Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy											Date: March 2019	
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 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	32.876	36.108	32.714	75.886	-	75.886	86.886	79.731	62.218	40.786	Continuing	Continuing
2213: *Mission Planning*	21.415	21.210	21.868	64.603	-	64.603	75.457	68.205	50.448	28.779	Continuing	Continuing
2311: *Stores Planning and Weaponeering Module*	10.847	10.868	10.846	11.283	-	11.283	11.429	11.526	11.770	12.007	Continuing	Continuing
2312: *Common Helicopters*	0.614	0.650	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.264
9999: *Congressional Adds*	0.000	3.380	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.380

A. Mission Description and Budget Item Justification

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

The Joint Mission Planning System (JMPS) (Proj 2213) is the designated automated mission planning system for the Navy, supporting over 40 Type/Model/Series (T/M/S) of U.S. Navy and Marine Corps aircraft and expeditionary forces. JMPS-M (Maritime) 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, conduct mission rehearsal, execute missions, and conduct post-mission analysis. JMPS-E (Expeditionary) is a scalable, tailorable, and collaborative web-based mission planning and execution monitoring tool for Amphibious Squadron (PHIBRON) staffs embarked with each Amphibious Ready Group (ARG) and Expeditionary Strike Group (ESG). Electronic Kneeboard (EKB) is a mobile device configured with various software applications and features to support aircrew during pre-flight planning, in-flight re-planning and mission execution, and post-mission debriefing and analysis. Common Munitions BIT/Reprogramming Equipment (CMBRE) (Proj 2213) provides USN/USMC forces the critical capability to perform built-in test and programming/reprogramming of various weapons. FY 2020 and out includes funding for the research and the development in order to develop upgrades to the CMBRE system to support advanced operational capabilities, address system obsolescence, meet cyber security requirements, and meet mission readiness requirements.

The Next Generation Naval Mission Planning System (NGNMPS) (Proj 2213) will address critical capability gaps and deficiencies in the legacy JMPS that are required for modern 21st century integrated mission-centric and collaborative multi-domain mission planning, execution and analysis. NGNMPS will replace Naval Aviation's legacy JMPS no later than 2027 while also affordably leveraging prior investments across the legacy systems to deliver integrated and collaborative capabilities. NGNMPS will affordably address technological obsolescence while also delivering collaborative and automated capabilities in an integrated virtual collaborative data environment. NGNMPS will also incorporate service-oriented architecture to provide revolutionary improvements in workflow, usability, cybersecurity, information and decision aids needed to rapidly plan/employ/maximize effectiveness of aircraft/weapon/sensor/payload mission plans; perform advanced pre-mission rehearsal/analysis; provide functionality to load mission data into aircraft and weapons; enable dynamic replanning/retargeting against evolving threats in contested environments; perform integrated and advanced post-mission debrief/analysis; support cross-domain capabilities; and support portability of mission planning, mission, execution, and mission analysis functions.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy	Date: March 2019
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*

The Stores Planning and Weaponeering Module, also referred to as Weaponeering and Stores Planning (WASP)(Proj 2311), 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 T/M/S specific safety-of-flight envelopes, and perform detailed weapons employment planning for F/A-18 and E/A-18G aircraft. FY20 and out include funding for the research and development in order to integrate WASP with 3-D mission rehearsal, provide dynamic Safe Escape Automation Layer (SEAL) calculations on Electronic Kneeboard (EKB) SEAL, develop WASP for other Navy and Marine Corps platforms, and support WASP development and integration with Next Generation Mission Planning Systems (NGNMPS).

Common Helicopters (Proj 2213) is used to develop unique planning capabilities and tools for helicopters (e.g. Weight and Power Calculators (WPC), Common Mission Data Loader (CMDL), Weapon Employment Zone Overlays Tool (WEZOT) and Point Selection Tool (PST)) for integration into JMPS Mission Planning Environments (MPE). Starting in FY19, Common Helicopters RDT&E funding in PU 2312 was consolidated with JMPS-M Mission Planning funding in PU 2213.

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.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	33.430	32.714	42.194	-	42.194
Current President's Budget	36.108	32.714	75.886	-	75.886
Total Adjustments	2.678	0.000	33.692	-	33.692
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.822	0.000			
• Program Adjustments	0.000	0.000	33.684	-	33.684
• Rate/Misc Adjustments	0.000	0.000	0.008	-	0.008
• Congressional Add Adjustments	3.500	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2018	FY 2019
Project: 9999: *Congressional Adds*		
Congressional Add: *Planning and Execution Monitoring*	3.380	0.000
Congressional Add Subtotals for Project: 9999	3.380	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy	Date: March 2019
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*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2018	FY 2019
Congressional Add Totals for all Projects	3.380	0.000

Change Summary Explanation

The FY 2020 funding request was increased by $33.7M in Proj 2213, to include funding for Next Generation Naval Mission Planning System (NGNMPS) Development (+$26.4M) and Next Generation Common Munitions BIT Reprogramming Equipment (CMBRE) (+$16.6M).

TECHNICAL:

Proj 2213:
Updated mission description, budget item justification and acquisition strategy to incorporate additional NGNMPS language.

Added additional sections to the R-2A to break out funding for NGNMPS. NGNMPS requirement analysis and Framework development were funded in FY 2018 and FY 2019 under the "Mission Planning Environment Program Mgmt, Integration, and Test" and "JMPS Framework (FW) and Common Components (CC) Development" respectively.

Added additional sections to the R-2A to break out funding for FY 2020, Next Generation CMBRE.

SCHEDULE:

Proj 2213:
Added Next Generation CMBRE development milestones, and Next Generation Naval Mission Planning System acquisition and software development milestones.

Proj 2311:
Changed WASP V4.1 completion of Systems Development and Test & Evaluation from 1Q 2020 to 2Q 2020. Added WASP V5.3 Systems Development, Test & Evaluation, and Production Milestones.

Proj 2312:
Common Helicopter efforts are consolidated under PU 2213 Mission Planning FY 2019 and out.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy											Date: March 2019	
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 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
2213: *Mission Planning*	21.415	21.210	21.868	64.603	-	64.603	75.457	68.205	50.448	28.779	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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-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, conduct mission rehearsal, and conduct post-mission analysis. JMPS-M 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-M capabilities are developed and prioritized in an evolutionary approach. An individual JMPS-M Mission Planning Environment (MPE) requires 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-M to plan precision guided munitions, sensor systems, tactical data links, secure voice communications, and basic Safety of Flight functions. Common helicopter functionality will be developed for implementation in Joint Mission Planning System (JMPS). Common Helicopter components include, Weight and Power Calculators (WPC), Common Mission Data Loader (CMDL), Weapon Employment Zone Overlays Tool (WEZOT) and Point Selection Tool (PST).

The Next Generation Naval Mission Planning System (NGNMPS) will address critical capability gaps and deficiencies in the legacy JMPS that are required for modern 21st century integrated mission-centric and collaborative multi-domain mission planning, execution and analysis. NGNMPS will replace Naval Aviation's legacy JMPS no later than 2027 while also affordably leveraging prior investments across the systems of systems to deliver integrated and collaborative capability. NGNMPS will affordably address technological obsolescence while also delivering collaborative and automated capabilities in an integrated virtual collaborative data environment. NGNMPS will also leverage service-oriented architecture to provide revolutionary improvements in workflow, usability, cybersecurity, information and decision aids needed to rapidly plan/employ/maximize effectiveness of aircraft/weapon/sensor/payload mission plans; perform advanced pre-mission rehearsal/analysis; provide functionality to load mission data into aircraft and weapons; enable dynamic replanning/retargeting against evolving threats in contested environments; perform integrated and advanced post-mission debrief/analysis; support cross-domain capabilities; and support portability of mission planning, mission, execution, and mission analysis functions.

FY 2020 and out includes funding for Common Munitions BIT/Reprogramming Equipment (CMBRE) which provides the USN/USMC the critical capability to perform built-in-test and programming/reprogramming of various weapons. Funding will provide research and the development in order to develop upgrades to the CMBRE system to support advanced operational capabilities, address system obsolescence, meet cyber security requirements, and meet mission readiness requirements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**
Title: Mission Planning Environment Program Mgmt, Integration, and Test	12.374	12.687	12.368	0.000	12.368
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 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 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 2019 Plans:*** Continue mission planning integration and testing, project management and system engineering for over 40 T/M/S to include fielding of Windows 10. Test and verify capabilities to support multi-ship mission coordination and update/validate fleet requirements in support of Next Generation Naval Mission Planning MPEs. Conduct integration and test of EKB to the fleet for functionality and cyber security mandates. ***FY 2020 Base Plans:*** Continue mission planning integration and testing, project management and system engineering for over 40 T/M/S that are supported by legacy JMPS and by the Next Generation Naval Mission Planning System. Test and verify capabilities to support multi-ship mission coordination and transition of components to 64 bit and/or services. Continue to update/validate fleet requirements in support of Next Generation Naval Mission Planning MPEs. Conduct integration and test of EKB to the fleet for functionality and cyber security mandates. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease of $0.319 million from FY 2019 to FY 2020 due to reduced MPE integration and test efforts.					
Title: Joint Mission Planning System Expeditionary (JMPS-E)	0.946	0.953	1.005	0.000	1.005
Articles:	-	-	-	-	-
Description: JMPS Expeditionary (JMPS-E): JMPS-E provides 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. 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 Objective Maneuver (STOM) amplifies the need for web-based technologies to enable collaborative planning,					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
improve overall situational awareness and enable the monitoring of mission execution from different locations. The primary outputs are tasking orders, route plans, battlespace geometries and decision briefs. The system will also incorporate modeling and simulation tools to rehearse and deconflict mission plans. ***FY 2019 Plans:*** Field JMPS-E MPE Version 3.0. Begin development, integration and testing of JMPS-E MPE Version 4.0 which updates the JMPS-E UPC and required Common Components, Federated Applications, COTS and GOTS software products to maintain current capabilities and required cyber posture. ***FY 2020 Base Plans:*** Continue development, integration and testing of JMPS-E Version 4.0 which updates the required Common Components, Federated Applications, COTS and GOTS JMPS-E software products to transition legacy JMPS-E capabilities to the NGNMPS. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.052 million from FY 2019 to FY 2020 due to additional efforts required to support fielding and development of multiple JMPS-E versions (3.0 & 4.0).					
Title: Mission Planning Framework (FW) and Common Components (CC) Development	7.890	8.228	8.230	0.000	8.230
Articles:	-	-	-	-	-
Description: As platform(s) requirements emerge for new and enhanced mission planning capabilities, the demand for more complex integrated applications and software products increases. The future transition to a modernized architecture will provide the volume of integrated mission planning capability that will be required by complex integrated combat operations. This task continues development and integration of modernized mission planning software frameworks which provide additional capabilities for all naval aircraft. Continue common component development. Framework development tasks include: system engineering processes, management interface controls, software architectural analysis, requirements management and a centralized website for Mission Planning Environment (MPE) developers. Common Components software updates in a modernized software environment will also augment core mission planning capabilities across multiple T/M/S. The JMPS FW and Common Components will also transition to Windows 10. ***FY 2019 Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continue co-development with the Air Force for modernized Frameworks. This effort will result in modernized mission planning frameworks remaining aligned with the Air Force for improved joint service affordability while also enhancing the systems cyber security. Continue development activities for NGNMPS framework which include implementing a modular, scalable architecture to support cyber security implementations for compliance with cyber mandates. Continue development and integration of common components to meet platform(s) requirements for new and enhanced mission planning capability required in a modernized environment. Integration activities will continue as platforms deliver modernized Unique Planning Capabilities and services for integration, testing and fielding. ***FY 2020 Base Plans:*** Continue development, integration and testing of modernized framework capabilities. Introduce Mission Planning Data Service Layer (MPDSL) capability involving new business services, utilities and data types as part of the Framework. Continue development activities for framework/architecture which include implementing a modular, scalable architecture to support cyber security implementations for compliance with cyber mandates. Continue development and integration of common components to meet platform(s) requirements for new and enhanced mission planning capability required in a modernized environment. Integration activities will continue as platforms deliver modernized unique planning capabilities for integration, testing and fielding. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.002 million from FY 2019 to FY 2020 due to the consolidation of Common Helicopter PU into this Mission Planning PU.					
Title: Next Generation Naval Mission Planning System (NGNMPS) Development	0.000	0.000	26.400	0.000	26.400
Articles:	-	-	-	-	-
Description: The Next Generation Naval Mission Planning System (NGNMPS) will address critical capability gaps and deficiencies in the legacy JMPS that are required for modern 21st century integrated mission-centric and multi-domain collaborative mission planning, execution and analysis. NGNMPS will replace Naval Aviation's legacy JMPS no later than 2027 while also affordably leveraging prior investments across the legacy systems to deliver integrated and collaborative capabilities. NGNMPS will affordably address technological obsolescence while also delivering collaborative and automated capabilities in an integrated virtual collaborative data environment. NGNMPS will also incorporate service-oriented architecture to provide revolutionary improvements in workflow, usability, cybersecurity, information and decision aids needed to rapidly plan/employ/maximize effectiveness of aircraft/weapon/sensor/payload mission plans; perform advanced pre-					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
mission rehearsal/analysis; provide functionality to load mission data into aircraft and weapons; enable dynamic replanning/retargeting against evolving threats in contested environments; provide integrated and advanced post-mission debrief/analysis; support cross-domain capabilities; and support portability of mission planning, mission, execution, and mission analysis functions. NGNMPS requirements and performance metrics are currently under development in FY 2018 and FY 2019 under "Mission Planning Environment Program Mgmt, Integration, and Test". ***FY 2019 Plans:*** N/A ***FY 2020 Base Plans:*** Conduct NGNMPS program software development, architecture integration, and test across a family of systems. Conduct software development of services and service-oriented architecture, including engineering design reviews. Conduct rapid prototyping and transition of enabling technologies in support of NGNMPS collaboration, automation and other requirements. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2020 funds the development for the Next Generation Naval Mission Planning System that modernizes aviation Mission Planning capability against the evolving contested threat including increased collaborative and integrated planning execution and analysis.					
Title: Next Generation Common Munitions BIT Reprogramming Equipment (CMBRE) ***Articles:*** ***Description:*** The technology inherent to the current CMBRE is obsolete and cannot be sustained beyond 2025. In addition to sustainability issues and security concerns, the Fleet requires a more transportable, lighter weight and rugged test set that has the ability to service existing and future weapons with increased data transfer capability in austere operating environments. CMBRE Next Generation efforts support the Navy's developmental testing/operational testing, fielding, integrating, and management. CMBRE Next Generation will enhance mission readiness and security, generate improved flexibility, depth and capacity for existing and emerging aviation weapon capabilities during the conduct of ship, shore, and ship-to-shore operations in both conventional and Distributed Aviation Operations environments. Required to support Next Generation Fleet requirements and CONOPS and to comply with Cyber security mandates and obsolescence issues.	0.000 -	0.000 -	16.600 -	0.000 -	16.600 -

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
FY 2019 Plans: N/A ***FY 2020 Base Plans:*** Begin development and DT/OT of Next Generation CMBRE to support Navy/Marine requirements. Next Generation CMBRE will mitigate known cyber security and obsolescence issues. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Next Generation CMBRE development will be a new effort in FY 2020.					
Accomplishments/Planned Programs Subtotals	21.210	21.868	64.603	0.000	64.603

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/2876: *Mission Planning*	17.396	11.966	15.296	-	15.296	14.919	24.422	27.781	28.638	Continuing	Continuing

Remarks

D. Acquisition Strategy

The initial Joint Mission Planning System (JMPS) development effort was a phased evolutionary approach. JMPS is a post Milestone III program and Initial Operational Capability (IOC) occurred in December 2005. Cost Plus Award Fee (CPAF) and Cost Plus Incentive Fee (CPIF) 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 and USN continued the joint development of JMPS Frameworks via the USAF 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. 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. JMPS End of Life (EOL) is planned for 2027. This necessitates the development of a replacement system, Next Generation Naval Mission Planning System (NGNMPS).

NGNMPS will provide a modernized mission planning system which supports future multi-domain mission planning, execution, management, and mission analysis capabilities required by the 21st century warfighter. NGNMPS will address critical capability gaps and deficiencies in the legacy JMPS that are required for modern 21st century integrated mission-centric and multi-domain collaborative mission planning, execution and analysis. NGNMPS will replace Naval Aviation's legacy JMPS

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2213 / *Mission Planning*

no later than 2027 while also affordably leveraging prior investments across the systems of systems to deliver integrated and collaborative capability. NGNMPS will affordably address technological obsolescence while also delivering collaborative and automated capabilities in an integrated virtual collaborative data environment. NGNMPS will also leverage service-oriented architecture to provide revolutionary improvements in workflow, usability, cybersecurity, information and decision aids needed to rapidly plan/employ/maximize effectiveness of aircraft/weapon/sensor/payload mission plans; perform advanced pre-mission rehearsal/analysis; provide functionality to load mission data into aircraft and weapons; enable dynamic replanning/retargeting against evolving threats in contested environments; perform integrated and advanced post-mission debrief/analysis; support cross-domain capabilities; and support portability of mission planning, mission execution, and mission analysis functions.

NGNMPS will address shortfalls in the family of legacy systems (including JMPS) by modernizing the foundational software to a services based architecture that will improve composability of software applications to support mission planning, mission execution, and post-mission analysis. Adopting composable infrastructure whereby computing, storage and network elements are treated as individual services allows greater speed and flexibility when performing tasks, allows software applications to operate independently of a single hardware platform, and supports affordable component re-use across the family of systems.

E. Performance Metrics

JMPS 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.

JMPS 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: PB 2020 Navy			Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Software Development/JMPS Expeditionary	C/CPFF	Leidos : Reston, VA	0.400	0.298	Feb 2018	0.302	Feb 2019	0.308	Feb 2020	-		0.308	Continuing	Continuing	Continuing
Primary Software Development/JMPS Expeditionary	C/CPAF	BAE : San Diego, CA	0.000	0.568	Mar 2018	0.569	Mar 2019	0.613	Mar 2020	-		0.613	Continuing	Continuing	Continuing
Primary Software Development, FW	C/CPFF	Northrop Grumman : Long Beach, CA	4.500	0.230	Feb 2018	0.240	Feb 2019	0.245	Feb 2020	-		0.245	Continuing	Continuing	Continuing
Primary Software Development/(Human Factors)	C/CPFF	Georgia Technical Research Institute (GTRI) : Atlanta, GA	1.500	0.350	Mar 2018	0.355	Mar 2019	0.358	Mar 2020	-		0.358	Continuing	Continuing	Continuing
Primary Software Development (SEIC)	C/CPFF	Leidos : Orlando, FL	2.918	2.915	Feb 2018	3.048	Feb 2019	3.075	Feb 2020	-		3.075	Continuing	Continuing	Continuing
Primary Software Development	C/CPFF	MTI : Park City, UT	0.000	0.200	Jun 2018	0.000		0.000		-		0.000	0.000	0.200	-
Primary Software Development	C/CPFF	ATC : Eden Prairie, MN	0.000	0.260	Jun 2018	0.000		0.000		-		0.000	0.000	0.260	-
Primary Software Development	C/CPFF	IDT : Arlington, VA	0.000	0.760	Jan 2018	0.783	Jan 2019	0.785	Jan 2020	-		0.785	Continuing	Continuing	Continuing
Primary Software Development	C/CPFF	DCS : Alexandria, VA	0.000	0.490	Jan 2018	0.800	Jan 2019	0.865	Jan 2020	-		0.865	Continuing	Continuing	Continuing
Primary Software Development	C/CPFF	AMEWAS : California, MD	0.000	0.740	Jun 2018	0.991	Jun 2019	0.950	Jun 2020	-		0.950	Continuing	Continuing	Continuing
Primary Software Development	WR	NAWCWD : China Lake, CA	0.000	0.000		0.160	Dec 2018	0.160	Dec 2019	-		0.160	0.000	0.320	-
NGNMPS Primary Software Development	C/CPFF	Northrop Grumman : Long Beach, CA	0.000	0.000		0.000		2.500	Jan 2020	-		2.500	Continuing	Continuing	Continuing
NGNMPS Primary Software Development	C/CPFF	Various : Various	0.000	0.000		0.000		11.250	Jan 2020	-		11.250	Continuing	Continuing	Continuing
NGNMPS Primary Human Factors Engineering	C/CPFF	Georgia Technical Research Institute (GTRI) : Atlanta, GA	0.000	0.000		0.000		1.750	Jan 2020	-		1.750	Continuing	Continuing	Continuing
NGNMPS Primary Software Development	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		4.500	Nov 2019	-		4.500	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Next Gen CMBRE Development	MIPR	Dep Of Energy : Washington DC.	0.000	0.000		0.000		13.280	Nov 2019	-		13.280	Continuing	Continuing	Continuing
		Subtotal	9.318	6.811		7.248		40.639		-		40.639	Continuing	Continuing	N/A

Remarks

FY 2020 continues to support incremental funding for JMPS Primary Software Development Framework (FW) efforts awarded via multiple contracts for service oriented architecture development.

FY 2020 supports incremental funding for the NGNMPS Primary Software Development efforts awarded via a competitive 2nd Qtr. FY 2020 contract award. The performing activities and locations are currently various to support a competitive contracting strategy. Once awarded, the performing activities and locations will be updated to reflect the selected contractors.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NAWCWD : Point Mugu, CA	0.208	0.225	Nov 2017	0.216	Nov 2018	0.231	Nov 2019	-		0.231	Continuing	Continuing	Continuing
Systems Eng & Integration	WR	NAWCWD : Point Mugu, CA	2.487	2.320	Nov 2017	2.675	Nov 2018	2.352	Nov 2019	-		2.352	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD : Patuxent River, MD	1.136	1.305	Nov 2017	1.445	Nov 2018	1.430	Nov 2019	-		1.430	Continuing	Continuing	Continuing
NGNMPS Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		1.750	Nov 2019	-		1.750	Continuing	Continuing	Continuing
NGNMPS Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.500	Nov 2019	-		0.500	Continuing	Continuing	Continuing
NGNMPS Integrated Logistics Support	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		2.500	Nov 2019	-		2.500	Continuing	Continuing	Continuing
NGNMPS Systems Engineering	C/CPFF	Zenetex : Herndon, VA	0.000	0.000		0.000		1.350	Jan 2020	-		1.350	Continuing	Continuing	Continuing
Systems Engineering/ JMPS Expeditionary	WR	NAWCWD : Point Mugu, CA	0.000	0.080	Nov 2017	0.082	Nov 2018	0.084	Nov 2019	-		0.084	Continuing	Continuing	Continuing
Next Gen CMBRE Support	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		3.320	Nov 2019	-		3.320	Continuing	Continuing	Continuing
		Subtotal	3.831	3.930		4.418		13.517		-		13.517	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / *(U)Mission Planning*	Project (Number/Name) 2213 / *Mission Planning*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

FY 2020 supports NGNMPS systems engineering and ILS activities at multiple government and contractor sites.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	WR	NAWCWD : Point Mugu, CA	5.311	5.579	Nov 2017	5.459	Nov 2018	5.458	Nov 2019	-		5.458	Continuing	Continuing	Continuing
Test & Evaluation	WR	COMOPTEVFOR : Norfolk, VA	1.046	1.350	Jan 2018	1.377	Jan 2019	1.396	Nov 2019	-		1.396	Continuing	Continuing	Continuing
NGNMPS Test & Evaluation	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.300	Nov 2019	-		0.300	Continuing	Continuing	Continuing
		Subtotal	6.357	6.929		6.836		7.154		-		7.154	Continuing	Continuing	N/A

Remarks

FY 2020 supports the NGNMPS T&E planning activities.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support and Travel	WR	NAWCAD : Patuxent River, MD	1.400	2.865	Nov 2017	2.960	Nov 2018	2.943	Nov 2019	-		2.943	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	Ausley Associates : Lexington Park, MD	0.509	0.675	May 2018	0.406	May 2019	0.350	May 2020	-		0.350	Continuing	Continuing	Continuing
		Subtotal	1.909	3.540		3.366		3.293		-		3.293	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	21.415	21.210		21.868		64.603		-		64.603	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / *(U)Mission Planning*	Project (Number/Name) 2213 / *Mission Planning*	

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

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

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2213 / *Mission Planning*

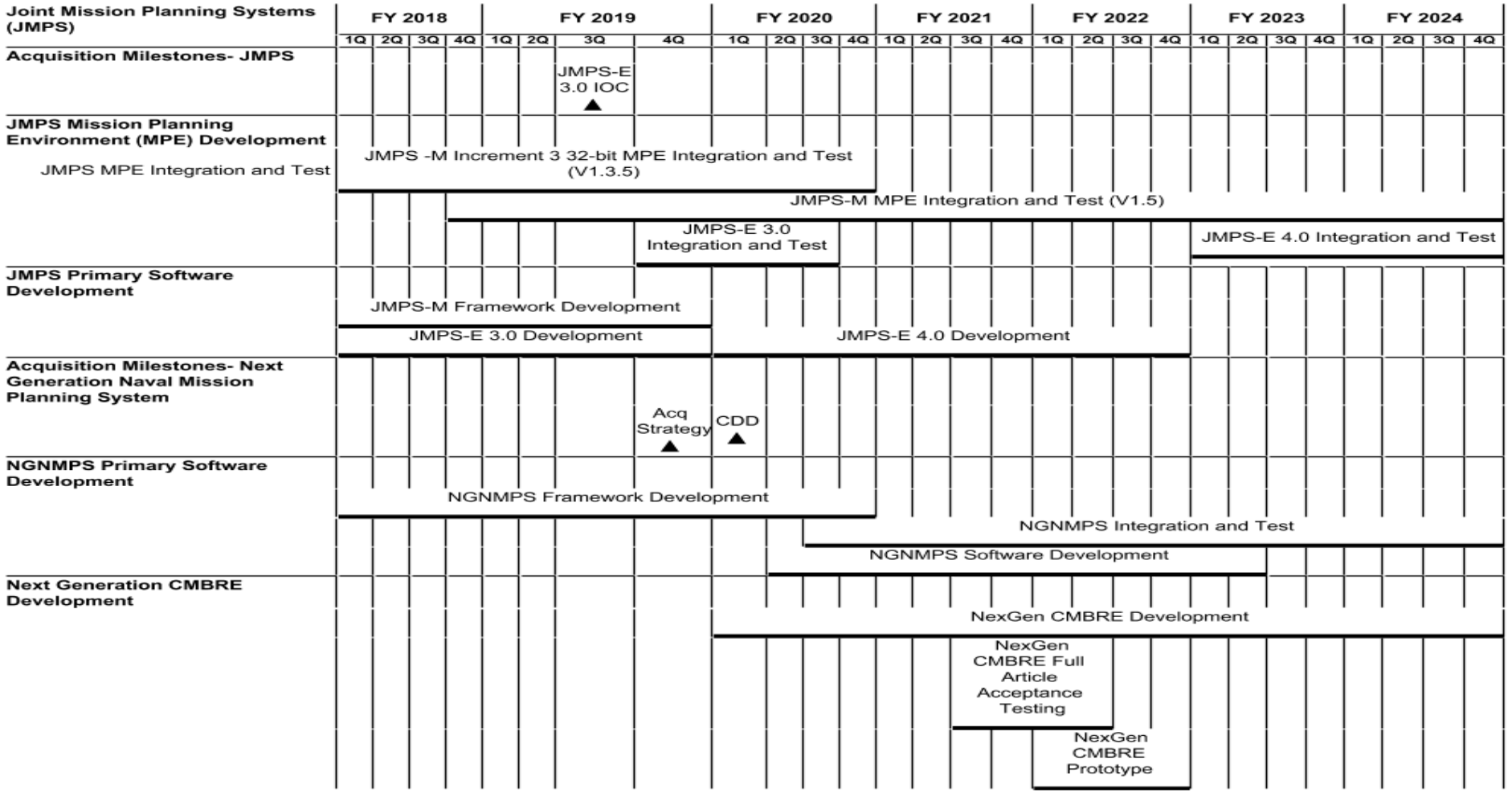


Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2213 / *Mission Planning*

2020PB - 0605215N - 2213

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
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 Milestones- JMPS: JMPS-E 3.0 Initial Operational Capability (IOC)	3	2019	3	2019
JMPS Mission Planning Environment (MPE) Development: JMPS MPE Integration and Test: 32 bit MPE Integration (V1.3.5)	1	2018	4	2020
JMPS Mission Planning Environment (MPE) Development: JMPS MPE Integration and Test: 32/64 bit MPE Integration (V1.5.X)	4	2018	4	2024
JMPS Mission Planning Environment (MPE) Development: JMPS MPE Integration and Test: JMPS-E 3.0/3.1 Integration and Test	4	2019	3	2020
JMPS Mission Planning Environment (MPE) Development: JMPS MPE Integration and Test: JMPS-E 4.0 Integration and Test	1	2023	4	2024
JMPS Primary Software Development: JMPS-M Framework Development	1	2018	4	2019
JMPS Primary Software Development: JMPS-E 3.0 Development	1	2018	4	2019
JMPS Primary Software Development: JMPS-E 4.0 Development	1	2020	4	2022
Acquisition Milestones- Next Generation Naval Mission Planning System: CDD	1	2020	1	2020
Acquisition Milestones- Next Generation Naval Mission Planning System: Acquisition Strategy	4	2019	4	2019
NGNMPS Primary Software Development: NGNMPS Framework Development	1	2018	4	2020
NGNMPS Primary Software Development: NGNMPS Integration and Test	3	2020	4	2024
NGNMPS Primary Software Development: NGNMPS Software Development	2	2020	2	2023
Next Generation CMBRE Development: Next Generation CMBRE Development	1	2020	4	2024
Next Generation CMBRE Development: Next Generation CMBRE Full Article Acceptance Testing	3	2021	2	2022
Next Generation CMBRE Development: Next Generation CMBRE Prototype	1	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
2311: *Stores Planning and Weaponeering Module*	10.847	10.868	10.846	11.283	-	11.283	11.429	11.526	11.770	12.007	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Prior to FY 2017, 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+, A++, B, C, C+, D, D (RC), E, F, EA-18G; and includes potential support for other platforms to include F-35, P-8, AH-1, and other rotary wing platforms. 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 including aircraft target maneuver simulations and weapon flyout models. 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 and cyber security mandates are released. FY 2020 and out include funding for the research and development in order to integrate WASP with 3-D mission rehearsal, provide dynamic Safe Escape Automation Layer (SEAL) calculations on Electronic Kneeboard (EKB), develop WASP for other Navy and Marine Corps platforms, and support WASP development and integration with the Next Generation Naval Mission Planning System (NGNMPS).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Product Development	5.668	5.685	5.037	0.000	5.037
Articles:	-	-	-	-	-
Description: Includes associated system engineering design, development, installation, integration and software development for Weaponeering and Stores Planning (WASP) components to support F/A-18 A-F and EA-18G. Provide domain engineering support for weapons separation, aircraft loads, flutter, fuzing and Safe Escape Automation Layer(SEAL)for application to WASP. Provide analysis of new requirements, allocation of requirements, design oversight, and life cycle management of the WASP program. Develop new					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
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, 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 2019 Plans:*** Complete test and evaluation of WASP V4.0 to support an FY19 release to the Fleet. Complete test and evaluations of multiple database updates to V4.0. Continue test and evaluation of WASP V4.1 ***FY 2020 Base Plans:*** Complete development of WASP V4.1 to support an FY 2020 release to the Fleet. Complete test and evaluations of multiple database updates to V4.1. Fund requirements definition and systems development for WASP 5.X, including integration with NGNMPS. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2020 Product Development (V4.X) decrease from FY 2019 is accounting for costs associated with the development of WASP V4.1 and multiple minor builds to support WASP V4.0. Test and Evaluation costs associated with WASP V4.1 is realigned to Test and Evaluation. There is no cost decrease for WASP product development efforts in FY 2020.					
Title: Test and Evaluation (T&E)	2.059	2.020	3.277	0.000	3.277
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 WASP versions. Provide JMPS MPE Integration test support. Provide testing and test support to ensure all components (to include internally developed software, externally developed GFI) comply with Department of Navy (DoN) and Department of Defense (DoD) software mandates and directives. These include Integrated Shipboard Network System IT-21,					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
and Cyber Risk Management Framework (RMF). All Fleet released software must comply with DoN and DoD software directives to permit execution on ship Local Area Networks. ***FY 2019 Plans:*** Complete test and evaluation of WASP V4.0 to support an FY19 release to the Fleet. Complete test and evaluations of multiple database updates to V4.0. Continue test and evaluation of WASP V4.1 ***FY 2020 Base Plans:*** Complete test and evaluation of WASP V4.1 to support an FY 2020 release to the Fleet. Complete test and evaluations of multiple database updates to V4.1. Conduct test and evaluation of WASP 5.X, including integration with NGNMPS. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Test and Evaluation is increased due to the realignment of funds from Product Development and Program Management.					
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 2019 Plans:*** Continue project management and systems engineering support to the WASP for future software releases to the fleet. Provide continued support for multiple database releases. ***FY 2020 Base Plans:*** Continue project management and systems engineering support to the WASP for future software releases to the fleet. Provide continued support for multiple database releases. ***FY 2020 OCO Plans:***	3.141 -	3.141 -	2.969 -	0.000 -	2.969 -

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Program Management/System Engineering cost decrease due to the realignment of funds supporting a Test & Evaluation (T&E) contract to T&E. Previously reported under Program Management, but it is a T&E contract.					
Accomplishments/Planned Programs Subtotals	10.868	10.846	11.283	0.000	11.283

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Weaponeering and Stores Planning (WASP) products, delivered annually, are 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 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 SEAL), and guided weapons employment, 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 kneeboard card.

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WR	Naval Air Warfare Center Aircraft Division NAWCAD : Patuxent River, MD	0.177	0.102	Nov 2017	0.100	Nov 2018	0.100	Nov 2019	-		0.100	Continuing	Continuing	Continuing
Product Development	MIPR	Air Force Seek Eagle : Hill Air Force Base, UT	0.083	0.085	Mar 2018	0.085	Mar 2019	0.085	Mar 2020	-		0.085	Continuing	Continuing	Continuing
Primary Software Development	C/CPFF	DCS Corp : Alexandria, VA	0.781	1.586	Feb 2018	0.000		0.000		-		0.000	0.000	2.367	2.502
Product Development (V4.X)	C/CPFF	DCS Corp : Alexandria, VA	4.500	3.895	Mar 2018	5.500	Mar 2019	4.852	Mar 2020	-		4.852	Continuing	Continuing	Continuing
		Subtotal	5.541	5.668		5.685		5.037		-		5.037	Continuing	Continuing	N/A

Remarks

The FY 2020 Product Development (V4.X) effort decrease from FY 2019 is accounting for costs associated with the development of WASP V4.1 and multiple minor builds to support WASP v4.0. Test and Evaluation costs associated with WASP 4.1 are being realigned to Test and Evaluation. There is no cost decrease for WASP development efforts in FY 2020.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation (Gov't)	WR	NAWCAD : Patuxent River, MD	1.185	1.259	Nov 2017	1.190	Nov 2018	1.200	Nov 2019	-		1.200	Continuing	Continuing	Continuing
Test & Evaluation (Contractor)	C/CPFF	DCS Corp : Alexandria, VA	1.084	0.800	Mar 2018	0.830	Mar 2019	0.840	Mar 2020	-		0.840	0.000	3.554	2.805
Test & Evaluation (Contract)	C/CPFF	KBRwyle : Huntsville, AL	0.000	0.000		0.000		1.237	Mar 2020	-		1.237	0.000	1.237	-
		Subtotal	2.269	2.059		2.020		3.277		-		3.277	Continuing	Continuing	N/A

Remarks

Test and Evaluation costs increased due to the realignment of funds from Product Development and Program Management/Systems Engineering. Previously reported under Product Development and Program Management/Systems Engineering, but is a Test & Evaluation contract.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering and Program Support	WR	NAWCAD : Patuxent River, MD	1.003	1.200	Nov 2017	1.219	Nov 2018	1.246	Nov 2019	-		1.246	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	Ausley Associates : Lexington Park, MD	0.441	0.450	May 2018	0.307	May 2019	0.300	May 2020	-		0.300	0.000	1.498	1.341
Government Engineering Support: Guided Weapons	WR	Naval Air Warfare Center Weapons Division NAWCWD : China Lake, CA	0.023	0.176	Jan 2018	0.250	Nov 2018	0.255	Nov 2019	-		0.255	Continuing	Continuing	Continuing
Systems Engineering Support	C/CPFF	KBRwyle : Huntsville, AL	1.500	1.200	Jan 2018	1.250	Mar 2019	1.043	Mar 2020	-		1.043	0.000	4.993	3.950
Govt Engineering Support: Mission Planning Environment Integration	WR	NAWCWD : Point Mugu, CA	0.060	0.100	Nov 2017	0.100	Nov 2018	0.100	Nov 2019	-		0.100	Continuing	Continuing	Continuing
Travel	Various	NAVAIR : Patuxent River, MD	0.010	0.015	Nov 2017	0.015	Nov 2018	0.025	Nov 2019	-		0.025	Continuing	Continuing	Continuing
		Subtotal	3.037	3.141		3.141		2.969		-		2.969	Continuing	Continuing	N/A

Remarks

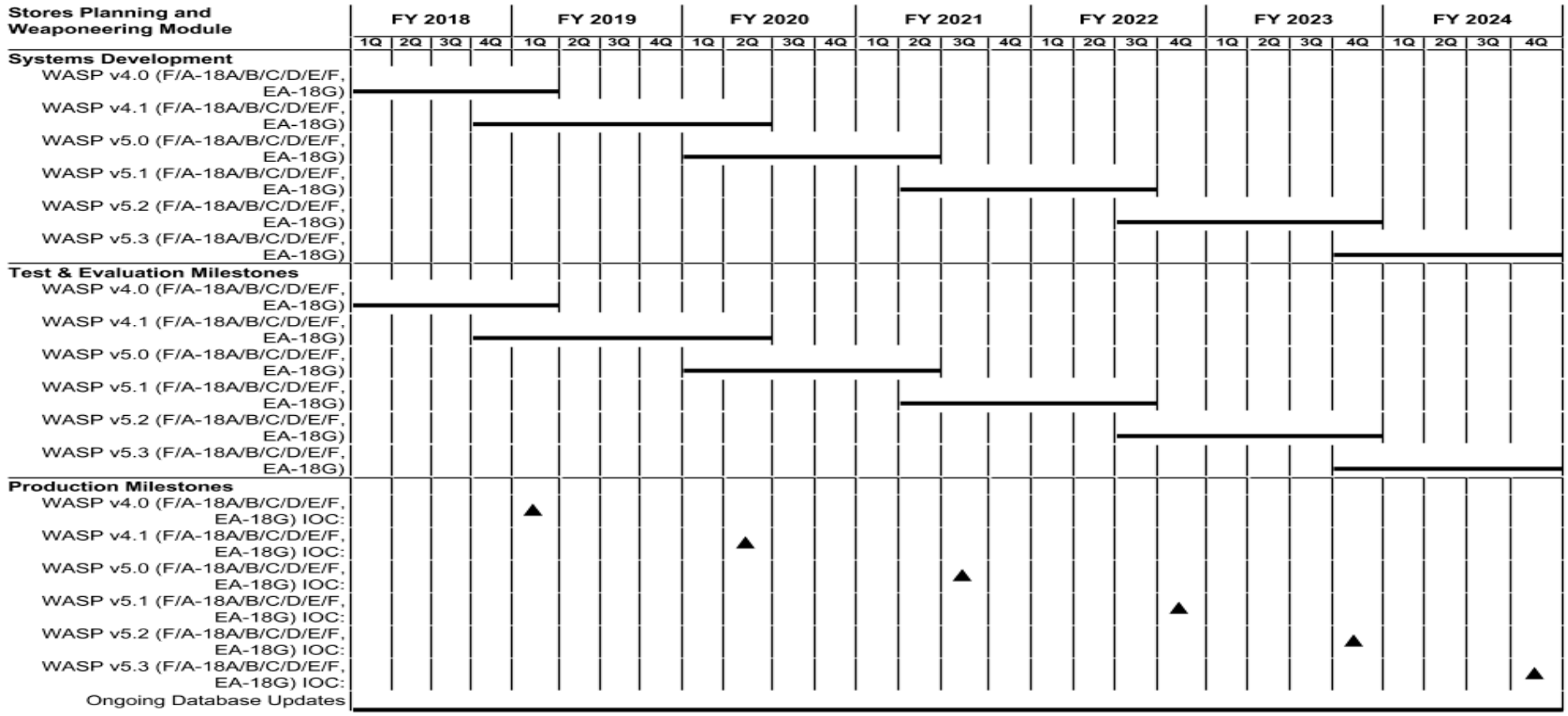
Management cost decrease is due to the realignment to Test and Evaluation.

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.847	10.868		10.846		11.283		-		11.283	Continuing	Continuing	N/A

Remarks

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

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
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*



2020DON - 0605215N - 2311

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
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):	1	2018	1	2019
Systems Development: WASP v4.1 (F/A-18A/B/C/D/E/F, EA-18G):	4	2018	2	2020
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):	2	2021	3	2022
Systems Development: WASP v5.2 (F/A-18A/B/C/D/E/F, EA-18G):	3	2022	4	2023
Systems Development: WASP v5.3 (F/A-18A/B/C/D/E/F, EA-18G):	4	2023	4	2024
Test & Evaluation Milestones: WASP v4.0 (F/A-18A/B/C/D/E/F, EA-18G):	1	2018	1	2019
Test & Evaluation Milestones: WASP v4.1 (F/A-18A/B/C/D/E/F, EA-18G):	4	2018	2	2020
Test & Evaluation Milestones: WASP v5.0 (F/A-18A/B/C/D/E/F, EA-18G):	1	2020	2	2021
Test & Evaluation Milestones: WASP v5.1 (F/A-18A/B/C/D/E/F, EA-18G):	2	2021	3	2022
Test & Evaluation Milestones: WASP v5.2 (F/A-18A/B/C/D/E/F, EA-18G):	3	2022	4	2023
Test & Evaluation Milestones: WASP v5.3 (F/A-18A/B/C/D/E/F, EA-18G):	4	2023	4	2024
Production Milestones: WASP v4.0 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	1	2019	1	2019
Production Milestones: WASP v4.1 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	2	2020	2	2020
Production Milestones: WASP v5.0 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	3	2021	3	2021
Production Milestones: WASP v5.1 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	4	2022	4	2022
Production Milestones: WASP v5.2 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	4	2023	4	2023
Production Milestones: WASP v5.3 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	4	2024	4	2024
Production Milestones: Ongoing Database Updates:	1	2018	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
2312: *Common Helicopters*	0.614	0.650	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.264
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Prior to FY 2017, Common Helicopters (PU 2312) was budgeted under Standards Development (PE 0604215N). FY 2019 and out Common Helicopters (PU 2312) was consolidated under PU 2213 Mission Planning in this PE.

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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Product Development	0.385	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Development of Common Helicopter functionality and integration with JMPS Framework Versions 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 2019 Plans:*** N/A ***FY 2020 Base Plans:*** N/A ***FY 2020 OCO Plans:*** N/A					
Title: Test and Evaluation	0.265	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Description: Integration and test of Common Helicopter functionality with JMPS Framework Versions 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 2019 Plans:*** N/A ***FY 2020 Base Plans:*** N/A ***FY 2020 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.650	0.000	0.000	0.000	0.000

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / *(U)Mission Planning*	Project (Number/Name) 2312 / *Common Helicopters*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Software Development	C/CPFF	Joint Technology Engineering : Valparaiso, FL	0.614	0.385	Mar 2018	0.000		0.000		-		0.000	0.000	0.999	1.014
		Subtotal	0.614	0.385		0.000		0.000		-		0.000	0.000	0.999	N/A

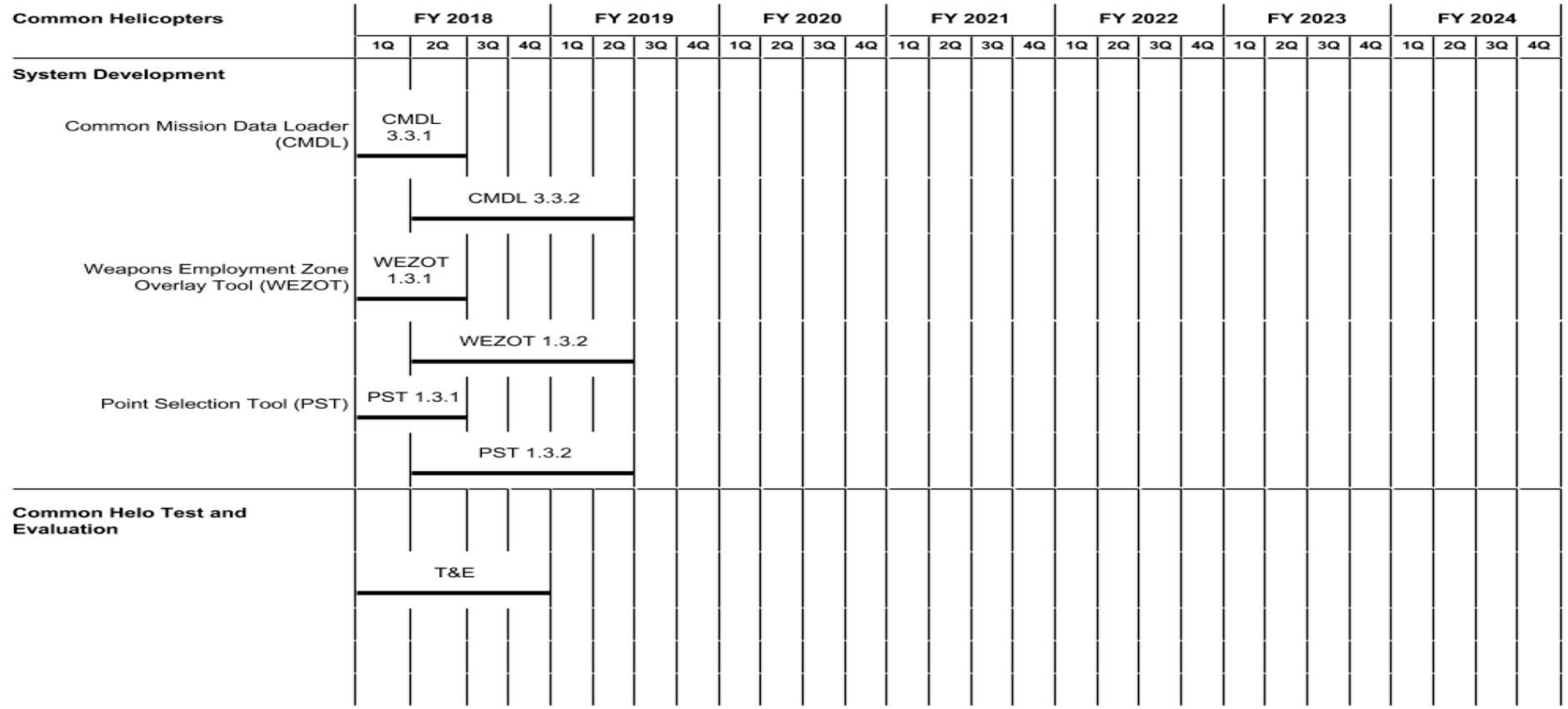
Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Integration and Test	WR	NAWCWD : Point Mugu, CA	0.000	0.265	Nov 2017	0.000		0.000		-		0.000	0.000	0.265	-
		Subtotal	0.000	0.265		0.000		0.000		-		0.000	0.000	0.265	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.614	0.650		0.000		0.000		-		0.000	0.000	1.264	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2312 / *Common Helicopters*



2020DON - 0605215N - 2312

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 2312 / *Common Helicopters*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Common Helicopters				
System Development: Common Mission Data Loader (CMDL): CMDL 3.3.1	1	2018	2	2018
System Development: Common Mission Data Loader (CMDL): CMDL 3.3.2	2	2018	2	2019
System Development: Weapons Employment Zone Overlay Tool (WEZOT): WEZOT 1.3.1	1	2018	2	2018
System Development: Weapons Employment Zone Overlay Tool (WEZOT): WEZOT 1.3.2	2	2018	2	2019
System Development: Point Selection Tool (PST): PST 1.3.1	1	2018	2	2018
System Development: Point Selection Tool (PST): PST 1.3.2	2	2018	2	2019
Common Helo Test and Evaluation:	1	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / *(U)Mission Planning*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	3.380	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.380
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Multi-Asset Planning and Monitoring Capability provides an accelerated, enhanced, dynamic mission planning capability at reduced cost addressing the multi-vehicle multi-domain fleet capability gap. This unique planning service and visualization tool will allow combat aircrew to visualize time critical attack plan and track plan status vs. execution. This capability will enable Airwing planners, Maritime Operations Center (MOC) personnel, Composite Warfare Commander (CWC) planners and watch standers to participate in time-sensitive strike planning and execution monitoring for the new net-enabled weapons for long range over the horizon targets.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019
Congressional Add: Planning and Execution Monitoring	3.380	0.000
FY 2018 Accomplishments: Provides integration of the multi-domain capabilities developed under the Rapid Integration Funds (RIF) program and integrates them into the emerging Next Generation Naval Mission Planning suite of tools. Tools being developed include improving a Cross Domain Security solution for passing targeting and planning data, use of advanced cloud computing infrastructure, and the replacement of previous monolithic code into more collaborative micro-services.		
FY 2019 Plans: N/A		
Congressional Adds Subtotals	3.380	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Provides integration of the demonstrated multi-domain capabilities developed under the Rapid Integration Funds (RIF) program and integrates and demonstrates them into the emerging Next Generation Naval Mission Planning suite of tools. Tools being developed include improving a Cross Domain Security solution for passing targeting and planning data, use of advanced cloud computing infrastructure, and the transition of previous monolithic code into more collaborative micro-services.

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.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 9999 / *Congressional Adds*

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: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / *(U)Mission Planning*	Project (Number/Name) 9999 / *Congressional Adds*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	SS/CPFF	Progeny Systems : California, MD	0.000	0.750	Nov 2018	0.000		0.000		-		0.000	0.000	0.750	-
Software Development	SS/BOA	Progeny Systems PIII : California, MD	0.000	0.926	Feb 2019	0.000		0.000		-		0.000	0.000	0.926	-
Software Development	SS/BOA	MTI : Park City, UT	0.000	0.926	Feb 2019	0.000		0.000		-		0.000	0.000	0.926	-
Software Development	SS/CPFF	IAI : Lexington Park, MD	0.000	0.710	Jun 2018	0.000		0.000		-		0.000	0.000	0.710	-
		Subtotal	0.000	3.312		0.000		0.000		-		0.000	0.000	3.312	N/A

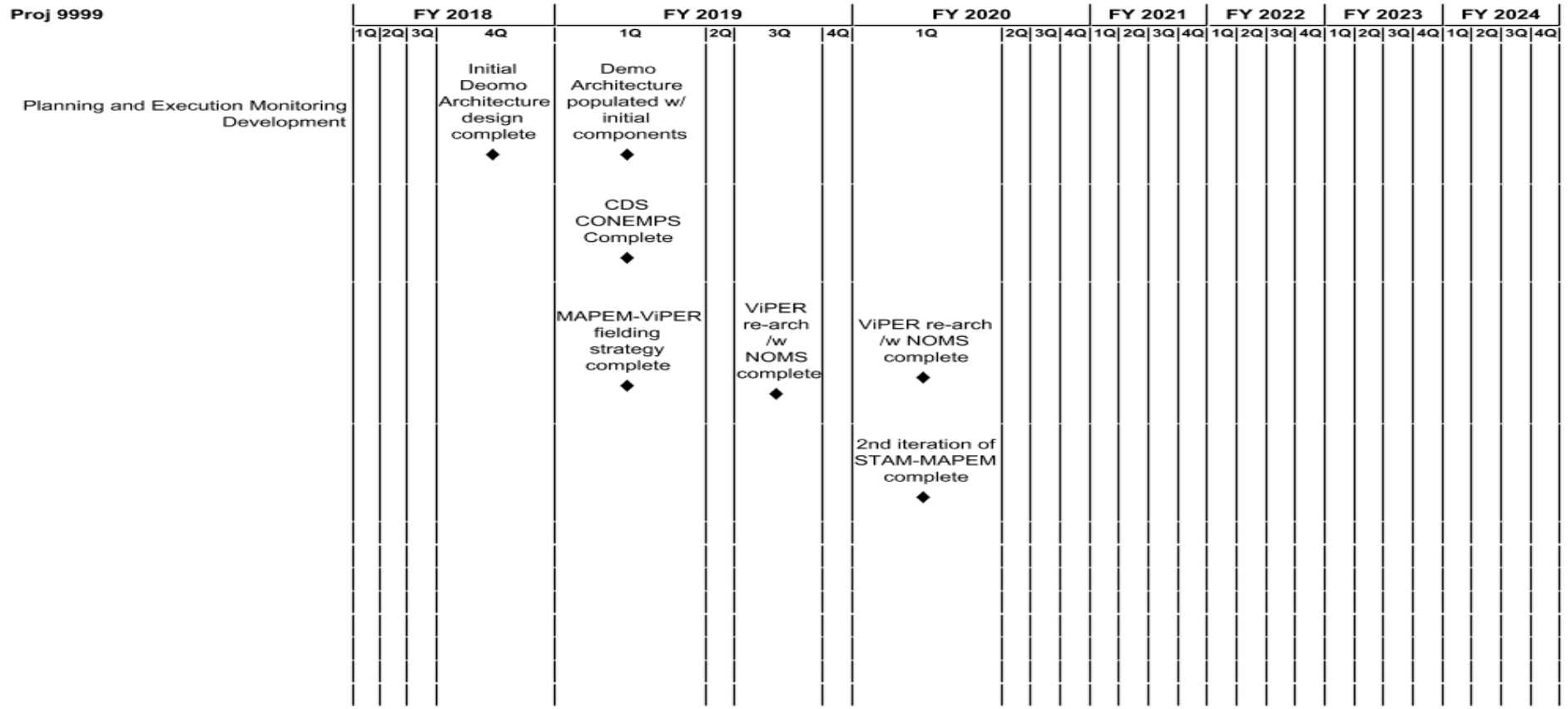
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCWD : China Lake, CA	0.000	0.040	May 2018	0.000		0.000		-		0.000	0.000	0.040	-
Program Management Support	WR	NAWCAD : Pax River, MD	0.000	0.028	Nov 2018	0.000		0.000		-		0.000	0.000	0.028	-
		Subtotal	0.000	0.068		0.000		0.000		-		0.000	0.000	0.068	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	3.380		0.000		0.000		-		0.000	0.000	3.380	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 9999 / *Congressional Adds*



2020DON - 0605215N - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605215N / *(U)Mission Planning*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Planning and Execution Monitoring Development: Initial Demonstration Architecture design complete	4	2018	4	2018
Planning and Execution Monitoring Development: Demonstration Architecture populated with initial components	1	2019	1	2019
Planning and Execution Monitoring Development: CDS CONEMPS Complete	1	2019	1	2019
Planning and Execution Monitoring Development: MAPEM-ViPER fielding strategy complete	1	2019	1	2019
Planning and Execution Monitoring Development: STAM-MAPEM digitial connection demonstration	3	2019	3	2019
Planning and Execution Monitoring Development: ViPER re-arch /w NOMS complete	1	2020	1	2020
Planning and Execution Monitoring Development: 2nd iteration of STAM-MAPEM complete	1	2020	1	2020