Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy											Date: May 2017	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0605215N *I (U)Mission Planning*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	0.000	33.570	33.430	-	33.430	33.570	33.599	34.298	34.978	Continuing	Continuing
2213: *Mission Planning*	0.000	0.000	21.779	21.580	-	21.580	21.477	21.335	21.782	22.216	Continuing	Continuing
2311: *Stores Planning and Weaponeering Module*	0.000	0.000	11.153	11.185	-	11.185	11.412	11.569	11.807	12.039	Continuing	Continuing
2312: *Common Helicopters*	0.000	0.000	0.638	0.665	-	0.665	0.681	0.695	0.709	0.723	Continuing	Continuing

Note

Prior to FY17, Mission Planning (PU 2213) was funded under PE 0604231N; Stores Planning and Weaponeering Module (PU 2311) and Common Helicopters (PU 2312) were funded under PE 0604215N.

FY 2018 funding request reflect a reduction of $0.497 million to account for the availability of prior year funds.

A. Mission Description and Budget Item Justification

Mission Planning PE is used to develop automated mission planning systems to support Naval Aviation.

Joint Mission Planning System (JMPS) is the designated automated mission planning system for the Navy, supporting over 40 T/M/S and expeditionary forces. JMPS-M enables weapon system employment by providing the information, automated tools, and decision aids needed to rapidly plan aircraft, weapon, or sensor missions, load mission data into aircraft and weapons, and conduct mission rehearsal and post-mission analysis. JMPS-E is a scalable, tailorable, mission planning and execution monitoring tool for Amphibious Squadron staffs.

Stores Planning and Weaponeering Module, also referred to as Weaponeering and Stores Planning (WASP), is an integrated software product that allows 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 for F/A-18 and E/A-18G aircraft.

Common Helicopters is used to develop unique planning capabilities for helicopters for integration into Joint Mission Planning System (JMPS).

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under MISSION PLANNING 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.

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy					Date: May 2017
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*		R-1 Program Element (Number/Name) PE 0605215N *I (U)Mission Planning*			
B. Program Change Summary ($ in Millions)	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**
Previous President's Budget	0.000	33.570	34.230	-	34.230
Current President's Budget	0.000	33.570	33.430	-	33.430
Total Adjustments	0.000	0.000	-0.800	-	-0.800
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	-0.528	-	-0.528
• Rate/Misc Adjustments	0.000	0.000	-0.272	-	-0.272

Change Summary Explanation

Technical: N/A

Schedule:

2213:
Prior to FY17, schedule for the Joint Mission Planning Systems (JMPS) profile is under PE 0604231N.

The Increment 4/64-bit development effort was originally scheduled to be completed in Q4 of 2017. However, the program has since modified the contract, extending the period of performance to February 2018 to better leverage collaborative development efforts with the Air Force. No savings are associated with this extension because MPE integration efforts are concurrent with development efforts in FY17 & FY18.

2311:
Prior to FY17, schedule for Stores Planning and Weaponeering Module profile is under PE 0604215N.

2312:
Prior to FY17, schedule for the Common Helicopter profile is under PE 0604215N.

Common Helo Test and Evaluation period added starting in 1QTR FY18 to identify the integration and test activities for Common Helo Components into the JMPS FW.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / *(U)Mission Planning*	Project (Number/Name) 2213 / *Mission Planning*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
2213: *Mission Planning*	0.000	0.000	21.779	21.580	-	21.580	21.477	21.335	21.782	22.216	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Prior to FY17, Mission Planning (PU 2213) was budgeted under Tactical Command System PE 0604231N.

A. Mission Description and Budget Item Justification

Joint Mission Planning System (JMPS) is the designated automated mission planning system for the DoN, supporting maritime and expeditionary forces. JMPS-Maritime (JMPS-M) is the designated automated mission planning system for naval aviation, supporting over 40 T/M/S of U.S. Navy and Marine Corps aircraft. JMPS enables weapon system employment by providing the information, automated tools, and decision aids needed to rapidly plan aircraft, weapon, or sensor missions, load mission data into aircraft and weapons, and conduct post-mission analysis. JMPS is a mission critical system which is a co-development effort between the United States Navy (USN) and United States Air Force (USAF). Common requirements are identified and core JMPS capabilities are developed and prioritized in an evolutionary approach. An individual JMPS Mission Planning Environment (MPE) is a combination of the JMPS framework, common components, unique planning components (UPCs), federated applications, and the necessary system hardware required to satisfy mission planning objectives. Most tactical naval aviation platforms are dependent solely on JMPS to plan precision guided munitions, sensor systems, tactical data links, secure voice communications, and basic Safety of Flight functions.

The JMPS Increment 4 release delivers JMPS FW 1.5 and transitions JMPS from Windows 7/32-bit Operating System (OS) to Windows 10/64-bit OS. Transition to 64-bit allows for memory space expansion to accommodate future Microsoft Operating Systems, emerging technologies, and critical cybersecurity updates. Increment 4 development requires software conversion and refactoring to address memory limitations and system errors resulting in JMPS computer crashes. The transition from the current 32-bit architecture to a 64-bit architecture provides additional memory access, increased planning efficiencies; creating an increased stability in the architecture resulting in fewer system crashes and improved cybersecurity. Delaying JMPS 64-bit transition efforts (Increment 4) will allow existing system crashes to persist, and will decrease system stability in the future due to platform capability enhancements that require increased amounts of data and processing power.

Next Generation Naval Mission Planning, a new start program in 2018, will provide a new mission planning system, with improved mission management, and post-flight mission analysis capabilities on a modular/services architecture. Next Generation Naval Mission Planning will deliver collaboration and automation capabilities and provide revolutionary improvements in workflow, usability, cybersecurity, portability of mission planning, mission management, and post-flight mission analysis functions across multiple hardware configurations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Mission Planning Environment Program Mgmt, Integration, and Test	0.000	11.471	12.744	0.000	12.744
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2213 / *Mission Planning*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Description: Mission Planning Environment (MPE) Integration and Test efforts support the Navy's developmental testing/operational testing, integration and system of system testing for MPE fielding, integrating, testing, and managing the Electronic Kneeboard (EKB) efforts. Life-cycle management efforts consist of integration of components provided by various developers into a platform-centric MPE and testing of the integrated MPE. MPE integration and testing results in a consistent and repeatable system configuration that enables stability and reliability. ***FY 2016 Accomplishments:*** N/A ***FY 2017 Plans:*** Continue integration and testing, project management and systems engineering for current MPEs as well as supporting future releases of JMPS and Electronic Kneeboard (EKB) software to the fleet. ***FY 2018 Base Plans:*** Continue integration and testing, project management and systems engineering for current MPEs. Continue integration for three new variants of the C/KC-130J and wireless JMPS and EKB efforts. These wireless efforts will require additional testing and integration to meet cyber mandates. Continue supporting future releases of JMPS and Electronic Kneeboard (EKB) software to the fleet. Begin Next Generation Naval Mission Planning requirement analysis. ***FY 2018 OCO Plans:*** N/A					
Title: Joint Mission Planning System Expeditionary (JMPS-E) ***Articles:*** ***Description:*** JMPS Expeditionary (JMPS-E): The goal of JMPS-E is to produce a scalable, tailorable, mission planning and execution monitoring tool for Amphibious Squadron staffs. The primary focus of this system is to provide an automated capability to assist planners with mission analysis, course of action development and automated creation of doctrinal orders based on planning data in the system. Current expeditionary planning is done manually on paper charts. JMPS-E provides a digital map enabling better response times to changing plans, easier distribution of planning artifacts and a reduction in human error during the planning process. The variety and geographically separated nature of forces involved with Ship to Shore Maneuver amplifies the need for web-based technologies to enable collaborative planning, improve overall situational awareness and enable the monitoring of mission execution from different locations. The primary outputs are tasking orders, route plans,	0.000 -	0.908 -	0.946 -	0.000 -	0.946 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2213 / *Mission Planning*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
battlespace geometries and decision briefs. The system will also incorporate modeling and simulation tools to rehearse and deconflict mission plans. ***FY 2016 Accomplishments:*** N/A ***FY 2017 Plans:*** Complete testing of JMPS-E MPE Version 2.1. Development, integration and testing of JMPS-E MPE Version 3.0 ***FY 2018 Base Plans:*** Continue integration and testing of JMPS-E MPE Version 3.0. ***FY 2018 OCO Plans:*** N/A					
Title: JMPS Framework (FW) and Common Components (CC) Development ***Articles:*** ***Description:*** Continue integration of JMPS 64-bit FW Version 1.5 which provides additional capabilities for all naval aircraft to include airdrop, air refueling, and enhanced installations. Funding for FW will be used to support system engineering processes, management interface controls, software architectural analysis, requirements management and a centralized website for Mission Planning Environment (MPE) developers. As platform(s) requirements emerge for new and enhanced mission planning capabilities, the demand for more complex integrated applications and software products increases. Without this planned transition to a 64-Bit architecture, the volume of integrated mission planning capability for the fleet will be limited. Common Components software updates augment core mission planning capabilities across multiple T/M/S. The JMPS FW and Common Components will also transition to Windows 10. ***FY 2016 Accomplishments:*** N/A ***FY 2017 Plans:*** Continue implementation of the Increment-4 JMPS Framework Core 64-bit development transition activities. Major events include the development of Cybersecurity safeguards addressing IA mandates, development of additional JMPS help features, and code conversion for the JMPS Core Framework (Basic Flight Planning Capabilities) and Common Components for MPE/UPCs including significant efforts for the F/A-18 A-F and E/A-18G platforms. In addition, efforts include initiation of 64-bit transition development for JMPS Common	0.000 -	9.400 -	7.890 -	0.000 -	7.890 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2213 / *Mission Planning*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Components used by multiple platforms. The transition of the JMPS Common Components are aligned to meet platform(s) requirements for new and enhanced mission planning capability in a 64-bit environment. The 64-bit transition is required to address system performance issues (RAM) with the fielded Mission Planning Environment (MPE); thus reducing system crashes while improving mission planning performance for the fleet. ***FY 2018 Base Plans:*** Continue the Increment-4 JMPS Framework Core 64-bit development transition activities. Major activities include completing the 64-bit development and transitioning to the Windows 10 operating system used by multiple platforms. The transition of the JMPS Common Components are aligned to meet platform(s) requirements for new and enhanced mission planning capability in a 64-bit environment. The 64-bit transition is required to address system performance issues (RAM) with the fielded Mission Planning Environment (MPE); thus reducing system crashes while improving mission planning performance for the fleet. All Common Components software updates across multiple T/M/S will be completed to support Increment 4 MPE integration efforts. ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.000	21.779	21.580	0.000	21.580

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The initial Joint Mission Planning System (JMPS) development effort was a phased evolutionary approach. Multiple contracts were awarded during initial development. During the down-select process, one contractor was selected to develop the JMPS architecture work and Version 1.0 basic flight planning components. Additional phases focused on strike planning requirements (i.e., support Precision Guided Missions and other tactical data intensive missions) in order to migrate platforms from legacy mission planning systems to JMPS. The USAF continued development of JMPS Framework Versions 1.3 and 1.5 and owns the Mission Planning Enterprise Contract, which is used for JMPS Framework software development. The USN integration and fielding strategy supports a Mission Planning Environment (MPE) focus, where the JMPS Framework and other software components are integrated, tested, and fielded by T/M/S. The USN Increment 4, and beyond, will address increased Mission Planning system capabilities required by the 21st Century Warfighter and modernizes the architecture of JMPS to address technological obsolescence. As platforms plan their migration to newer versions of JMPS, the acquisition strategy, plan, and program baseline will be updated in order to divest legacy mission planning systems, meet the evolving requirements for integrated mission planning, and lower total life cycle cost.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2213 / *Mission Planning*

E. Performance Metrics

Average time to plan a flight: Threshold value is < 1 hour average time to plan a flight that includes a Military Training Route (MTR), routing to and from the MTR, kneeboard card production, Instrument Flight Rules (IFR) flight planning materials and a Data Transfer Device (DTD) Load. Objective value is < 30 minutes average time to plan a flight that includes a MTR, routing to and from the MTR, kneeboard card production, IFR flight planning materials and a DTD Load.

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

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2213 / *Mission Planning*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Software Development/JMPS Expeditionary	C/CPFF	various : various	0.000	0.000		0.400	Feb 2017	0.650	Feb 2018	-		0.650	Continuing	Continuing	Continuing
Primary Software Development, Inc 4	C/CPFF	Northrop Grumman : Long Beach, CA	0.000	0.000		4.500	Feb 2017	1.500	Feb 2018	-		1.500	0.000	6.000	6.000
Primary Software Development/(Human Factors)	C/CPFF	Georgia Technical Research Institute (GTRI) : Atlanta, GA	0.000	0.000		1.500	Mar 2017	1.000	Mar 2018	-		1.000	0.000	2.500	2.500
Primary Software Development FW	C/CPFF	TBD : TBD	0.000	0.000		1.600	May 2017	2.890	Jan 2018	-		2.890	Continuing	Continuing	Continuing
Primary Software Development	C/CPFF	Leidos : Orlando, FL	0.000	0.000		1.800	Feb 2017	2.500	Feb 2018	-		2.500	0.000	4.300	4.300
		Subtotal	0.000	0.000		9.800		8.540		-		8.540	-	-	-

Remarks

The FY18 Primary Software Development FW effort is a competitive 3rd Qtr. FY17 award therefore the performing activity and location are currently TBD to support a competitive contracting strategy. This contract consists of a base year (FY17) and future option years that will affect the current budget year. Once awarded, the performing activity and location will be updated to reflect the selected contractor.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.208	Nov 2016	0.212	Nov 2017	-		0.212	Continuing	Continuing	Continuing
Systems Eng & Integration	WR	NAWCWD : Point Mugu, CA	0.000	0.000		2.487	Nov 2016	2.324	Nov 2017	-		2.324	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.000	0.000		1.000	Nov 2016	1.300	Nov 2017	-		1.300	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		3.695		3.836		-		3.836	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / *(U)Mission Planning*	Project (Number/Name) 2213 / *Mission Planning*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	WR	NAWCWD : Point Mugu, CA	0.000	0.000		5.675	Nov 2016	5.579	Nov 2017	-		5.579	Continuing	Continuing	Continuing
Test & Evaluation	WR	COMOPTEVFOR : Norfolk, VA	0.000	0.000		0.700	Jan 2017	1.350	Jan 2018	-		1.350	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		6.375		6.929		-		6.929	-	-	-

Remarks

The increase in FY18 COMOPTEVFOR Operational Test (OT) support is due to increased testing for new platforms transitioning to JMPS, increased testing requirements required for new cyber requirements, and additional testing required for the incorporation of new wireless technologies for multiple JMPS platforms

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support and Travel	WR	NAWCAD : Patuxtent River, MD	0.000	0.000		1.400	Nov 2016	1.600	Nov 2017	-		1.600	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	Ausley Associates : Lexington Park, MD	0.000	0.000		0.509	Mar 2017	0.675	Jan 2018	-		0.675	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		1.909		2.275		-		2.275	-	-	-

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		21.779		21.580		-		21.580	-	-	-

Remarks

Prior to FY17, the Mission Planning PU 2213 was funded under PE 0604231N

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2213 / *Mission Planning*

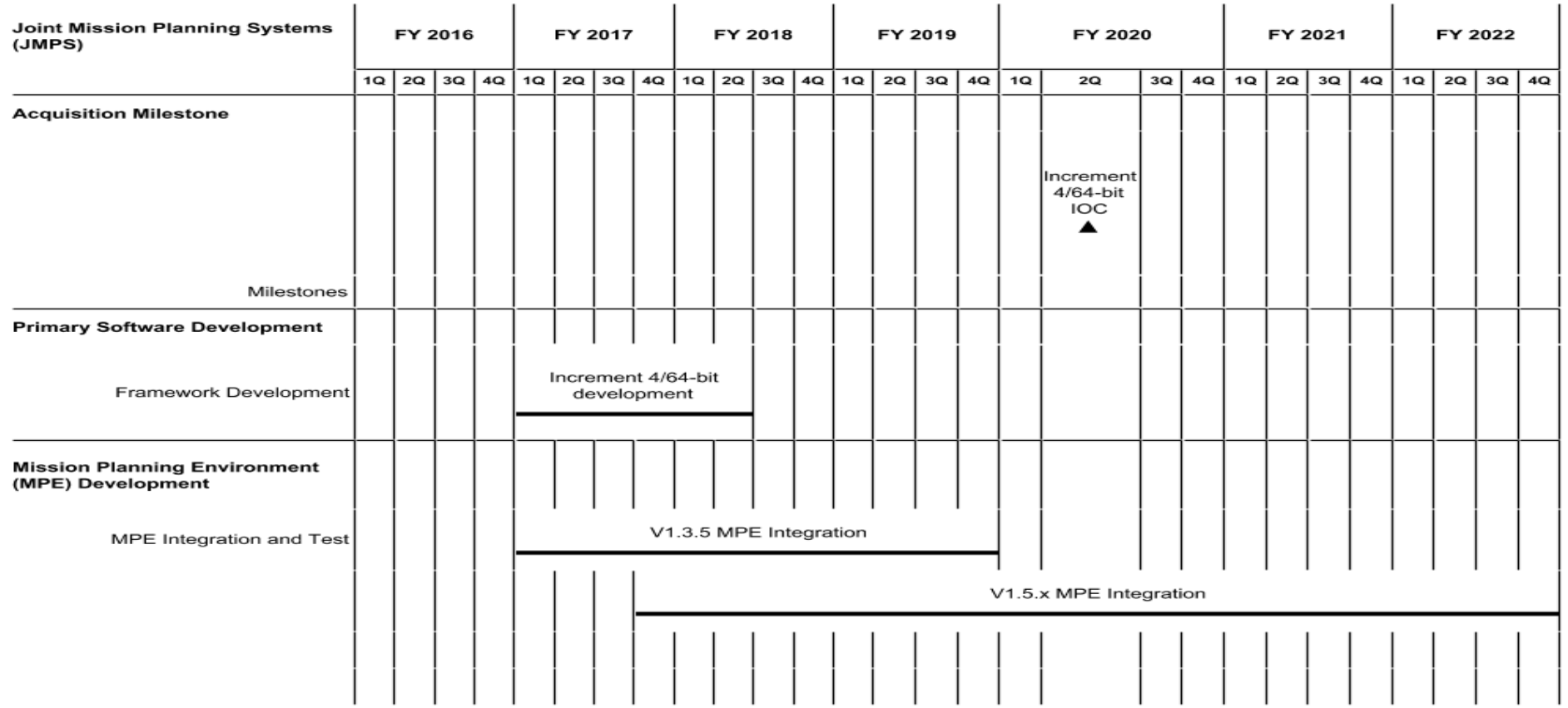

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2213 / *Mission Planning*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Joint Mission Planning Systems (JMPS)				
Acquisition Milestone: JMPS FW Increment 4/ 64-Bit Initial Operational Capability (IOC)	2	2020	2	2020
Primary Software Development: Framework Development: JMPS FW Increment 4/ 64-Bit Architecture Development	1	2017	2	2018
Mission Planning Environment (MPE) Development: MPE Integration and Test: V1.3.5 MPE Integration	1	2017	4	2019
Mission Planning Environment (MPE) Development: MPE Integration and Test: V1.5.x MPE Integration	4	2017	4	2022

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / *(U)Mission Planning*	Project (Number/Name) 2311 / *Stores Planning and Weaponeering Module*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
2311: *Stores Planning and Weaponeering Module*	0.000	0.000	11.153	11.185	-	11.185	11.412	11.569	11.807	12.039	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Prior to FY17, Stores Planning and Weaponeering Module (PU 2311) was budgeted under Standards Development (PE 0604215N).

A. Mission Description and Budget Item Justification

The Weaponeering 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 weaponeering 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, new flight clearances and flight restrictions are issued by Naval Air Systems Command Headquarters (NAVAIRSYSCOM), and developing WASP as a software application.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Product Development	0.000	5.876	5.803	0.000	5.803
Articles:	-	-	-	-	-
Description: Includes associated system engineering design, development, installation, integration and software development for Weaponeering and Stores Planning (WASP) components v3.x and v4.x to support F/A-18 A-F and EA-18G. Define requirements to integrate WASP components into the Joint Mission Planning System (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 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					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
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. ***FY 2016 Accomplishments:*** N/A ***FY 2017 Plans:*** Continue WASP v4.0 development and release multiple database updates. Further define requirements for WASP V4.1 ***FY 2018 Base Plans:*** Complete WASP V4.0 development. Begin the development of WASP 4.1 and the release of multiple database updates. ***FY 2018 OCO Plans:*** N/A					
Title: Test and Evaluation (T&E) ***Articles:*** ***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 Weaponeering and Stores Planning (WASP) versions v3.x and v4.x. 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, Risk Management Framework (RMF), 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. ***FY 2016 Accomplishments:***	0.000 -	2.266 -	2.194 -	0.000 -	2.194 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
N/A ***FY 2017 Plans:*** Complete test and evaluation of WASP major v3.3 and release to the Fleet. Begin testing of WASP major v4.0. Complete test and evaluation of multiple database updates. ***FY 2018 Base Plans:*** Complete test and evaluation of WASP major V4.0 to support an FY19 release to the Fleet. Complete test and evaluation of multiple database updates. ***FY 2018 OCO Plans:*** N/A					
Title: Program Management/Systems Engineering ***Articles:*** ***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, acquisition documentation development, cost, schedule and performance management, and compliance with external directives. Provide travel for government personnel. ***FY 2016 Accomplishments:*** N/A ***FY 2017 Plans:*** Continue project management and systems engineering support to the WASP for future software releases to the fleet. Additional support will be required for multiple database releases. ***FY 2018 Base Plans:*** Continue project management and systems engineering support to the WASP for future software releases to the fleet. Additional support will be required for multiple database releases. ***FY 2018 OCO Plans:*** N/A	0.000 -	3.011 -	3.188 -	0.000 -	3.188 -
Accomplishments/Planned Programs Subtotals	0.000	11.153	11.185	0.000	11.185

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Weaponeering 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.

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WR	Naval Air Warfare Center Aircraft Division NAWCAD : Patuxent River, MD	0.000	0.000		0.177	Nov 2016	0.102	Nov 2017	-		0.102	Continuing	Continuing	Continuing
Product Development	WR	Air Force Seek Eagle : Hill Air Force Base, UT	0.000	0.000		0.083	Mar 2017	0.085	Mar 2018	-		0.085	Continuing	Continuing	Continuing
Primary Software Development	C/CPFF	DCS Corp : Alexandria, VA	0.000	0.000		1.721	Feb 2017	1.721	Feb 2018	-		1.721	0.000	3.442	3.442
Product Development	C/CPFF	TBD : TBD	0.000	0.000		3.895	Apr 2017	3.895	Mar 2018	-		3.895	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		5.876		5.803		-		5.803	-	-	-

Remarks

The FY18 Product Development contract will be a competitive 3rd Qtr. FY17 award so the performing activity and location are currently TBD due to the competitive contracting strategy. Contract is on track. This contract consists of a base year (FY17) and future option years that will affect the current budget year. Once awarded, the performing activity and location will be updated to reflect the selected contractor.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation (Gov't)	WR	NAWCAD : Patuxent River, MD	0.000	0.000		1.142	Nov 2016	1.303	Nov 2017	-		1.303	Continuing	Continuing	Continuing
Test & Evaluation (Contractor)	C/CPFF	DCS Corp : Alexandria, VA	0.000	0.000		1.124	Mar 2017	0.891	Mar 2018	-		0.891	0.000	2.015	2.015
		Subtotal	0.000	0.000		2.266		2.194		-		2.194	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering and Program Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		1.100	Nov 2016	1.200	Nov 2017	-		1.200	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	TBD : TBD	0.000	0.000		0.441	Mar 2017	0.450	Jan 2018	-		0.450	0.000	0.891	0.891
Government Engineering Support: Guided Weapons	WR	Naval Air Warfare Center Weapons Division NAWCWD : China Lake, CA	0.000	0.000		0.023	Jan 2017	0.223	Jan 2018	-		0.223	Continuing	Continuing	Continuing
Systems Engineering Support	C/CPFF	Wyle : Huntsville, AL	0.000	0.000		1.357	Jan 2017	1.200	Jan 2018	-		1.200	0.000	2.557	2.557
Govt Engineering Support: Mission Planning Environment Integration	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.080	Nov 2016	0.100	Nov 2017	-		0.100	Continuing	Continuing	Continuing
Travel	Various	NAVAIR : Patuxent River, MD	0.000	0.000		0.010	Nov 2016	0.015	Nov 2017	-		0.015	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		3.011		3.188		-		3.188	-	-	-

Remarks

The FY18 Program Management Support contract will be a competitive March 2017 award so the performing activity and location are currently TBD due to the competitive contracting strategy. This contract consists of a base year (FY17) and future option years that will affect the current budget year. Once awarded, the performing activity and location will be updated to reflect the selected contractor.

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		11.153		11.185		-		11.185	-	-	-

Remarks

Prior to FY17, PU 2311 was budgeted under PE 0604215N.

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

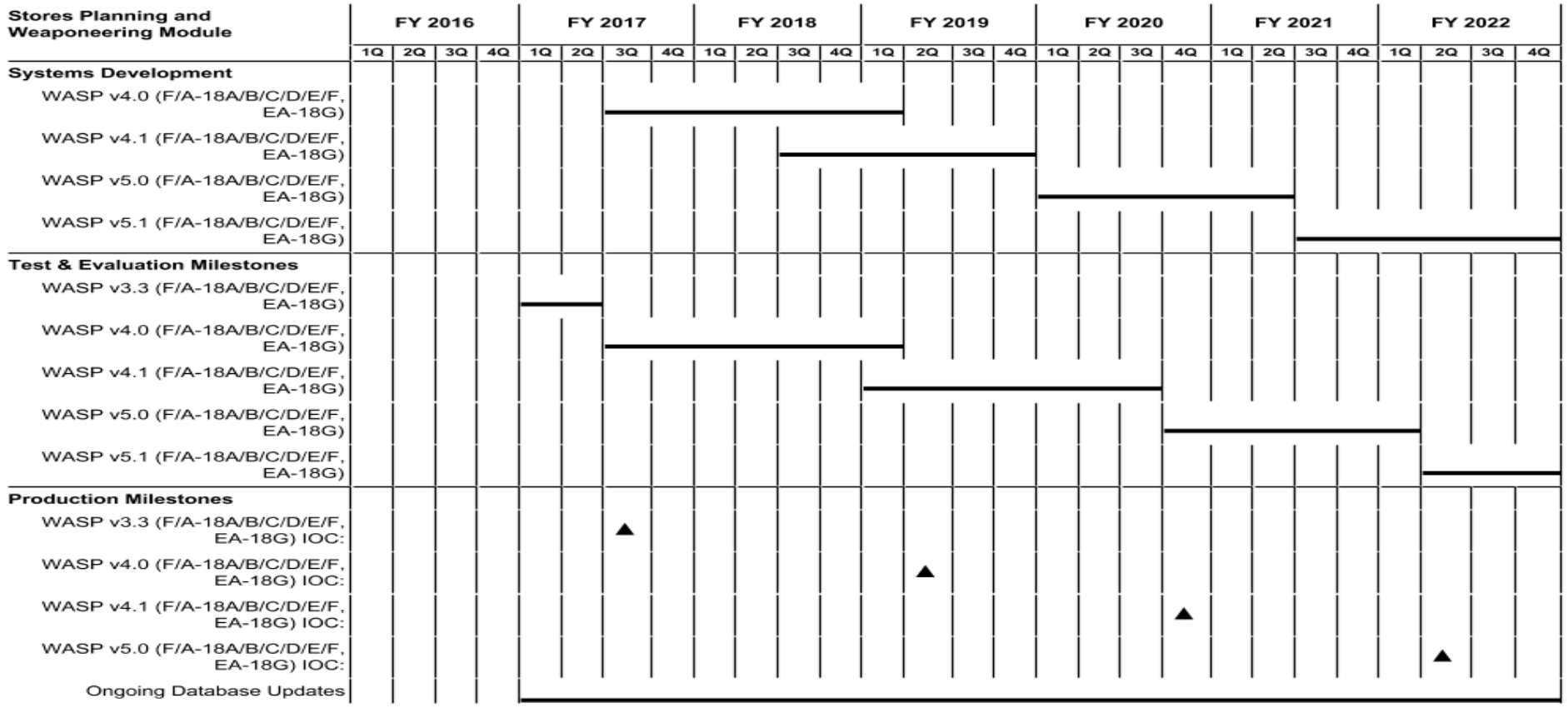

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Stores Planning and Weaponeering Module				
Systems Development: WASP v4.0 (F/A-18A/B/C/D/E/F, EA-18G):	3	2017	1	2019
Systems Development: WASP v4.1 (F/A-18A/B/C/D/E/F, EA-18G):	3	2018	4	2019
Systems Development: WASP v5.0 (F/A-18A/B/C/D/E/F, EA-18G):	1	2020	2	2021
Systems Development: WASP v5.1 (F/A-18A/B/C/D/E/F, EA-18G):	3	2021	4	2022
Test & Evaluation Milestones: WASP v3.3 (F/A-18A/B/C/D/E/F, EA-18G):	1	2017	2	2017
Test & Evaluation Milestones: WASP v4.0 (F/A-18A/B/C/D/E/F, EA-18G):	3	2017	1	2019
Test & Evaluation Milestones: WASP v4.1 (F/A-18A/B/C/D/E/F, EA-18G):	1	2019	3	2020
Test & Evaluation Milestones: WASP v5.0 (F/A-18A/B/C/D/E/F, EA-18G):	4	2020	1	2022
Test & Evaluation Milestones: WASP v5.1 (F/A-18A/B/C/D/E/F, EA-18G):	2	2022	4	2022
Production Milestones: WASP v3.3 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	3	2017	3	2017
Production Milestones: WASP v4.0 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	2	2019	2	2019
Production Milestones: WASP v4.1 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	4	2020	4	2020
Production Milestones: WASP v5.0 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	2	2022	2	2022
Production Milestones: Ongoing Database Updates:	1	2017	4	2022

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / *(U)Mission Planning*	Project (Number/Name) 2312 / *Common Helicopters*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
2312: *Common Helicopters*	0.000	0.000	0.638	0.665	-	0.665	0.681	0.695	0.709	0.723	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Prior to FY17, Common Helicopters (PU 2312) was budgeted under Standards Development (PE 0604215N).

A. Mission Description and Budget Item Justification

Automated mission planning systems have focused on developing planning capabilities for fixed-wing aircraft, while the unique planning requirements for helicopters are not yet 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 PU: AH-1W/Z, UH-1N/Y, H-46/E, H-53D/E, 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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Product Development	0.000	0.638	0.400	0.000	0.400
Articles:	-	-	-	-	-
Description: Development of Common Helicopter functionality and integration with JMPS Framework Versions 1.5.x 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 2016 Accomplishments: N/A					
FY 2017 Plans: Continue the development of Common Mission Data Loader (CMDL), Point Selection Tool (PST), and Weapon Employment Zone Overlays Tool (WEZOT).					
FY 2018 Base Plans: Continue the development of Common Mission Data Loader (CMDL), Point Selection Tool (PST), and Weapon Employment Zone Overlays Tool (WEZOT).					
FY 2018 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2312 / *Common Helicopters*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
N/A					
Title: Test and Evaluation	0.000	0.000	0.265	0.000	0.265
Articles:	-	-	-	-	-
Description: Integration and test of Common Helicopter functionality with JMPS Framework Versions 1.5.x 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 2016 Accomplishments:*** N/A ***FY 2017 Plans:*** N/A ***FY 2018 Base Plans:*** Provide integration and test support for Common Mission Data Loader (CMDL), Point Selection Tool (PST), and Weapon Employment Zone Overlays Tool (WEZOT) for the 64-bit transition to JMPS framework 1.5.x. ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.638	0.665	0.000	0.665

C. Other Program Funding Summary ($ in Millions)

N/A

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.