.894	3.124		3.330		0.000		-		0.000	0.000	34.348	-

	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	159.154	9.088	10.941	0.000	-	0.000	0.000	179.183	-

Remarks
Starting in FY17, PU 2311 will be budgeted under PE 0605215N.

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 2311 / <i>Stores Planning and Weaponing Module</i>
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Stores Planning and Weaponing Module	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Systems Development																												
WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G)	█																											
WASP V3.3 (F/A-18A/B/C/D/E/F, EA-18G)	█		█																									
WASP V4.0 (F/A-18A/B/C/D/E/F, EA-18G)	█		█		█		█																					
Test & Evaluation Milestones																												
WASP V3.1 (F/A-18A/B/C/D/E/F, EA-18G)	█																											
WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G)	█																											
WASP V3.3 (F/A-18A/B/C/D/E/F, EA-18G)	█		█		█		█																					
Production Milestones																												
WASP V3.1 (F/A-18A/B/C/D/E/F, EA-18G) IOC:	█		▲																									
WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G) IOC	█		█		▲																							
Ongoing Database Updates	█																											

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 2311 / <i>Stores Planning and Weaponneering Module</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Stores Planning and Weaponneering Module				
Systems Development: WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G):	1	2015	2	2015
Systems Development: WASP V3.3 (F/A-18A/B/C/D/E/F, EA-18G):	4	2015	4	2016
Systems Development: WASP V4.0 (F/A-18A/B/C/D/E/F, EA-18G):	4	2016	4	2016
Test & Evaluation Milestones: WASP V3.1 (F/A-18A/B/C/D/E/F, EA-18G): Test and Evaluation	1	2015	2	2015
Test & Evaluation Milestones: WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G): Test and Evaluation	1	2015	4	2015
Test & Evaluation Milestones: WASP V3.3 (F/A-18A/B/C/D/E/F, EA-18G): Test and Evaluation	2	2016	4	2016
Production Milestones: WASP V3.1 (F/A-18A/B/C/D/E/F) IOC::	3	2015	3	2015
Production Milestones: WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G) IOC:	1	2016	1	2016
Production Milestones: Ongoing Database Updates:	1	2015	4	2016

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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 0604215N / <i>Standards Development</i>				Project (Number/Name) 2312 / <i>Common Helicopters</i>			
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
2312: <i>Common Helicopters</i>	15.932	0.540	0.575	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	17.047
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Starting in FY17, the Common Helicopters (PU 2312) will be moved to Mission Planning PE (0605215N). Automated mission planning systems to date have focused on developing planning capabilities for fixed-wing aircraft, while the unique planning requirements for helicopters have not been fully addressed. The unique and enhanced automated mission planning requirements that must be developed and implemented for helicopters include: data loading, an enhanced route editor (serpentine routing, hover), manipulation of higher fidelity (smaller scale) maps and imagery, enhanced performance tools (performance in and out of ground effect, performance degradation due to atmospheric conditions & elevation), and enhanced fidelity of landing zone, target zone, and threat analyses. The following type/model/series aircraft are supported by this PE: AH-1W/Z, UH-1N/Y, H-46/E, H-53E, H-60H/R/S and V-22. Common helicopter functionality will be developed for implementation in Joint Mission Planning System (JMPS).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Common Helicopters	0.540	0.575	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Development of Common Helicopter functionality and integration with JMPS Framework Versions 1.3.5 and 64 bit Operating System. Common Components include Common Mission Data Loader (CMDL), Weapon Employment Zone Overlays Tool (WEZOT) and Point Selection Tool (PST).					
FY 2015 Accomplishments: Continue the development of the CMDL, WEZOT and PST to operate with next JMPS FW and 64 bit Operating System.					
FY 2016 Plans: Continue the development of the CMDL, WEZOT and PST to operate with next JMPS FW and 64 bit Operating System.					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.540	0.575	0.000	0.000	0.000

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 2312 / <i>Common Helicopters</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE/3858,5302,5380: <i>Air Force Mission Planning Systems</i>	60.679	55.835	78.323	-	78.323	75.567	75.113	87.771	0.000	Continuing	Continuing
• RDTE/2213: <i>Naval Mission Planning Systems</i>	25.717	47.733	22.573	-	22.573	21.645	21.537	21.396	21.830	Continuing	Continuing

Remarks

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

Export Mission Data to Data Transfer Device: Threshold value is < 12 minutes to transfer navigation, communication, weapon system initialization settings and intelligence data.

Interoperability: Threshold value is 100% of top level Information Exchange Requirements (IERs) designated critical will be satisfied.
Objective value is 100% of top level IERs will be satisfied.

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 2312 / <i>Common Helicopters</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Primary Software Development	C/CPFF	Joint Technology Engineering Inc. : Valparaiso, FL	3.905	0.000		0.575	Feb 2016	0.000		-		0.000	0.000	4.480	4.480
Primary Developmnet Contract	C/CPFF	Innovative Defense Technologies : Arlington, VA	0.000	0.425	Mar 2015	0.000		0.000		-		0.000	0.000	0.425	0.425
Product Development Support	MIPR	Hill AFB : Hill AFB, UT	0.000	0.115	Jun 2015	0.000		0.000		-		0.000	0.000	0.115	-
Prior year Prod Dev costs no longer funded in FYDP	Various	Various : Various	11.040	0.000		0.000		0.000		-		0.000	0.000	11.040	-
Subtotal			14.945	0.540		0.575		0.000		-		0.000	0.000	16.060	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Prior year T&E costs no longer funded in FYDP	Various	Various : Various	0.987	0.000		0.000		0.000		-		0.000	0.000	0.987	-
Subtotal			0.987	0.000		0.000		0.000		-		0.000	0.000	0.987	-

			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			15.932	0.540	0.575	0.000	-	0.000	0.000	17.047	-

Remarks

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 2312 / <i>Common Helicopters</i>
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Common Helicopters	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
System Development																																
Software Development	CMDL 3.0																															
	WEZOT 1.0																															
	PST 1.0				CMDL 3.1.x																											
					WEZOT 1.0.x																											
					PST 1.1.x																											

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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 0604215N / <i>Standards Development</i>	Project (Number/Name) 2312 / <i>Common Helicopters</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Common Helicopters				
System Development: Software Development: Common Mission Data Loader (CMDL) 3.0	1	2015	4	2015
System Development: Software Development: Weapons Employment Zone Overlay Tool (WEZOT) 1.0	1	2015	4	2015
System Development: Software Development: Point Selection Tool (PST)	1	2015	4	2015
System Development: Software Development: CMDL 3.1.x	1	2016	4	2016
System Development: Software Development: WEZOT 1.0.x	1	2016	4	2016
System Development: Software Development: PST 1.1.x	1	2016	4	2016

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