Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy											Date: February 2016	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*							
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	279.392	21.915	20.203	23.971	-	23.971	25.233	24.423	24.791	25.060	Continuing	Continuing
0798: *Allied/Coalition Interoperability and Information Dominance (ACIID)*	31.236	0.730	0.649	0.953	-	0.953	1.091	1.072	1.088	1.006	Continuing	Continuing
2144: *Space & Elec Warfare Engineering*	188.361	11.045	7.300	13.175	-	13.175	13.726	12.752	12.916	13.083	Continuing	Continuing
2147: *ISR Architecture*	0.000	0.000	0.000	1.523	-	1.523	1.587	1.587	1.587	1.587	Continuing	Continuing
2356: *Maritime Concept Generation & Development*	13.980	5.161	3.390	8.320	-	8.320	8.829	9.012	9.200	9.384	Continuing	Continuing
3319: *Fleet Experimentation*	45.815	4.979	8.864	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	59.658

A. Mission Description and Budget Item Justification

This Program Element (PE) includes the following projects: Maritime Concept Generation and Development (CGCD), Allied/Coalition Interoperability and Information Dominance (ACIID),Fleet Experimentation, Intelligence, Surveillance, and Reconnaissance (ISR) Architecture and Space and Electronic Warfare (SEW) Engineering.

The CGCD project (2356) focuses on the generation, development and validation of warfighting concepts, Concept of Operations (CONOPS) and doctrine in order to eliminate war fighting gaps. NWDC also manages the Fleet Experimentation program (formerly Sea Trial) under the guidance of Commander USFF and COMPACFLT. In FY2017 the project will execute a number of new experimentations to include the Undersea Warfare Vision 2025 Experimentation Campaign, Undersea Innovation Seminar War Game, Unmanned Systems Experimentations and Trident Warrior At-Sea Experimentation.

The FLEX project (3319) (formerly Sea Trial) develops new or improved warfighter capabilities through the experimentation of high payoff initiatives, technologies and concepts, Fleet Concepts of Operations (CONOPS), doctrine, and new tactics, techniques and procedures (TTP). The objective of FLEX is to produce recommended changes in doctrine, organization, training, materiel, leadership development, personnel, facilities, and policy (DOTMLPF-P) actions, with an emphasis on non-materiel solutions. Focusing on war fighting capability improvement through experimentation aimed at delivering potential solutions in support of current Operations Plans (OPLANs), FLEX spans both operational and tactical levels of warfare and reaches across the full range of military operations to enhance war fighting capabilities or fill current or future capability gaps. In FY17, project 3319 moves to 0606355N.

The ACIID and SEW Engineering projects (0798 and 2144 respectively) are systems engineering non-acquisition programs to develop, test, implement technical authority, and validate naval Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) architectures to support naval missions in the Joint and Coalition Theater. The mission of these projects are carried out by multiple tasks that are used to ensure naval C4ISR Command and Control Warfare (C2W) components of SEW are effectively integrated into service-oriented architecture delivering net-centric warfare capability. Additionally, these projects ensure that (1) the composite operational capabilities of SEW systems (not the individual component systems) conform to the naval C4ISR architecture and enhance

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*

war fighting capability as related to the objectives of National Defense Strategy, evolving joint visions and direction, such as net centric capability, and are guided by warfighter requirements; (2) that SEW systems and systems integration efforts involve leading-edge technology transfer of information processing technologies primarily through integration of government and commercial off-the-shelf (GOTS/COTS) products to enhance the Navy's operational capability, interoperability, warfighter effectiveness, flexible reconfiguration, as well as reduce costs; and (3) that SEW systems integration efforts promote the delivery of Information Dominance and the Navy's contribution to the Global Information Grid (GIG).

The ISR Architecture project (2147) is intended to guide system of systems capability development and promote interoperability across Navy ISR programs, as well as interoperability and alignment with Department of Defense (DoD)-wide enterprise initiatives including Joint Information Environment (JIE) and Intelligence Community (IC) Information Technology Environment (ITE). As tasked by the Navy's ISR Council, this effort to develop integrated ISR architectures will also help instill systems engineering discipline and standardization across the Navy ISR Enterprise and provide a means by which to assess ISR POR progress in conforming to a single Navy architecture.

B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	18.749	29.581	34.251	-	34.251
Current President's Budget	21.915	20.203	23.971	-	23.971
Total Adjustments	3.166	-9.378	-10.280	-	-10.280
• Congressional General Reductions	-	-0.041			
• Congressional Directed Reductions	-	-9.335			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	3.652	-0.002			
• SBIR/STTR Transfer	-0.485	0.000			
• Program Adjustments	0.000	0.000	-11.210	-	-11.210
• Rate/Misc Adjustments	-0.001	0.000	0.930	-	0.930

Change Summary Explanation

Decrease in SEW Architecture/Eng Support by $1.0M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*	Project (Number/Name) 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0798: *Allied/Coalition Interoperability and Information Dominance (ACIID)*	31.236	0.730	0.649	0.953	-	0.953	1.091	1.072	1.088	1.006	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Allied/Coalition Interoperability and Information Dominance (ACIID) program advances Information Warfare (IW) (to include Command, Control, Communications, Computers; Intelligence, Surveillance and Reconnaissance (C4ISR); Electronic Warfare (EW); and Cyber Warfare), interoperability with Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS), North Atlantic Treaty Organization (NATO), and other Allied and Coalition partners. The program determines maritime operational gaps with our allies, identifies Doctrine, Organization, Training, Material, Leadership, Personnel, and Facilities (DOTMLPF) solutions with the potential to fill those gaps, and assesses these solutions and associated concepts of operation in laboratory and at-sea environments. The ACIID program includes integration and testing in support of joint and Allied war fighting capabilities, including interoperability testing of IW equipment. Allied and joint interoperability is critical for future maritime operations, especially as the United States Navy (USN) expands Internet Protocol (IP) networking throughout the fleet via Consolidated Afloat Networks and Enterprise Services (CANES), Next Generation Networks (NGEN), Mission Partner Environment/Future Mission Network (MPE/FMN), the U.S. Battlefield Information Collection and Exploitation System - eXtended (BICES-X), and with the Joint Information Environment (JIE). Currently, IP connectivity with AUSCANNZUKUS and other Allied/Coalition forces is limited, requiring extensive backhaul through ashore infrastructure. Higher bandwidth solutions suitable for use over tactical networks require development and assessment for emerging coalition and joint interoperability requirements, such as Network Operations Without Shore (NOWS), Maritime Domain Awareness (MDA), and to counter Anti-Access Area Denial (A2/AD) threats. Increases in data throughput are required for the effective exchange of rich Information Dominance (ID) data sets and services via Service Oriented Architectures (SOA) within the limitations of High Frequency (HF), Ultra-High Frequency (UHF), and other portions of the radio frequency spectrum, coupled with appropriate Information Assurance and Computer Network Defense (IA/CND) mechanisms. Development and assessment of potential solutions will integrate improved IP capabilities with the Advanced Digital Network Systems (ADNS) and existing international standards (e.g. Allied Communications Publication 200, NATO Standardization Agreements 5066 and 4691). The continued development and refinement of advanced tactical networking technologies and protocols, to include Low Probability of Intercept (LPI), Low Probability of Detection (LPD), and Anti-Jam (AJ) capabilities as well as automatic link establishment (ALE) standards, will provide for a significant improvement in secure data sharing within, and between, coalition maritime elements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Advanced Relay Capabilities	0.730	0.649	0.953	0.000	0.953
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Continued the development and refinement of advanced networking and communication capabilities that promoted Allied interoperability and countered A2/AD environments via task group-centric tactical networking in Satellite Communications (SATCOM)-Restricted and SATCOM-Denied environments (SRE/SDE) and NOWS. Solutions addressed higher bandwidth technologies across the Radio Frequency (RF) and Optical spectrum, such as wide-band High Frequency (HF), High Data Rate Ultra-High Frequency (UHF), and other high-data rate wireless technologies. - Developed and assessed secure and interoperable multi-bearer routing, distributed application and service architectures and advanced Information Assurance and Computer Network Defense (IA/CND) solutions that support tactical networking and counter Anti-Access Area Denial (A2/AD) environments. The overarching goal was to maximize interoperability and network efficiency using multiple, dissimilar bearers and integrate these advanced solutions into a counter-A2/AD, Allied/Coalition tactical networking environment that could also include tactical data links, such as Link-22. - Assessed Information Warfare (IW) interoperability gaps with Australia, Canada, New Zealand, United Kingdom, and United States (AUSCANNZUKUS) nations, to include Intelligence Surveillance and Reconnaissance (ISR), Position, Navigation and Timing (PNT), Electronic Warfare (EW), and Cyber, in appropriate venues. This included assured PNT and Unmanned aerial vehicle (UAV) interoperability and IA/CND Blue Teaming in Satellite Communications (SATCOM)-Denied/Restricted environments. - Continued to progress the standardization and operationalization of North Atlantic Treaty Organization (NATO) Maritime Relayed Line of Sight Network (MARLIN) Standardization Agreements (STANAG 4691) and High Frequency Internet Protocol (STANAG 5066 Edition 3). - Increased Allied IW interoperability with other joint and maritime multi-national forums, such as the Combined Communications Electronics Board (CCEB), Multinational Maritime Information-system Interoperability Steering Group (M2I2), the Mission Partner Environment (MPE), and the Joint Information Environment (JIE) forums. - Exploited venues of opportunity, such as Fleet Experimentation (FLEX), to assess and validate the individual technologies, integrated solutions, and associated Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) through experimentation, trials, and demonstrations with AUSCANNZUKUS and other Allied/Coalition partners.					
FY 2016 Plans: - Continue the development and refinement of advanced networking and communication capabilities that promote Allied interoperability, task group-centric operations in SATCOM-Restricted and SATCOM-Denied environments, and support the defeat of A2/AD. Solutions will address higher bandwidth technologies across the RF and Optical spectrum, such as wide-band HF, UHF, and other high-data rate wireless technologies.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Develop and assess secure and interoperable multi-bearer routing, distributed application, and service architectures and advanced IA/CND solutions that support tactical networking and A2/AD requirements. The overarching goal is to maximize interoperability and network efficiency using multiple, dissimilar bearers and integrate these advanced solutions into an Allied/Coalition tactical networking environment that will defeat A2/AD. - Continue to progress the standardization and operationalization of North Atlantic Treaty Organization (NATO) Maritime Relayed Line of Sight Network Standardization Agreements (STANAG 4691) and High Frequency Internet Protocol (STANAG 5066 Edition 3). - Increase Allied Information Warfare (IW) interoperability with other joint and maritime multi-national forums, such as the Combined Communications Electronics Board (CCEB), Multinational Maritime Information-system Interoperability Steering Group (M2I2), Mission Partner Environment (MPE), Future Mission Network (FMN), and the Joint Information Environment (JIE) forums. - Venues of opportunity, such as Fleet Experimentation (FLEX), will be exploited to assess and validate the individual technologies, integrated solutions, and associated Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) through limited experimentation, trials, and demonstrations with Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS) and other Allied/Coalition partners.					
FY 2017 Base Plans: - Develop and refine advanced networking and communication capabilities that counter Anti-Access Area Denial (A2/AD) environments and promote Allied interoperability and task group-centric operations. Solutions will address higher bandwidth, Low Probability of Intercept (LPI)/Low Probability of Detection (LPD)/Anti-Jam (AJ) technologies across the Radio Frequency (RF) and Optical spectrum and include airborne capabilities. - Develop and assess secure and interoperable technologies and capabilities that counter A2/AD environments, to include multi-bearer routing, MPE/FMN architectures that support distributed applications and service architectures, the use of cross-domain and data labeling solutions in maritime tactical networking environments (e.g. the U.S. Battlefield Information Collection and Exploitation System - extended (BICES-X) Trusted Network Engine, or TNE) and advanced Information Assurance and Computer Network Defense (IA/CND) solutions. The overarching goal is to maximize interoperability and network and application efficiency using multiple, dissimilar bearers and integrate these advanced solutions into an Allied/Coalition networking capability capable of countering A2/AD environments and integrated with MPE/FMN architectures. - Assess BICES-X technologies and associated interoperability issues in Satellite Communications (SATCOM) denied or degraded environments.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Increase Allied IW interoperability with other joint and maritime multi-national forums, such as the CCEB, M2I2, MPE, FMN, and JIE forums. - Assess and validate individual technologies, integrated solutions, and associated DOTMLPF through experimentation, trials and demonstrations with AUSCANNZUKUS and other Allied/Coalition partners during operational venues such as RIMPAC or Joint Warrior. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.730	0.649	0.953	0.000	0.953

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Allied/Coalition Interoperability and Information Dominance (ACIID) is a non-acquisition program that promotes United States Navy (USN) interoperability with allied and coalition forces to achieve the Chief of Naval Operations (CNO) vision by facilitating maritime interoperability in both processes and communications systems, including emerging capabilities, to counter growing high-end asymmetric threats, and is a key enabler of the force multiplying benefits achieved through cooperation among the Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS), North Atlantic Treaty Organization (NATO), and other partner nations. Activities include acquiring intellectual capital in emerging technical areas through contracts providing technical engineering expertise and surge capacity for emerging tasks.

E. Performance Metrics

Advanced Relay Capabilities: The ACIID program will employ laboratory testing and at-sea demonstrations to assess specific technologies, operational concepts, and integrated Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities (DOTMLPF) solutions pertaining to Anti-Access Area Denial (A2/AD) environments, Network Operations Without Shore (NOWS), Maritime Domain Awareness (MDA), Mission Partner Environment (MPE)/Future Mission Networks (FMN), Joint Information Environment (JIE), and other aspects of Information Dominance (ID). These assessments will report on identified capability gaps, link capability gaps to technology/DOTMLPF gaps, identify technologies and DOTMLPF solutions considered ready for deployment, transition to a program of record to enhance Fleet war fighting capability, and enhance Allied interoperability.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Relay Capabilities	Various	Various : Various	12.226	0.091	Jan 2015	0.080	Jan 2016	0.117	Jan 2017	-		0.117	Continuing	Continuing	Continuing
Advanced Relay Capabilities	WR	SSC PAC : San Diego	2.895	0.555	Jan 2015	0.494	Jan 2016	0.726	Jan 2017	-		0.726	Continuing	Continuing	Continuing
Advanced Relay Capabilities	C/CPFF	SAIC : McLean, VA	0.090	0.084	Jan 2015	0.075	Jan 2016	0.110	Jan 2017	-		0.110	Continuing	Continuing	Continuing
Interoperability Requirements	Various	Various : Various	3.266	0.000		0.000		0.000		-		0.000	0.000	3.266	-
T & E Tools Development	Various	Various : Various	0.429	0.000		0.000		0.000		-		0.000	0.000	0.429	-
Systems Int. & Interop. Testing (LBTN)	Various	Various : Various	3.862	0.000		0.000		0.000		-		0.000	0.000	3.862	-
Interoperability Validation	Various	Various : Various	2.748	0.000		0.000		0.000		-		0.000	0.000	2.748	-
Joint Interoperability	Various	Various : Various	1.174	0.000		0.000		0.000		-		0.000	0.000	1.174	-
Testing OTH-T Systems	Various	Various : Various	3.069	0.000		0.000		0.000		-		0.000	0.000	3.069	-
		Subtotal	29.759	0.730		0.649		0.953		-		0.953	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various	Various : Various	1.468	0.000		0.000		0.000		-		0.000	0.000	1.468	-
ACQ Workforce Fund	Various	Various : Various	0.009	0.000		0.000		0.000		-		0.000	0.000	0.009	-
		Subtotal	1.477	0.000		0.000		0.000		-		0.000	0.000	1.477	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	31.236	0.730		0.649		0.953		-		0.953	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*

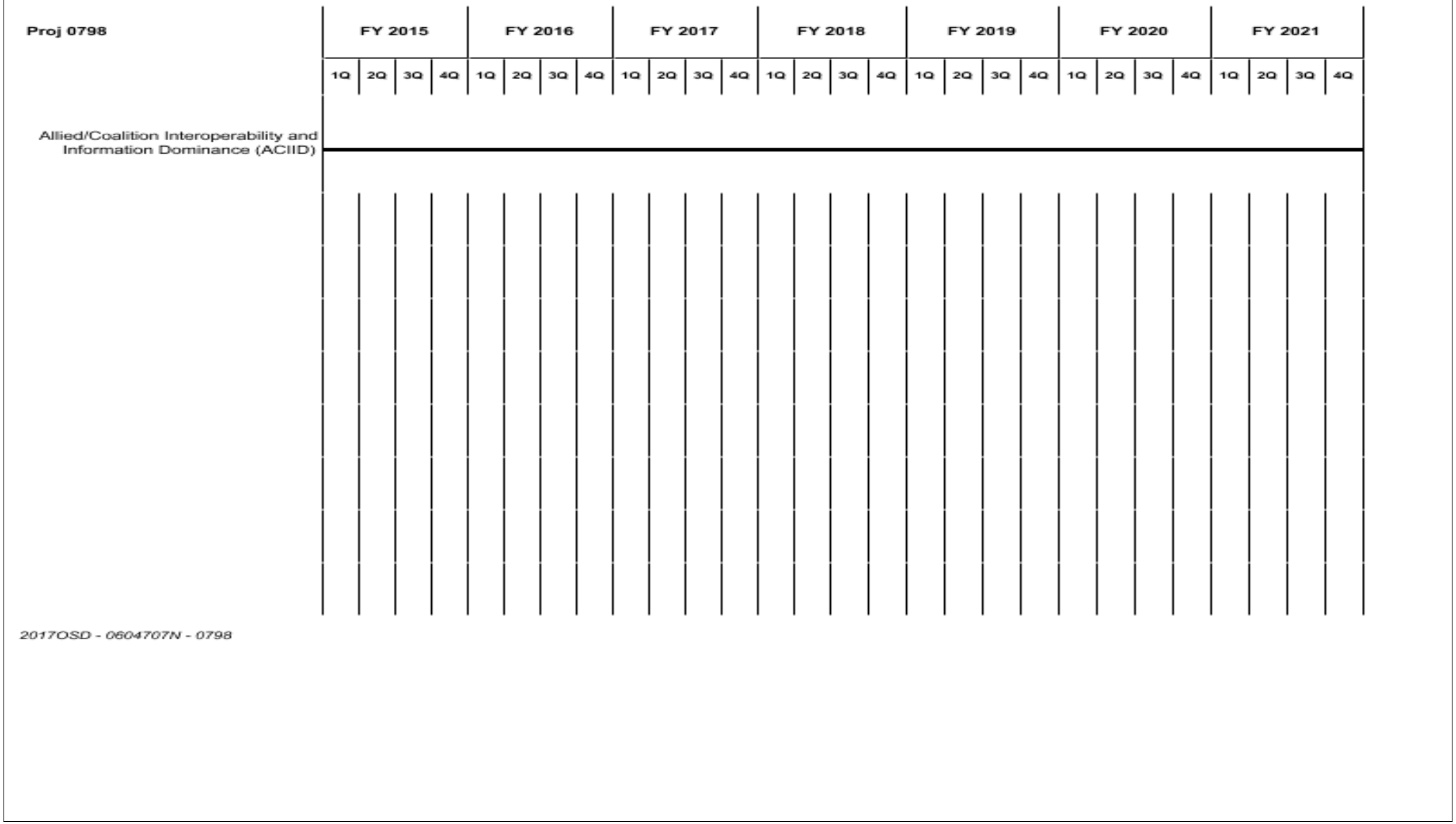

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0798				
Allied/Coalition Interoperability and Information Dominance (ACIID):	1	2015	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*	Project (Number/Name) 2144 / *Space & Elec Warfare Engineering*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2144: *Space & Elec Warfare Engineering*	188.361	11.045	7.300	13.175	-	13.175	13.726	12.752	12.916	13.083	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

OPNAVINST 3050.25 outlines the policy to use Warfighting Capability, Capacity, and Wholeness assessments to support the Navy's Planning Programming Budgeting and Execution (PPBE) process. Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) integrated architectures serve as key components in assessing capability and capacity gaps, enabling analysis of individual platforms and System of Systems (SoS) capabilities in order to achieve the desired war fighting effect.

Office of the Secretary of Defense (OSD) has defined several key programs, initiatives, and policies that drive Navy requirements prioritization and impact Navy programs of record. Major efforts include Joint Information Environment (JIE), and the Intelligence Community Information Technology Environment (IC ITE). Space and Naval Warfare Systems Command (SPAWAR) responsibilities for Information Technology (IT) Technical Authority (TA), Information Assurance (IA) TA, and the Information Dominance Enterprise Architecture (IDEA) will guide Navy's alignment with and implementation of these key, external requirements.

Additionally, Office of the Chief of Naval Operations (OPNAV) N2/N6 Information Dominance (ID) objectives for Assured Command and Control (C2), Battlespace Awareness, and Integrated Fires capabilities require significant changes and improvements to the Navy's approach for managing its information infrastructure, content, and effects. Potential adversaries will exploit perceived United States (U.S.) space and cyberspace vulnerabilities which could impact U.S. information-handling capabilities and wartime readiness. To realize the ID vision, SPAWAR as the Navy's ID Systems Command, will need to support and enforce implementation of IT and IA TA architectures, specifications, standards, and profiles to ensure Navy cyber capabilities are a warfighting asset, not a liability.

The Space and Electronic Warfare (SEW) provides three main functions:
1) Perform SoS and platform technical evaluations to establish the alignment with the OPNAV N2/N6 ID vision for the Navy and identify performance and operational risks associated with the integration of multiple systems to provide a robust, mission based capability; 2) Develop C4ISR/IT/ID integrated architecture products; and 3) Support development of and compliance with C4ISR/IT/ID systems engineering processes and standards. The integrated architecture products are used to support the Navy's budget process by providing a current baseline and a target end state to inform decision-making and prioritization for how the acquisition system will deliver new capabilities to the war fighter. The systems engineering processes and standards provide the construct for Assured C2, Battlespace Awareness and Integrated Fires interoperability requirements analyses to identify capability shortfalls/gaps and to compare/test alternatives in a joint end-to end environment while identifying associated Navy-wide C4ISR/IT/ID implications. Processes include developing and applying criteria for use in Systems Engineering Technical Reviews (SETRs) and Gate Reviews, and providing technical inputs and assessments to governance bodies. This includes Human Systems Integration (HSI) to provide a mission-centered orientation to ensure effective operational employment of fielded capability. As joint concepts and OSD efforts/programs are defined and matured, the Navy's C4ISR integrated architectures are refined in-turn, and the supporting C4ISR systems engineering processes and standards work to engineer and enact C4ISR implementations Navy-wide across all C4ISR mission areas.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

Products provided:
1) C4ISR, IT, IA, and ID integrated architectures to reflect current, as-programmed and future, target states
-Fit for Purpose/Department of Defense Architecture Framework (DoDAF) compliant architecture views
-Systems Command (SYSCOM) Technical Authority (TA) specifications, standards and profiles
-Common engineering processes and tools
2) Supporting Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR)/Information Technology (IT)/Information Dominance (ID) systems engineering processes
-Technical standards, architectures, design guidance tools, and policies support to SYSCOMs developing IT systems and connecting to the Navy Enterprise Network afloat, ashore & aloft
-Documentation of IT interfaces to Navy Networks
-Certifications of systems and applications connected to the Navy Enterprise Network
-Gaps Analysis, Analysis of Alternatives, Mission Task Analysis, Human Systems Integration (HSI) assessments
-End-to-End Systems Engineering and Integrated Design - Operational feasibility studies, technical feasibility studies, technical roadmap engineering validations, architectures and assessment traceability matrices
-Joint and Coalition interoperability trials - Joint end-to-end prototyping trials; joint/coalition interoperability demonstrations; interoperability assessments and metrics; and interoperability studies via the Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX). United States Navy (USN) provides funding to the general CWIX operating budget and participates by operating a USN demonstration site
-Technical analyses for Navy cloud computing options, including cloud deployment models (utility/data), mission context, warfighting and cost implications and possible implementation options for ashore and afloat capabilities
-Integration and Interoperability (I&I) - Support Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN(RDA)) and Office of the Chief of Naval Operations (OPNAV) I&I initiatives to ensure integration and interoperability across Assured Command and Control (C2), Battlespace Awareness and Integrated Fires to deliver ID to Navy warfighters. Conduct analyses and engineering activities that provide an operational, mission-driven context to the assessment of capability gaps and interoperability seams between Navy System of Systems (SoS) capabilities that better enable acquisition programs to deliver fully integrated and interoperable warfighting capabilities. Provide I&I support in Systems Engineering Technical Reviews (SETRs) and provide recommendations for updates to acquisition policies and guidance

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: C4ISR Systems Engineering	2.728	2.627	2.973	0.000	2.973
Articles:	-	-	-	-	-
FY 2015 Accomplishments: -Continued C4ISR and ID Transformation/Strategic Planning within Navy/Joint/Department of Defense (DoD) Framework: Assessed existing and emerging capabilities; developed and evaluated Navy-wide policies, plans, requirements, and compliance; developed integration and investment strategies; and accelerated innovation,					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
testing, assessment and fielding of material and non-material solutions for enhanced operational capability, joint/ allied/coalition interoperability and application/enforcement of enterprise requirements/architectures/standards toward greater Net-Centric Operations/Warfare and ID capability. -Continued to establish, develop, and validate interoperability requirements: Continued to perform SETRs utilizing validated assessment tools, system engineering methodologies and SETR checklists tracing system design to standards and requirements (e.g., Information Assurance (IA), data strategy, architecture, modeling, Open Architecture, Configuration Management (CM), Service Oriented Architecture (SOA) development, Anti-tamper, etc.) ensuring interoperability compliance to statutory and regulatory directives and guidance. -Continued to ensure continuous improvement of Systems Engineering Technical Reviews (SETRs) Checklists by incorporating the latest policy, guidance, standards, and specifications. -Continued to perform System of Systems (SoS) and platform technical evaluations to integrate the alignment with the N2/N6 Information Dominance (ID) vision and identify performance, interoperability, and operational risks associated with the integration of multiple systems to provide a robust, mission based capability. -Continued to conduct document reviews (of Acquisition Strategies, Systems Engineering Plans, Information Support Plans, IA Strategies, Initial Capabilities Documents, Capabilities Development Documents, Capabilities Production Documents, Enterprise Architectures, etc.) for Office of the Chief of Naval Operations (OPNAV), Assistant Secretary of the Navy for Research, Development and Acquisition (ASN(RDA)), and the Program Executive Offices (PEOs), and other services to ensure sound systems engineering analysis and design principles have been applied to system planning requirements, design, testing, and supportability. -Continued to perform engineering evaluation and provided buy/no-buy decisions for proposed Deviations from Specification for afloat platforms to determine performance and operational impacts of the proposed changes and their effects on the platform's mission. -Continued to provide engineering evaluation and validation of Business Information Technology (IT) applications and IT infrastructure in order to combine, consolidate, and eliminate unnecessary or underutilized business systems for the Naval Enterprise. -Continued to provide engineering evaluation and validation of programs and ensured adherence to technical standards in the following technical domains-communications, networks, Information Storage and Retrieval/ Information Surveillance Reconnaissance/Information Operations, afloat platforms (both large and small decks), submarines, shore and Maritime Operations Center capability, command and control, and space systems. -Continued to conduct Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Certifications through design and testing analysis ensuring C4ISR delivery to the platform (shore, surface ship, submarine) was validated to meet the operational need and was interoperable with platform, force level, joint/allied/coalition forces.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Continued to provide technical support to the Department of the Navy Chief Information Office (DoN CIO) assessment of compliance with Department of Navy Enterprise Architecture (DoN EA) as part of Title 40/Clinger-Cohen Act confirmation process.					
FY 2016 Plans: -Continue Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) and Information Dominance (ID) Transformation/Strategic Planning within Navy/Joint/Department of Defense (DoD) Framework: Assess existing and emerging capabilities; develop and evaluate Navy-wide policies, plans, requirements, and compliance; develop integration and investment strategies; and accelerate innovation, testing, assessment and fielding of materiel and non-materiel solutions for enhanced operational capability, joint/allied/coalition interoperability and application/enforcement of enterprise requirements/ architectures/standards toward greater Net-Centric Operations/Warfare and ID capability. -Continue to establish, develop, and validate interoperability requirements: Continue to perform Systems Engineering Technical Reviews (SETRs) on Acquisition Category (ACAT) I,II, and III programs utilizing validated assessment tools, system engineering methodologies and SETR checklists tracing system design to standards and requirements (e.g., Information Assurance (IA), data strategy, architecture, modeling, Open Architecture, Configuration Management (CM), Service Oriented Architecture (SOA) development, Anti-tamper, etc.) ensuring interoperability compliance to statutory and regulatory directives and guidance. -Ensure continuous improvement on SETR Checklists for ACAT I,II, and III programs by incorporating the latest policy, guidance, standards, and specifications, including specific criteria for effective implementation of and compliance with Information Technology (IT) and IA Technical Authority (TA) architectures, specifications, standards and profiles. -Continue to perform System of Systems (SoS) and platform technical evaluations to assess alignment with the Office of the Chief of Naval Operations (OPNAV) N2/N6 ID vision, and identify technical performance, interoperability, and operational risks associated with the integration of capabilities across multiple systems to provide a robust, mission-based capability. -Continue to provide document reviews (of Acquisition Strategies, Systems Engineering Plans, Information Support Plans, IA Strategies, Initial Capabilities Documents, Capabilities Development Documents, Capabilities Production Documents, Enterprise Architectures, etc.) for OPNAV, Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN(RDA)), Program Executive Offices (PEOs), and other Services to ensure the application of sound systems engineering analysis and design principles to system planning requirements, design, testing, and supportability.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Continue to perform engineering evaluations for afloat platforms to determine performance and operational impacts of proposed deviations from specification and provide buy/no-buy recommendations. -Continue to provide engineering evaluations and validation of Business IT applications and IT infrastructure in order to combine, consolidate, and eliminate unnecessary or underutilized business systems for the Naval Enterprise Network. -Continue to provide engineering evaluations and validation of programs and ensure adherence to technical standards in the following technical domains: communications, networks, Information Storage and Retrieval/ Information Surveillance Reconnaissance/Information Operations, afloat platforms (both large and small decks), submarines, shore and Maintenance Operations Center capability, command and control, and space systems. -Continue to provide Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Certifications through design and testing analysis ensuring C4ISR delivery to the platform (shore, surface ship, submarine) is validated to meet the operational need and is interoperable with platform, force level, joint/allied/coalition forces. -Continue to provide technical support to the Department of the Navy Chief Information Office (DoN CIO) assessment of compliance with Department of Navy Enterprise Architecture (DoN EA) as part of Title 40/Clinger-Cohen Act certification process.					
FY 2017 Base Plans: -Continue C4ISR and Information Dominance (ID) Transformation/Strategic Planning within Navy/Joint/ Department of Defense (DoD) Framework: Perform a deeper dive into existing capabilities with an emphasis on emerging capabilities; develop and evaluate Navy-wide policies, plans, requirements, and compliance; develop integration and investment strategies; accelerating innovation, testing, assessment and fielding of materiel and non-materiel solutions for enhanced operational capability, joint/allied/coalition interoperability and application/ enforcement of enterprise requirements/architectures/standards toward greater Net-Centric Operations/Warfare and ID capability. -Continue to establish, develop, and validate interoperability requirements: Continue to perform Systems Engineering Technical Reviews (SETRs) on Acquisition Category (ACAT) I,II, and III programs utilizing validated assessment tools, system engineering methodologies and SETR checklists tracing system design to standards and requirements (e.g., Information Assurance (IA), data strategy, architecture, modeling, Open Architecture, Configuration Management (CM), Service Oriented Architecture (SOA) development, Anti-tamper, etc.) ensuring interoperability compliance to statutory and regulatory directives and guidance.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Ensure continuous improvement on SETR Checklists for ACAT I,II, and III programs by incorporating the latest policy, guidance, standards, and specifications, including specific criteria for effective implementation of and compliance with Information Technology (IT) and IA Technical Authority (TA) architectures, specifications, standards and profiles. -Continue to perform System of Systems (SoS) and platform technical evaluations to assess alignment with Office of the Chief of Naval Operations (OPNAV) N2/N6 ID vision, and identify technical performance, interoperability, and operational risks associated with the integration of capabilities across multiple systems to provide a robust, mission-based capability. -Continue to provide document reviews (of Acquisition Strategies, Systems Engineering Plans, Information Support Plans, IA Strategies, Initial Capabilities Documents, Capabilities Development Documents, Capabilities Production Documents, Enterprise Architectures, etc.) for OPNAV, Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN(RDA)), Program Executive Offices (PEOs), and other Services to ensure the application of sound systems engineering analysis and design principles to system planning requirements, design, testing, and supportability. -Perform more complex engineering evaluations for afloat platforms to determine performance and operational impacts of proposed deviations from specification and provide buy/no-buy recommendations. -Continue to provide engineering evaluations and validation of Business Information Technology (IT) applications and IT infrastructure in order to combine, consolidate, and eliminate unnecessary or underutilized business systems for the Naval Enterprise Network. -Continue to provide engineering evaluations and validation of programs and ensure adherence to technical standards in the following technical domains: communications, networks, Information Storage and Retrieval/ Information Surveillance Reconnaissance/Information Operations, afloat platforms (both large and small decks), submarines, shore and Maritime Operations Center capability, command and control, and space systems. -Continue to provide Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Certifications through design and testing analysis ensuring C4ISR delivery to the platform (shore, surface ship, submarine) is validated to meet the operational need and is interoperable with platform, force level, joint/allied/coalition forces. -Continue to provide technical support to the Department of the Navy Chief Information Office (DoN CIO) assessment of compliance with Department of Navy Enterprise Architecture (DoN EA) as part of Title 40/Clinger-Cohen Act certification process.					
FY 2017 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX)	1.463	0.837	0.983	0.000	0.983
Articles:	-	-	-	-	-
FY 2015 Accomplishments: -Developed interoperability and information sharing through coalition engagement, technology, demonstrations, and assessments that led to improvements of C4ISR systems within the Navy and in conjunction with Joint Services and Coalition efforts. -Leveraged Coalition Interoperability Assurance and Validation (CIAV) Mission Partner Environment (MPE) efforts in order to develop operationally relevant experiments and assessments focused on Navy mission enhancement in a Coalition environment. -Continued development of a Navy experimentation environment that can be leveraged to provide Navy focused Assurance and Validation support to the CIAV community. -Developed experiments integrated with North Atlantic Treaty Organization (NATO) and Third Country National (TCN) partners in conjunction with Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX) infrastructure. -Enhanced integration and engagement with Pacific Rim (PACOM AO) Coalition partners by leveraging existing experimentation and exercise venues (such as Rim of the Pacific (RIMPAC), Cooperation Afloat Readiness and Training (CARAT), Foal Eagle, and Cobra Gold) in order to develop operationally relevant experiments focused on enhancing Navy missions. -Demonstrated and evaluated cutting-edge technologies and transitioned them to the end-user, including Coalition Partners, and the Joint Services. -Continued to provide interoperability between existing and cutting-edge Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems. Integrated directly with Navy Acquisition Programs (i.e. Program Executive Office Command, Control, Communications, Computers, Intelligence (PEO C4I) and the Component/ Combatant Commanders at the Technical Director and Science Advisor levels). -Validated technology selection, experimental objective design, and execution to influence and direct design efforts and to satisfy warfighter capability gaps in a Coalition setting.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Continued to develop operationally relevant classified laboratory environments for Joint/Coalition war fighter technology experiments. Year-round connectivity will be continued with end-users in order to provide a distributed Coalition experimentation environment focused enhancement of Navy missions. ***FY 2016 Plans:*** -Develop interoperability and information sharing through coalition engagement, technology, demonstrations, and assessments leading to improvements of C4ISR systems within the Navy and in conjunction with Joint Services and Coalition efforts. -Further enhance integration and engagement with Pacific Rim (PACOM AO) Coalition partners as well as Coalition partners in the Southern Command Area of Operation (SOUTHCOM AO) by fostering a connected, distributed experimentation environment suitable for expanded experimentation in those areas. -Seek enhanced interoperability with North Atlantic Treaty Organization (NATO) Coalition partners through the Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX) infrastructure. -Utilize existing events such as Coalition Interoperability Assurance and Validation (CIAV) and CWIX to expose interoperability issues between United States (U.S.) and Coalition Partner systems and report issues and possible workarounds to relevant entities. -Leverage CIAV infrastructure to enhance U.S. maritime interoperability within the Joint Information Environment (JIE) Mission Partner Environment (MPE). -Coordinate experimentation with applicable acquisition and operational entities (i.e. PEO C4I, Component/ Combatant Commanders at the Technical Director and Science Advisor levels) in order to assess interoperability between existing and cutting-edge C4ISR systems. -Continue development of suitable environments for Joint/Coalition war fighter technology experiments. Periodic connectivity will be continued with end-users in order to provide a distributed Coalition experimentation environment focused enhancement of Navy missions. ***FY 2017 Base Plans:*** -Continue to develop interoperability and information sharing through coalition engagement, technology, demonstrations, and assessments leading to improvements of Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems within the Navy and in conjunction with Joint Services and Coalition efforts. -Pursue greater Pacific Rim (PACOM) Partner Nation and Southern Command (SOUTHCOM) Partner Nation engagement by fostering a connected, distributed experimentation environment suitable for expanded experimentation in those areas.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Foster enhanced interoperability amongst North Atlantic Treaty Organization (NATO) and affiliated Coalition Partners by participating in the planning and execution of Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX). -Assess Coalition Interoperability Assurance, Validation, and Verification as related to the engineering and execution of the Mission Partner Environment (MPE) via the Coalition Interoperability Assurance and Validation (CIAV) infrastructure. - Coordinate experimentation activities with appropriate acquisition and operational entities (i.e. Program Executive Office Command, Control, Communications, Computers, Intelligence (PEO C4I), Component/ Combatant Commanders at the Technical Director and Science Advisor levels) in order to create synergy and provide the most value. ***FY 2017 OCO Plans:*** N/A					
Title: Systems Engineering and Integration Revitalization	1.342	0.856	0.969	0.000	0.969
Articles:	-	-	-	-	-
FY 2015 Accomplishments: -Continued to refine the Integration & Interoperability (I&I) Systems Engineering Technical Review (SETR) checklist in support of the Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN(RDA)). -Continued to conduct I&I SETR events to validate and refine I&I checklist items. -Continued to review all Navy Information Technology Procurement Requests (ITPR) for developing systems to ensure adherence to Navy Information Technology (IT) standards and capture and report metric information to support moving to bulk IT procurement to take advantage of economies of scale across the Department of the Navy (DoN). -Provided Command, Control, Communications, Computers, Intelligence (C4I) and Information Assurance (IA) Certifications (Naval Warfare Systems Certification Policy (NWSCP)) and Department of Defense Information Assurance Certification and Accreditation Process (DIACAP)). -Began engineering development for the Deputy Assistant Secretary of the Navy (DASN) Research, Development, Testing and Evaluation (RDT&E) Rapid Prototyping for Modulated Retro Reflector (MRR) CubeSat Project; Provided engineering development and support towards the development of the CubeSat bus and Radio Frequency (RF) ground station; Began development of the optical ground station for Modulated Retro Reflector effort; Began development of a processor board for the flight terminal that combined modem, storage					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
and command handling, and a modem board for the ground station; Began trade study comparing different photo detector architectures for the ground station.					
FY 2016 Plans: -Continue to develop and refine the Integration & Interoperability (I&I) Integrated Capability Framework's (ICF) Mission Technical Baselines aligned to Required Operational Capability (ROC)/Platform Operational Environment (POE) mission areas to capture and decompose operational requirements and define System of System (SoS) interoperability requirements. Use these SoS baselines to develop Integrated Capability Technical Baselines to support analysis of capability gaps and engineering trades to inform investment decisions. -Continue to evolve Assured Command and Control (C2), Battlespace Awareness and Integrated Fires Integrated Capability Technical Baselines to ensure Information Dominance (ID) capabilities align to mission-specific kill chains to reduce interoperability seams across the supporting SoS. -Establish robust, foundational mission engineering tools (e.g., executable architecture models) to support I&I technical performance gap analysis and trade recommendations. -Review impact on Acquisition Category (ACAT) I, II, and III programs of I&I Systems Engineering Technical Reviews (SETR) checklist items on SETR outcomes and acquisition system improvements to deliver fully integrated and interoperable warfighting capability. -Provide Command, Control, Communications, Computers, Intelligence (C4I) and Information Assurance (IA) Certifications (Naval Warfare Systems Certification Policy (NWSCP)).					
FY 2017 Base Plans: -Continue to develop and refine the I&I ICF Mission Technical Baselines aligned to ROC/POE mission areas to capture and decompose operational requirements and define SoS interoperability requirements. Use these SoS baselines to develop Integrated Capability Technical Baselines to support analysis of capability gaps and engineering trades to inform investment decisions. -Continue to evolve Assured C2, Battlespace Awareness and Integrated Fires Integrated Capability Technical Baselines to ensure ID capabilities align to mission-specific kill chains to reduce interoperability seams across the supporting SoS. -Establish robust, foundational mission engineering tools (e.g., executable architecture models) to support I&I technical performance gap analysis and trade recommendations. -Review impact on Acquisition Category (ACAT) I, II, and III programs of Integration & Interoperability (I&I) Systems Engineering Technical Review (SETR) checklist items on SETR outcomes and acquisition system improvements to deliver fully integrated and interoperable warfighting capability.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Provide Command, Control, Communications, Computers, Intelligence (C4I) and Information Assurance (IA) Certifications (Naval Warfare Systems Certification Policy (NWSCP)). ***FY 2017 OCO Plans:*** N/A					
Title: Systems Engineering Standards and Processes	5.512	2.980	8.250	0.000	8.250
Articles:	-	-	-	-	-
FY 2015 Accomplishments: -Continued to develop/refine processes to integrate System of System (SoS) engineering technical assessments to identify cross system dependencies and potential interoperability and integration issues. -Continued to incorporate lessons learned from prior year system engineering efforts to ensure multi-systems processes were intuitive and met the mission of the Navy. -Continued efforts to develop Joint cloud-enabled, secure domain environment using virtual desktop technology that allowed secure and cost effective operations at the point of need, creating improved efficiencies, enhanced cyber operations and improved capabilities across a range of military operations. -Developed Information Technology (IT) and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) requirements and interface specifications and standards. -Developed Information Assurance(IA)requirements and interface specifications and standards. -Developed/refined processes for IT and C4ISR Technical Authority (TA) implementation. -Developed/refined processes for IA TA implementation. -Established an online repository of SoS IT and IA Engineering Policies, Requirements, Standards, and Best Practices to facilitate consistent SoS Engineering across all Navy activities. -Updated the future Navy cloud architecture to inform Navy acquisition programs on cloud technologies.					
FY 2016 Plans: -Reduce cyber variance through the standardization of afloat, ashore and aloft infrastructure. Continue IT and IA TA efforts to define, place under configuration control, and manage physical and logical interface requirements and IA controls for systems that connect to the Navy Enterprise Network. -Sustain actions to develop platform as-programmed and target architectures to support continued progress toward reducing the number of unique interfaces and variance across platform configurations. -Continue to develop and promulgate specifications, standards and profiles under IT TA. -Develop and promulgate cybersecurity standards under IA TA to ensure consistent implementation of IA controls across Navy systems.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Develop Navy Cybersecurity Situational Awareness (NCSA) requirements and interface specifications and standards to reduce variance across the Navy cyber environment and enable integration and interoperation across multiple tools and technologies. -Ensure compliance with NCSA requirements and standards across Navy networks and systems, to include Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems as well as tactical control systems such as combat, Hull Mechanical & Electrical (HM&E), and navigation systems. -Perform risk assessments to improve NCSA decision-making regarding the protection, detection, and response to cyber events on Navy networks and systems. -Develop and sustain enterprise-level cybersecurity target architectures to support Navy transition to a holistic cybersecurity strategy that enables the establishment of a common, layered, Defense-in-Depth approach that improves the Navy's cyber security posture. Develop and support the establishment of the Defense-in-Depth Functional Implementation Architecture (DFIA) to define Information Assurance (IA) boundaries, IA and logical attributes, controlling parameters, and inheritable security controls. -Carry forward efforts to verify existing processes on Acquisition Category (ACAT) I, II, and III programs (e.g., Systems Engineering Technical Reviews (SETR), Gate Reviews, etc.) to ensure compliance with Information Technology (IT) and IA Technical Authority (TA) specifications, standards and profiles early in the acquisition lifecycle. Mature IT and IA Configuration Management and Waiver processes to ensure implementation and compliance determinations are based on enterprise-level risk management assessments. -Sustain the Information Dominance Enterprise Architecture (IDEA) to serve as the Navy Enterprise Network target end state that supports alignment with the Joint Information Environment (JIE), Intelligence Community Information Technology Environment (IC ITE), and enables integration of Navy Tactical Cloud capabilities. -Establish the IDEA-Repository (IDEA-R) to serve as the authoritative source of IT and IA TA architectures, specifications, standards and profiles. Sustain efforts to include Integration and Interoperability (I&I) outputs (e.g., Mission Technical Baselines, Integrated Capability Technical Baselines) and vignette descriptions within the IDEA-R to support mission-/capability-driven and System of Systems assessments that support Program Objective Memorandum (POM) inputs and ensure IDEA-R related products support objectives for Assured Command & Control (C2), Battlespace Awareness and Integrated Fires. -Use IDEA to validate the future Navy cloud architecture to inform Navy acquisition program investments on cloud technologies.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Certify applications and systems connected to the Naval Enterprise Network for compliance to Information Technology (IT) and Information Assurance (IA) standards and best practices and assure cyber resilience.					
FY 2017 Base Plans: -Reduce cyber variance through the standardization of afloat, ashore and aloft infrastructure. Continue IT and IA Technical Authority (TA) efforts to define, place under configuration control, and manage physical and logical interface requirements and IA controls for systems that connect to the Navy Enterprise Network. -Sustain actions to develop platform as-programmed and target architectures to support continued progress toward reducing the number of unique interfaces and variance across platform configurations. -Continue to develop and promulgate specifications, standards and profiles under IT TA. -Continue to develop and promulgate cybersecurity standards under IA TA to ensure consistent implementation of IA controls across Navy systems. -Continue to develop Navy Cybersecurity Situational Awareness (NCSA) requirements and interface specifications and standards to reduce variance across the Navy cyber environment and enable integration and interoperation across multiple tools and technologies. -Ensure compliance with NCSA requirements and standards across Navy networks and systems, to include Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems as well as tactical control systems such as combat, Hull Mechanical & Electrical (HM&E), and navigation systems. -Increase risk assessment analysis to improve NCSA decision-making regarding the protection, detection, and response to cyber events on Navy networks and systems. -Continue to develop and sustain enterprise-level cybersecurity target architectures to support Navy transition to a holistic cybersecurity strategy that enables the establishment of a common, layered, Defense-in-Depth approach that improves the Navy's cyber security posture. Develop and support the establishment of the Defense-in-Depth Functional Implementation Architecture (DFIA) to define IA boundaries, IA and logical attributes, controlling parameters, and inheritable security controls. -Verify existing processes on Acquisition Category (ACAT) I, II, and III programs (e.g., Systems Engineering Technical Reviews (SETR), Gate Reviews, etc.) to ensure compliance with IT and IA TA specifications, standards and profiles early in the acquisition lifecycle. Mature IT and IA Configuration Management and Waiver processes to ensure implementation and compliance determinations are based on enterprise-level risk management assessments.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Sustain the Information Dominance Enterprise Architecture (IDEA) to serve as the Navy Enterprise Network target end state that supports alignment with the Joint Information Environment (JIE), Intelligence Community Information Technology Environment (IC ITE), and enables integration of Navy Tactical Cloud capabilities. -Validate the IDEA-Repository (IDEA-R), which will serve as the authoritative source of IT and IA TA architectures, specifications, standards and profiles. Sustain efforts to include Integration and Interoperability (I&I) outputs (e.g., Mission Technical Baselines, Integrated Capability Technical Baselines) and vignette descriptions within the Information Dominance Enterprise Architecture-Repository (IDEA-R) to support mission/capability-driven and System of Systems assessments that support Program Objective Memorandum (POM) inputs and ensure IDEA-R related products support objectives for Assured Command & Control (C2), Battlespace Awareness and Integrated Fires. -Use IDEA to validate the future Navy cloud architecture to inform Navy acquisition program investments on cloud technologies. -Certify applications and systems connected to the Naval Enterprise Network for compliance to Information Technology (IT)/Information Assurance (IA) standards and best practices and assure cyber resilience. -Develop IT and IA Technical Authority (TA) standards to influence Programs of Record (PoRs) early in the acquisition cycle to ensure interoperability and cybersecurity are included in upfront design considerations for systems and applications that connect to the Navy IT Enterprise. - Establish cybersecurity engineering requirements for all Navy programs that connect to the Navy IT Enterprise to improve Fleet cyber readiness. - Provide risk assessments and authorization for Deviation from Specification (DFS) for systems that connect to the Navy IT Enterprise, as part of the IT/IA TA waiver process. The wavier process and associated risk assessments provide a mechanism for instilling disciplined systems engineering and enforcing standards intended to improve Navy interoperability and cybersecurity. - Establish Navy cybersecurity governance to develop processes in order to provide reasonable information assurance of critical platform components necessary for mission success such as Navy networks and control systems. - Develop the future progression for Navy cybersecurity by enhancing strategic engagements and ensuring cyber compliance during gate and milestone reviews of PoRs. - Validate compliance with CYBERSAFE Program within information systems, Platform Information Technology (PIT)-control systems, threat analysis, and policy, transforming mission needs into achievable CYBERSAFE requirements.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Evaluate current risk posture by reviewing assessments, inspections, audits, test/evaluation, and real-world events to ensure compliance with policy, establish strategic vision, and synchronize with the Navy's cyber approach. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	11.045	7.300	13.175	0.000	13.175

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Space and Electronic Warfare (SEW) Engineering is a non-acquisition program that develops, tests, implements technical authority, and validates naval Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR); provides integrated architecture products and supports C4ISR systems engineering processes and standards. Activities include acquiring intellectual capital in emerging technical areas through contracts providing technical engineering expertise and surge capacity for emerging tasks.

E. Performance Metrics

The SEW engineering program will employ rigorous and consistent system engineering practices in an evolving value model to support development and deployment of shipboard, undersea, and land based capabilities based on mission and performance requirements, integrated enterprise architectures, model-validated solutions, and sustainment and supportability needs for the Command and Control, Intelligence, Networks, Communications, Space, and Business Information Technology domains.

Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX) Performance Metrics: Three key metrics: (1) Interoperability and compliance with Naval, joint, coalition and other non-governmental organization architectures, systems and equipment; (2) Compliance with Defense Information Services Agency (DISA), National Security Agency (NSA), and other joint and coalition information assurance and security standards; and (3) war fighter utility assessment across the joint and coalition spectrum. Specific metrics validate performance of individual technologies participating in CWIX.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*	Project (Number/Name) 2144 / *Space & Elec Warfare Engineering*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various	Various : Various	4.554	0.000		0.000		0.000		-		0.000	0.000	4.554	-
SEW/C4I Technology Integration	Various	Various : Various	12.985	0.000		0.000		0.000		-		0.000	0.000	12.985	-
MDA Prototype SE Support	Various	Various : Various	17.376	0.000		0.000		0.000		-		0.000	0.000	17.376	-
Systems Engineering & Integration Revitalization	Various	Various : Various	2.174	0.209	Feb 2015	0.000		0.000		-		0.000	0.000	2.383	-
Systems Engineering & Integration Revitalization	C/CPFF	ComGlobal : San Diego, CA	0.565	0.000		0.000		0.000		-		0.000	0.000	0.565	-
Systems Engineering & Integration Revitalization	C/CPFF	AUSGAR : San Diego, CA	0.966	0.401	Mar 2015	0.385	Mar 2016	0.436	Mar 2017	-		0.436	Continuing	Continuing	Continuing
Systems Engineering & Integration Revitalization	C/CPFF	METRON : Reston, VA	0.316	0.000		0.000		0.000		-		0.000	0.000	0.316	-
Systems Engineering & Integration Revitalization	C/CPFF	SAIC : McLean, VA	0.316	0.000		0.000		0.000		-		0.000	0.000	0.316	-
Systems Engineering & Integration Revitalization	WR	SSC LANT : Charleston, NC	0.637	0.232	Feb 2015	0.129	Feb 2016	0.145	Feb 2017	-		0.145	Continuing	Continuing	Continuing
Systems Engineering & Integration Revitalization	WR	SSC PAC : San Diego, CA	1.644	0.450	Feb 2015	0.342	Feb 2016	0.388	Feb 2017	-		0.388	Continuing	Continuing	Continuing
Systems Engineering & Integration Revitalization	WR	NRL : Washington, D.C.	0.000	0.050	Feb 2015	0.000		0.000		-		0.000	0.000	0.050	-
Systems Engineering Standards & Processes	Various	Various : Various	5.588	0.000		0.000		0.000		-		0.000	0.000	5.588	-
Systems Engineering Standards & Processes	C/CPFF	ComGlobal : San Diego, CA	1.454	0.000		0.000		0.000		-		0.000	0.000	1.454	-
Systems Engineering Standards & Processes	C/CPFF	AUSGAR : San Diego, CA	2.488	1.041	Mar 2015	0.990	Mar 2016	1.135	Mar 2017	-		1.135	Continuing	Continuing	Continuing
Systems Engineering Standards & Processes	C/CPFF	METRON : Reston, VA	0.813	0.000		0.000		0.000		-		0.000	0.000	0.813	-
Systems Engineering Standards & Processes	C/CPFF	SAIC : McLean, VA	0.812	0.000		0.000		0.000		-		0.000	0.000	0.812	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*	Project (Number/Name) 2144 / *Space & Elec Warfare Engineering*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering Standards & Processes	WR	SSC LANT : Charleston, NC	1.644	0.347	Feb 2015	0.330	Feb 2016	1.238	Feb 2017	-		1.238	Continuing	Continuing	Continuing
Systems Engineering Standards & Processes	WR	SSC PAC : San Diego, CA	4.298	0.924	Feb 2015	0.880	Feb 2016	3.013	Feb 2017	-		3.013	Continuing	Continuing	Continuing
Systems Engineering Standards & Processes	C/CPFF	BAH : McLean, VA	0.000	3.200	Aug 2015	0.780	Aug 2016	2.864	Aug 2017	-		2.864	Continuing	Continuing	Continuing
Systems A&E and Validation	Various	Various : Various	13.188	0.000		0.000		0.000		-		0.000	0.000	13.188	-
Distributed C2 Interoperability Requirement analysis	Various	Various : Various	16.583	0.000		0.000		0.000		-		0.000	0.000	16.583	-
C4ISR Architecture and Standards	Various	Various : Various	14.268	0.000		0.000		0.000		-		0.000	0.000	14.268	-
End-to-End System Engineering and Integrated Design	Various	Various : Various	10.994	0.000		0.000		0.000		-		0.000	0.000	10.994	-
Info. Repository/Naval Architecture	Various	Various : Various	4.000	0.000		0.000		0.000		-		0.000	0.000	4.000	-
C4ISR Systems Engineering	Various	Various : Various	5.157	0.000		0.000		0.000		-		0.000	0.000	5.157	-
C4ISR Systems Engineering	WR	NSWC Dahlgren : Dahlgren, MD	0.879	0.000		0.000		0.000		-		0.000	0.000	0.879	-
C4ISR Systems Engineering	MIPR	DISA : Pensacola, FL	0.266	0.000		0.000		0.000		-		0.000	0.000	0.266	-
C4ISR Systems Engineering	C/CPFF	ComGlobal : San Diego, CA	7.636	0.000		0.000		0.000		-		0.000	0.000	7.636	-
C4ISR Systems Engineering	C/CPFF	AUSGAR : San Diego, CA	0.000	1.610	Mar 2015	1.550	Mar 2016	1.755	Mar 2017	-		1.755	Continuing	Continuing	Continuing
C4ISR Systems Engineering	WR	SSC LANT : Charleston, NC	0.440	0.000		0.000		0.000		-		0.000	0.000	0.440	-
C4ISR Systems Engineering	WR	SSC PAC : San Diego, CA	3.955	0.792	Feb 2015	0.763	Feb 2016	0.863	Feb 2017	-		0.863	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*	Project (Number/Name) 2144 / *Space & Elec Warfare Engineering*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C4ISR Systems Engineering	C/CPFF	SAIC : McLean, VA	0.000	0.326	Jan 2015	0.314	Jan 2016	0.355	Jan 2017	-		0.355	Continuing	Continuing	Continuing
C4ISR Systems Engineering	WR	NAVAIR : Patuxent River, MD	0.088	0.000		0.000		0.000		-		0.000	0.000	0.088	-
C4ISR Systems Engineering	MIPR	CECOM : Fort Monmouth, NJ	0.264	0.000		0.000		0.000		-		0.000	0.000	0.264	-
C4ISR Systems Engineering	MIPR	AF : Hill AFB, UT	0.220	0.000		0.000		0.000		-		0.000	0.000	0.220	-
		Subtotal	136.568	9.582		6.463		12.192		-		12.192	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SEW Eng/CWIX	Various	Various : Various	30.171	0.000		0.000		0.000		-		0.000	0.000	30.171	-
SEW Eng/CWIX	MIPR	Defense Information Systems Agency : Arlington, VA	0.343	0.163	Apr 2015	0.093	Apr 2016	0.110	Apr 2017	-		0.110	Continuing	Continuing	Continuing
SEW Eng/CWIX	WR	Joint Interoperability Test Command : Fort Huachuca, AZ	2.204	0.000		0.000		0.000		-		0.000	0.000	2.204	-
SEW Eng/CWIX	WR	SSC Pacific : San Diego, CA	2.694	0.816	Dec 2014	0.467	Dec 2015	0.549	Dec 2016	-		0.549	Continuing	Continuing	Continuing
SEW Eng/CWIX	MIPR	US Northern Command : Peterson AFB, CO	0.332	0.000		0.000		0.000		-		0.000	0.000	0.332	-
SEW Eng/JRAE	Various	Various : Various	15.978	0.000		0.000		0.000		-		0.000	0.000	15.978	-
SEW Eng/CWIX	C/CPFF	SAIC : McLean, VA	0.000	0.317	Aug 2015	0.181	Aug 2016	0.213	Aug 2017	-		0.213	Continuing	Continuing	Continuing
SEW Eng/CWIX	C/CPFF	AUSGAR : San Diego, CA	0.000	0.167	Mar 2015	0.096	Mar 2016	0.111	Mar 2017	-		0.111	Continuing	Continuing	Continuing
		Subtotal	51.722	1.463		0.837		0.983		-		0.983	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ACQ Workforce Fund	Various	Various : Various	0.071	0.000		0.000		0.000		-		0.000	0.000	0.071	-
		Subtotal	0.071	0.000		0.000		0.000		-		0.000	0.000	0.071	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	188.361	11.045		7.300		13.175		-		13.175	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 2144																												
Coalition Warrior Interoperability Demonstration/Coalition Warrior Interoperability Experiment (CWID/CWIX): Schedule as directed by the Joint Management Office (JMO) during execution year.																												

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2144				
Coalition Warrior Interoperability Demonstration/Coalition Warrior Interoperability Experiment (CWID/CWIX): Schedule as directed by the Joint Management Office (JMO) during execution year.	1	2015	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*	Project (Number/Name) 2147 / *ISR Architecture*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2147: *ISR Architecture*	0.000	0.000	0.000	1.523	-	1.523	1.587	1.587	1.587	1.587	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Project 2147 Intelligence, Surveillance, and Reconnaissance (ISR) Architecture is a new start in FY17.

A. Mission Description and Budget Item Justification

Integrated architectures provide a technical framework for assessing capability gaps and performance of individual systems and systems of systems and their ability to effectively provide the desired effects to support warfighting missions. They also serve as a means to influence and drive Programs of Record (PORs) toward a common, more efficient state that promotes interoperability and security.

The Naval ISR Reference Architecture project is intended to guide system of systems capability development and promote interoperability across Navy ISR programs, as well as interoperability and alignment with Department of Defense (DoD)-wide enterprise initiatives including Joint Information Environment (JIE) and Intelligence Community (IC) Information Technology Environment (ITE). As tasked by the Navy's ISR Council, this effort to develop integrated ISR architectures will also help instill systems engineering discipline and standardization across the Navy ISR Enterprise and provide a means by which to assess ISR POR progress in conforming to a single Navy architecture. These efforts will help reduce Information Technology (IT)/ISR infrastructure complexity and variance, making it easier to manage, operate and defend our ISR capabilities, and help inform investment decisions across the Navy's ISR enterprise to support the Office of the Chief of Naval Operations (OPNAV) objectives for Assured Command and Control (C2), Battlespace Awareness and Integrated Fires.

This effort will encompass the documentation and analysis of current ISR enterprise architectures to inform and guide requirements for target architecture development and performance requirements to support full use and incorporation of ISR capabilities to advance Navy operations afloat. The associated studies will produce both technical and non-technical implementation guidance across the Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities (DOTMLPF) spectrum.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Intelligence, Surveillance, and Reconnaissance (ISR) Architecture	0.000	0.000	1.523	0.000	1.523
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2147 / *ISR Architecture*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Analyze the current Intelligence, Surveillance, and Reconnaissance (ISR) capabilities of afloat, ashore, joint, and national systems within mission contexts to demonstrate gaps and overlaps in Information Dominance capabilities and document in engineering artifacts and architectures. Perform trade space analysis and develop and quantify solutions using technical and operational performance parameters. -Build on the documentation and analysis of the enterprise ISR capabilities to support system of systems engineering assessments to identify integration and interoperability gaps, trades, and solutions for sponsor-related equities. -Integrate the National ISR and Naval (Navy and Marine Corps) ISR architectures within mission contexts to identify functional capacities, materiel integration and interoperability gaps and overlaps, as well as any policy and doctrine impacts. -Perform Verification and Validation (V&V) to ensure ISR architecture and analytic products accurately capture system performance specifications. -Capture all architectural data in the Space & Naval Warfare Systems Command (SPAWAR) analysis tool suite to support rigorous engineering assessments and architecture excursions against solution alternatives. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.523	0.000	1.523

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Naval ISR Architecture project is a non-acquisition program that provides integrated architecture products, engineering analysis of current and target/future capabilities to identify capability gaps and shortfalls and provide solution recommendations. These combined efforts support the ability to articulate risks and align and prioritize investment decision recommendations within the ISR domain for the Navy ISR Council, the Office of the Chief of Naval Operations (OPNAV) Resource Sponsors and ISR Program of Records (PORs).

E. Performance Metrics

The Naval ISR Reference Architecture effort will use consistent systems engineering practices to support development of integrated ISR enterprise architectures, model-validated solution recommendations against quantified technical and operational performance parameters.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2147 / *ISR Architecture*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ISR Architecture	C/CPFF	METRON : Reston, VA	0.000	0.000		0.000		0.761	Dec 2016	-		0.761	Continuing	Continuing	Continuing
ISR Architecture	C/CPFF	SAIC : McLean, VA	0.000	0.000		0.000		0.305	Dec 2016	-		0.305	Continuing	Continuing	Continuing
ISR Architecture	WR	SSC PAC : San Diego, CA	0.000	0.000		0.000		0.457	Dec 2016	-		0.457	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		1.523		-		1.523	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		1.523		-		1.523	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2147 / *ISR Architecture*

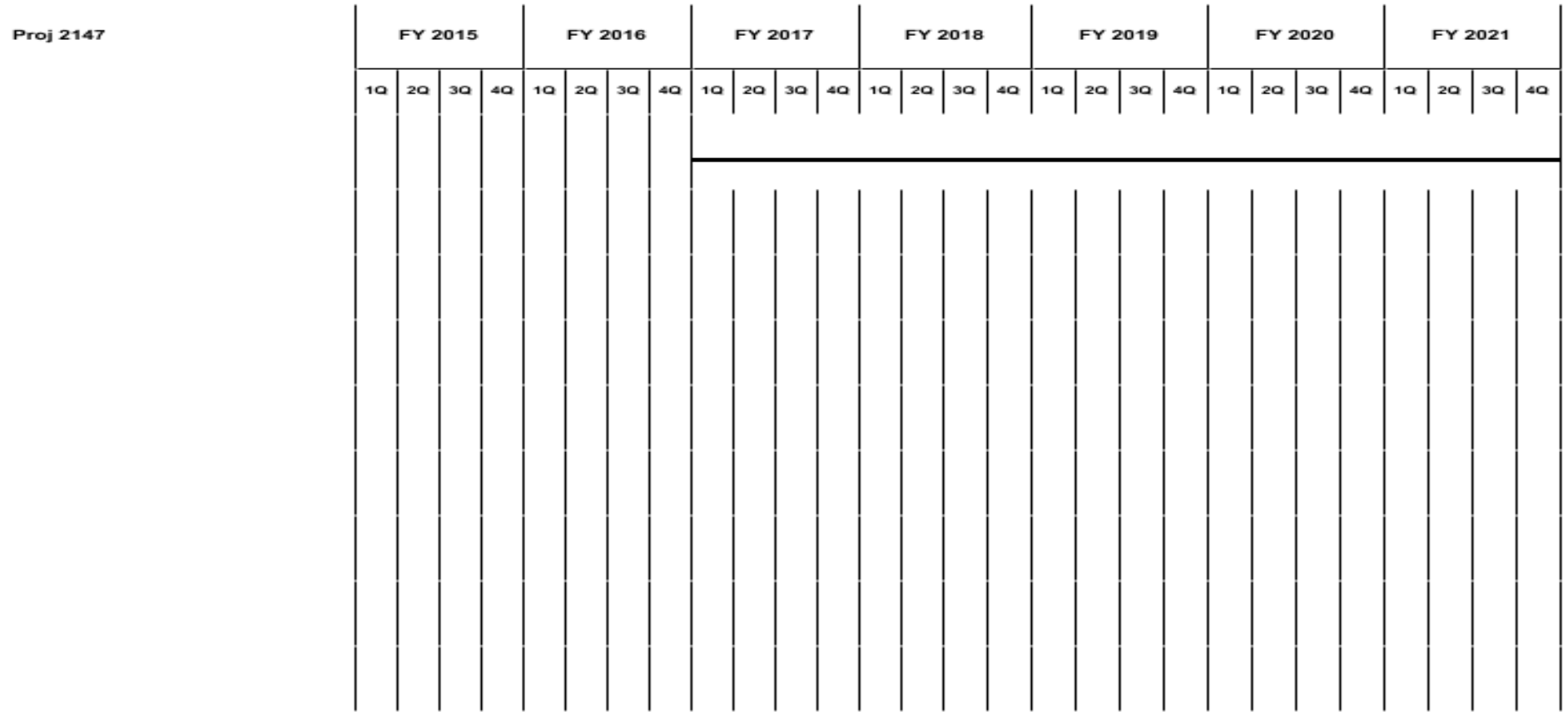

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2147 / *ISR Architecture*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2147				
ISR Architecture	1	2017	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*	Project (Number/Name) 2356 / *Maritime Concept Generation & Development*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2356: *Maritime Concept Generation & Development*	13.980	5.161	3.390	8.320	-	8.320	8.829	9.012	9.200	9.384	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

NWDC through project 2356 funding will provide naval warfare subject matter expertise, M&S support, and analysis expertise to enable execution of the planned 2017 experiment efforts (and the individual experiment initiatives contained within) in the areas of Electromagnetic Maneuver Warfare (EMW), Mine Warfare, Naval Integrated Fires, and Unmanned systems and conduct experiments (wargames, M&S, at-sea events) to develop emerging Naval concepts.
Typical deliverables for each experimental effort include:
- Experiment control plan
- Data Collection and Analysis Plan (DCAP)
- Experiment Analysis Summary Reference Document
- Experiment Engineering Plan
- Final Experiment Report (with DOTMLPF recommendations)
- New/refined doctrine/Tactics Techniques and Procedures (TTP).

The Maritime Concept Generation and Concept Development project funds four main efforts:
(1) Provides critical concept development and experimentation manpower and warfighting subject matter expertise aligned with the Concept Generation/Concept Development (CG/CD) program. The priorities for the CG/CD program are to develop concept/concept of operations and explore near/far-term technological and non-technological solutions to war fighting gaps across all naval warfare areas. The associated experimentation efforts include planning, systems engineering and integration, modeling and simulation support, event execution, data collection, analysis, and assessment for a wide-range of experimentation efforts including the examination of prototypes, tactical development and evaluation, support for S&T innovation, and program of record system development; venues such as workshops, seminars, war games, limited objective experiments, limited technical experiments, and live at-sea events are used to execute these experimentation efforts.
(2) Provides naval warfare subject matter expertise and analysis expertise to NWDC who plans, executes, and assesses fleet experimentation for the fleets and warfighting development centers (WDC) at the operational and tactical levels. This experimentation is focused on NWDC's WDC integration role, maritime command and control (C2), advanced cross-domain warfighting, and maritime operations centers (MOCS)/operational level of war (OLW) lines of operations; fleet experimentation seeks to solve fleet-identified warfighting gaps (referenced within the Integrated Priority Capability Lists (IPCL), Urgent Operational Needs Statements (UONS), CUSFF/CPF Commander's Guidance, etc). The experimentation and prototyping efforts of the CG/CD team support the "last tactical mile" of many Navy Science and Technology (S&T) programs by supporting those programs where the technology is mature enough, but requires evaluation on or by a "fleet asset" - ships, airplanes, submarines, sailors.
(3) Provides modeling and simulation (M&S) support to Fleet and NWDC experimentation efforts. M&S is used to stimulate decision making during seminar-style and system war gaming experiments and provides the simulated operational environment and capabilities with high-fidelity models such as the Joint Semi-Automated Force

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

(JSAF) program. Additionally, where applicable, the Navy Simulation System (NSS) "monte carlo" model is also used to give high confidence solutions and outcomes to complex warfighting problems.
(4) Provides for focused, solution-driven tactics development and evaluation through experimentation. This effort is focused on developing near-term doctrine solutions to address specific fleet-identified tactical issues.
Typical CG/CD products include:
- Concepts (signed by the CNO that influence future funding and technological development)
- Enabling concepts
- Concepts of operations (CONOPS)
- Final experimentation reports (including findings, insights, and recommendations and DOTMLPF change recommendations and plans for action)
- Experimentation Analysis Summary Reference Documents
- New/revised doctrinal and Tactics/Techniques/Procedures publications
- White papers (think pieces) intended to generate further discussion within Navy leadership

Specific products are listed in the Accomplishments/Plans section of this exhibit.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Maritime Concept Generation and Development	5.161	3.390	8.320	0.000	8.320
Articles:	-	-	-	-	-

Description: Description: In FY 2015 this project funded:
- Portions of the CNO's Concept Generation/Concept Development program.
- NWDC management, planning, and execution and analysis support to the Fleet Experimentation (FLEX) program.
- Modeling and Simulation support to the FLEX program.
- Tactical Tactics Development and Evaluation.
- The former effort CNO's Rapid Innovation Cell

FY 2015 Accomplishments:
NWDC, through Project 2356 funding, provided collaborative support to CUSFF (Project 3319) in the form of naval warfare subject matter expertise and analysis expertise to enable execution of the CUSFFC/CPF FLEX program. Projects 3319 and 2356 each fund portions of the manpower teams that primarily focus on elements of experimentation design, planning, execution, analysis, and assessment. This same team also serves to integrate tactical/operational level experimentation campaign efforts with the Warfighting Development Centers (WDCs) in support of advanced cross domain warfighting and maritime command and control (C2) lines of operation. Project 3319 additionally focuses on experimentation expenses such as range time, air, surface and target services, asset support, accreditation and certification, and installation/de-installation.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Concept generation/Concept Development * The Counter-Intelligence, Surveillance, and Reconnaissance (C-ISR) concept was completed, endorsed by Commander, U.S. Fleet Forces Command (CUSFFC) and Commander, Pacific Fleet (CPF), and forwarded to the Chief of Naval Operations (CNO) where it was approved and signed. * The Information Dominance Enabling Concept (IDEC) was completed, endorsed by CUSFFC and CPF, and forwarded to the CNO where it was approved and signed. * Analysis and information to update the Rail Gun Operating Concept (RGOC) was provided to Naval Sea Systems Command (NAVSEA 405). * The Electromagnetic Maneuver Warfare (EMW) concept was endorsed by CUSFFC and CPF, and forwarded to the CNO where it awaits approval and signature. * Operational Logistics Concept (OpLog). * Operational Logistics Concept (OpLog). NWDC drafted a white paper that describes a concept for conducting logistics in an A2/AD environment. CPF endorsed and forwarded the paper to CUSFF. CUSFF approved the white paper and concept development is underway. For Fleet Experimentation Planned, executed and assessed the following 2015 experimentation efforts: BOLD ALLIGATOR 2014 - Digital Call for Fire * During exercise BOLD ALLIGATOR 2014, conducted in FY15 from 29 Oct to 10 Nov 2014 in the Virginia Capes operating area, NWDC coordinated execution of a Digital Call for Fire experiment to explore the end-to-end, machine-to-machine transmission of a Naval Surface Fire Support (NSFS) digital call for fire from a Forward Observer/Fire Support Coordination Center through the Supporting Arms Coordination Center on USS KEARSARGE (LHD 3) to the Naval Fires Control System on USS WINSTON CHURCHILL (DDG 81) via high frequency (HF) communications path and SIPRNET. * The primary objective of this experiment was to determine the exact nature and extent of various challenges that arise when attempting to complete an end-to-end digital call for fire. * The results of this experiment will be used by the technical community (primarily Navy Surface Warfare Center, Port Hueneme) to refine system configuration and troubleshooting procedures that will in turn be used to update fleet operating procedures. Laser Weapon System (LaWS) Operational Demonstration					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
* This very successful Operational Demonstration was completed 13-21 Nov 2014 on USS PONCE (AFSB 15) in Commander, FIFTH Fleet area of operations. The results achieved during a previous experiment, BLACK DART 2012, were so successful that they led the CNO to direct NAVSEA to forward deploy the system to the Middle East. In addition to providing data collection, analysis, and execution support in theater, NWDC produced the final experiment report and a Solid State Laser (SSL) Tactical Memorandum (TACMEMO) focused on operational employment, tactics, techniques and procedures, and command and control of weapon employment. Alternative Platforms with Payloads (APPS) Seminar War Game * As directed by USFF and in support of OPNAV staff, NWDC planned, executed, and assessed the APPS war game completed 12-13 Nov 2014. The purpose of this effort was to identify mission payloads with enablers that would allow selected USNS Military Sealift Command (MSC) vessels to support selected Combatant Commander steady state missions. Comprised of two events, a workshop in September 2014 and the seminar war game, the primary objectives were to: define Navy Component Commander (NCC) identified mission sets; define platform baseline; identify required payloads to support mission sets; identify disparity between platform's baseline and mission payload; and identify enablers to integrate platform and mission payload; and identify enablers to integrate platform and mission payload. The missions examined included: Counter Illicit Trafficking, Intelligence, Surveillance, and Reconnaissance, Humanitarian Assistance / Disaster Relief, Survey Operations, Support to Special Operations Forces, Theater Security Cooperation, and Crisis Response. The platforms considered included: Joint High Speed Vessel (JHSV), Mobile Landing Platform, Auxiliary Cargo and Ammunition Ship (T-AKE), and Large, Medium Speed Roll-on/Roll-Off (LMSR). The findings and recommendations of this effort will be used to inform the USFF/CPF 2017 POM input to OPNAV. Navy Integrated Fire Control-Counter Air (NIFC-CA) War Game #2 * The primary purpose of this classified war game was to identify DOTMLPF-P shortfalls to achieve full NIFC-CA Increment I capability at IOC circa 2017. It was part of the USFF-directed and led multi-year NIFC-CA campaign plan that began in 2013 to explore NIFC-CA capabilities, C2 decision-making, training, and CONOPS/TTP development and refinement. The results of this effort will inform a revised NIFC-CA Fleet Concept of Operations (CONOPS) and Fleet Readiness Training Plan (FRTP) development and certification standards. The results will also inform development of future Naval Integrated Fires (NIF) campaign events designed to support future capability delivery and provide capability gap analysis to Navy resource sponsors. Electromagnetic Maneuver Warfare (EMW) Experimentation Campaign					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
* The FY 2015 portion of the EMW experimentation campaign consisted of multiple events designed to explore innovative concepts and technologies associated with EMW. Individual components of the overall EMW campaign include: * NEMESIS War Game. This war game was conducted by NWDC to obtain fleet stakeholder input into the requirements for and design of a classified ONR Innovative Naval Prototype. The results of this effort will be used to design prototypes that could eventually be fielded as a Navy program of record. * EMW At-Sea Experiment. Phase 1 of a multi-phase effort was completed with the results being used to develop new or refine existing tactics, techniques, and procedures (TTP). * NORTHERN EDGE 2015. During joint exercise NORTHERN EDGE 2015, held in the Joint Pacific Alaska Range Complex (JPARC), NWDC executed four specific classified initiatives focused on maritime operations in a complex electromagnetic spectrum (EMS) environment. The results of this effort will inform cyber development and develop new or refine existing tactics, techniques, and procedures (TTP). * EMW At Sea Experiment. This at-sea experiment was completed in the Virginia Capes operating areas and the results will be used to support continued development of this classified system. Undersea Domain Operating Concept (UDOC) Experimentation Campaign * The UDOC Experimentation Campaign, begun in 2014 and continuing for several years, examines Doctrine, Organization, Training, Material, Leadership and Education, Personnel, Facilities and Policy (DOTMLPF-P) solutions which exploit the undersea environment to achieve cross-domain synergies, enabling joint operational access. The FY15 efforts focused on the evaluation of several innovative capabilities and concepts: * Undersea Innovation War Game. This NWDC-conducted war game evaluated the military utility of selected innovative technologies and enabling capabilities to address Anti Access Area Denial (A2AD) through Joint Assured Access. The results of this war game will be used to make decisions regarding which innovative technologies to pursue further based on military utility. * Non-Traditional Theater ASW War Game. This classified, NWDC-conducted war game evaluated several courses of action for dealing with current operational challenges. The results will be used to inform updates to current doctrinal products and operational plans. * UDOC 2015. This NWDC-conducted at-sea event was completed in two phases in the Southern California and Hawaiian operating areas to examine selected innovative technologies and enabling capabilities in an operational environment. The experiment focused on four broad sets of capabilities: antisubmarine warfare (ASW) detection, high speed submarine communications, meteorological and oceanographic (METOC) support to ASW, and submarine-launched unmanned aircraft system (UAS). The results will be used to further development of the extended life sonobuoy program, inform final draft of a new TACMEMO (METOC					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Geospatially Enabled ASW Decision Support), refine employment of low probability of intercept and high data rate communications capabilities, and further the development of a submarine-launched UAS capability. LPD 17 Employment Options. * Through a series of workshops and at-sea observation events, NWDC examined the feasibility of using the LPD-17 class to perform additional missions as a Regional/Sector Air Defense Coordinator and/or an alternate Command and Control Platform. The results of this effort will inform changes to LPD-17 Class ROC/POE, LPD-17 Class Tactical Manual, LPD-17 manning plan, and other related documents. Rail Gun Seminar War Game. * At the request of the NAVSEA Rail Gun program office and in support of USFF continuing efforts to evaluate new platforms and weapon systems prior to Fleet introduction, NWDC executed a seminar war game to inform an update of the Rail Gun Operating Concept, and preparations for the first at-sea Rail Gun demonstration planned for FY16 aboard JHSV. Joint High Speed Vessel (now Expeditionary Fast Transport (T-EPF)) At-Sea Experiment Campaign. * Conducted at the direction of USFF and in direct support of the OPNAV-led LCS/T-EPF Council, the campaign's objective is to evaluate the effectiveness of using various Adaptive Force Packages (AFPs) to expand T-EPF platform employment options, beyond that of intra-theater logistics and personnel transport, with an initial focus on mission options that involve little or no modification to the existing sea frame. * Phase One of the 2015 effort was executed during USNS SPEARHEAD's (T-EPF 1) C4F Southern Partnership Station deployment and explored the platform's capability to support Expeditionary Mine Counter Measures operations and Maritime Command and Control. * Phase Two examined the platform's capability to support Afloat Forward Staging Base operations, Counter Illicit Trafficking, Maritime Command and Control, and Intelligence, Surveillance and Reconnaissance operations using a telescoping mast to extend radar horizon, a small-boat docking facility, and small Unmanned Air Systems (UAS) operations (in conjunction with special forces). * The products of this effort include revisions to the T-EPF Platform Wholeness, T-EPF Warfighting, and AFP Fleet CONOPS. They also inform key investment decisions being made by the OPNAV staff regarding the employment of adaptable sensor, communication, and support payloads to enable T-EPF to conduct a range of missions beyond those it was originally built to perform. TRIDENT WARRIOR 2015 (TW 15)					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
* TW15, co-led by Commander, Seventh Fleet (C7F) and NWDC, was completed in 3 phases C7F AOR to include participation in PACOM/PACFLT exercise TALISMAN SABRE 2015. The effort evaluated 16 technology and/or TTP initiatives to close warfighting gaps focused on: C2 of EMW assets in a contested environment, assured communications (Pandarra Net), long range SUW, and counter-ISR. The final experiment report includes multiple recommendations regarding the military utility and continued development of prototype technologies examined during TW15. Additionally, TW15 deliverables include two original documents and recommended input to three documents in development. Collaborative Unmanned Undersea Vehicles (UUV) Operations * NWDC completed a seminar war game to develop common tactics and procedures for employment of integrated UUVs operating in a 5 Eyes environment. Currently each member of the 5 Eyes community is developing, in isolation, TTPs for UUV operations which limit information exchange regarding use of similar UUV systems. This effort will produce a TACMEMO addressing UUV operations in a shared battle space that is 5 Eyes releasable. Netted Sensors At Sea Experiment * NWDC coordinated execution of this at-sea event in Virginia Capes operating areas to explore several initiatives focused on technologies and TTP that will improve Navy capability to passively find, fix, track, target, and ID surface and air contacts at extended ranges largely in support of long range SUW. The results inform NAVAIR (PMA 231, 265, and 290) efforts to shorten timelines to geo-locate short-duration emitters and enhance combat identification (CID) capability through networked sensors. Additionally, this effort informs ongoing development of a Net Centric Collaborative Targeting (NCCT) Employment Guide for use in Maritime Operations and recommends changes to the navy Airborne ISR Fleet CONOPS. Counter FAC/FIAC At Sea Experiment * NWDC completed this experiment in Virginia Capes operating areas to evaluate the effectiveness of employing an armed Switchblade UAS versus FIAC representative targets. To minimize experiment costs and complexity, unarmed Switchblade UAS were be used in this effort. The final experiment report provides several DOTMLPF-P recommendations to inform acquisition investment decisions and refine the development of this capability. ***FY 2016 Plans:*** Concept Generation/Concept Development Continue CG/CD development efforts that carry-over from FY 2015:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
* Operational Logistics Concept (OpLog). NWDC will continue development of the concept with anticipated completion in late FY 2016. * Electromagnetic Maneuver Warfare (EMW) concept. NWDC will incorporate any feedback from the CNO and re-submit for signature. * Rail Gun Operating Concept (RGOC). NAVSEA has asked for additional information and analysis on optional uses for the rail gun's high velocity projectile. That work will be completed in 2016. Begin development of new concepts resulting from idea harvesting/Four Star approval from previous years: * Littoral Operations in a Contested Environment concept. NWDC will continue partnership with Marine Corps Combat Development Command (MCCDC) to develop a concept for operating naval forces in the littorals. New FY2016 experiment efforts Through 2356, NWDC will continue to provide analytical and naval mission subject matter expertise support throughout the planning and execution process; identify fleet warfighting deficiencies through experimentation; identify and capture innovative solutions for fleet experiments that address prioritized fleet warfighting gaps; and identify suitable events to support the execution of the following Experimentation Campaigns: Electromagnetic Maneuver Warfare (EMW) Experimentation Campaign * In accordance with the EMW Charter, the CNO has assigned responsibility to Commander, U.S. Fleet Forces Command to create and execute the Navy-wide campaign to achieve Navy's articulated EMW end state by 2020. Additionally, the charter assigns NWDC as the EMW Action Lead and the lead for the Concepts, Doctrine, and Experimentation Level of Effort (LOE). * Throughout FY16, conduct a series of events designed to synchronize and align experiment initiatives with EMW tasks to provide solutions to EMW capability gaps and to ensure development of doctrine and TTP is synchronized with the introduction of new technology and provides the Fleet and Fleet trainers with required doctrine tools at the tactical and operational levels. Specific events planned for FY16 include: * Fleet Battle Experiment EMW (FBX EWM 16). FBX EMW 16 will consist of a series of events (nominally one per quarter) aligned with Carrier Strike Group (CSG) COMPTUEX training events, CSG transits to and from deployments, and exercise VALIANT SHIELD 2016. The primary focus of this effort will be to exercise and validate the contents of existing and newly developed EMW-related doctrine, TTP, and CONOPS. * EMW Technical War Game (Spectral Tsunami 16-1). Spectral Tsunami 16-1 is the first in a series of war games planned to evaluate the individual and cumulative effects of emerging capabilities in vignette-based scenarios and to enable operators to work side-by-side with technology developers to ID ways to close capability gaps.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
* KRYSTAL SPHINX. This at-sea effort will examine the warfighting utility of a classified prototype addressing a Fleet urgent operational need. * Navy Tactical Data Network At-Sea Experiment. This effort will provide a CG with access to previously unavailable information via a prototype data network. The prototype will be installed prior to the CG beginning intermediate training and will remain onboard throughout a deployment to enable a long term evaluation of the system's capabilities. * Logistics Force Assured C2 War Game. This war game will focus on the examination of logistics functions, processes, and capabilities and their possible vulnerabilities in order to answer overarching questions: Undersea Domain Operating Concept (UDOC) Experimentation Campaign. The FY16 UDOC experimentation campaign consists of several events/efforts supporting Commander, Submarine Force (COMSUBFOR) and the Navy Undersea Warfighting Development Center as they develop and implement an experiment plan in support of the UDOC. Specific events planned for FY16 include: * Undersea Innovation Seminar War Game. A seminar war game will be conducted in Q4 FY16 to explore how innovative technologies, such as those within the COMSUBFOR Undersea Rapid Capability Initiatives (URCI), might be employed by the Fleet to exploit use of the undersea, deny the adversary's use of the undersea, and provide war-winning cross domain effects. * Theater Undersea Warfare (TUSW) Command and Control (C2) Seminar War Game. A TUSW C2 seminar war game will be conducted in Q4 FY16 to examine options for C2 of naval operations in and through the undersea domain in two future timeframes (2018 and 2025) to inform development of an Undersea Warfare Command Concept of Operations. * UDOC At-Sea Experiment. This NWDC-conducted at-sea event is planned for a summer 2016 execution in the Southern California operating area to examine selected innovative technologies and enabling capabilities in an operational environment to include COMSUBFOR Undersea Rapid Capability Initiatives. Full Spectrum Mine Warfare Campaign. * Mine Warfare (MIW) Innovation War Game. A seminar war game will be conducted in April 2016 to explore how various innovative MIW technologies might be employed by the Fleet to address identified fleet warfighting capability gaps. Technologies with the most potential will be examined in a follow-on at-sea experiment. * MIW At-Sea Experiment. This at-sea event, planned for a summer 2016 execution in the Southern California operating area, will examine selected innovative technologies and TTPs enabling capabilities in an operational environment to support the transition of MIW capabilities from legacy manned platforms to future unmanned systems.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Unmanned System Series of Events. A series of unmanned systems-focused events will be conducted throughout FY16 to examine prototype systems, the concept of swarming unmanned systems, and counter-unmanned system capabilities. Planned events include: * A seminar war game will be conducted to examine the warfighting utility of ONR's low cost UAV swarming technology (LOCUST) to inform a follow-on at-sea experiment in FY17. * An at-sea experiment to examine warfighting utility and employment options of an Unmanned Surface Vehicle (USV) swarm. This is a follow-on to ONR's initial at-sea demonstration in August 2014. * An Autonomous Offboard Unmanned Systems (UxS) effort, sponsored by COMPACFLT, will examine the warfighting utility and multiple employment options offered by various types of unmanned systems in support of naval warfare missions with an emphasis on how unmanned systems can be a force multiplier. * A counter-UAS effort will examine the capabilities of systems ready to be fielded today to counter current threats to naval installations and platforms. Trident Warrior 2016 At-Sea Experiment. The TRIDENT WARRIOR 2016 (TW16) experiment, co-led by Commander, Third Fleet (C3F) and NWDC, will execute in conjunction with exercise Rim of the Pacific (RIMPAC) 2016 from Jun through Aug 2016 in C3F AOR. The effort will evaluate approximately 40 technology and/or TTP-related initiatives to close warfighting gaps identified across multiple POM-17 Integrated Prioritized Capability Lists (IPCLs). TW16 will support OPNAV, Space and Naval Warfare Systems Command (SPAWAR), program offices, Office of Naval Research (ONR), Naval Research Lab (NRL), and others in the spiral development of prototype capabilities at sea and in the hands of warfighters. T-EPF At-Sea Experiment. This effort is the latest event in a multi-year campaign conducted at the direction of CUSFF and in direct support of the OPNAV-led LCS/T-EPF Council. The objective of the campaign is to evaluate the effectiveness of using various Adaptive Force Packages (AFPs) to expand T-EPF platform employment options, beyond that of intra-theater logistics and personnel transport, with an initial focus on mission options involving little or no modification to the existing sea frame. The 2016 effort will execute in the Jun-Aug 2016 timeframe during JHSV C4F Southern Partnership Station deployment to evaluate multiple technologies enhancing T-EPF's capability to serve as an Afloat Forward Staging Base (AFSB) and improve T-EPF ISR capabilities. This effort will support development and validation of the T-EPF as an AFSB Fleet CONOPS. Strike Weapon Evaluations. This live-fire effort will evaluate weapon performance and developmental TTPs for employing air-delivered weapons and conducting Close Air Support in a complex electromagnetic spectrum (EMS) environment. Results of this effort will be incorporated into appropriate TTPs and also into air wing training curriculum.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Base FY 2017 Plans (Page 11) *Continue/finish all FY2016 CG/CD efforts: *Create new concepts resulting from idea harvesting/Four Star approval from previous year's Fleet experimentation. ***FY 2017 Base Plans:*** Through 2356, NWDC will continue to provide analytical and naval mission subject matter expertise support throughout the planning and execution process; identify fleet warfighting deficiencies through experimentation; identify and capture innovative solutions for fleet experiments that address prioritized fleet warfighting gaps; and identify suitable events to support the execution of the following Experimentation Campaigns: Unmanned Systems Experimentation * This effort will be conducted to examine the warfighting utility and multiple employment options offered by various types of unmanned systems in support of naval warfare missions with an emphasis on how unmanned systems can support PACFLT missions. Efforts will be closely aligned with OPNAV N99 and ONR prototype development. * A series of at-sea experiments in support of the development of several leap ahead unmanned system technologies and to support evaluation of several CNO speed to fleet projects. Tactical development efforts with Allies will also continue to ensure seamless combined naval operations. * LCS Manned/Unmanned Aviation Integrated Operations At-Sea Experiment. An experiment will be conducted with a Freedom Class LCS platform embarked with an SUW mission package to evaluate enhanced, coordinated LCS capabilities between the platform, MH-60S helicopter, and MQ-8B UAS. Trident Warrior 2017 At-Sea Experiment. The TRIDENT WARRIOR 2017 (TW17) experiment will execute in partnership with a numbered fleet commander yet to be determined. The effort will evaluate technology and/ or TTP-related initiatives to close warfighting gaps identified across multiple POM-18 Integrated Prioritized Capability Lists (IPCLs). TW17 will support OPNAV, SPAWAR, program offices, ONR, NRL, and others in the spiral development of prototype capabilities at sea and in the hands of warfighters. Undersea Warfare Vision 2025 Experimentation Campaign. The FY17 USW Vision 2025 experimentation campaign will consist of several events/efforts supporting COMSUBFOR and the Navy Undersea Warfighting Development Center as they develop and implement an experiment plan in support of Undersea Dominance. Specific events planned for FY17 include: * Undersea Innovation Seminar War Game. A seminar war game will be conducted to explore how innovative technologies, such as those within the COMSUBFOR Undersea Rapid Capability Initiatives (URCI), might be					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
employed by the Fleet to exploit use of the undersea, deny the adversary's use of the undersea, and provide war-winning cross domain effects. * USW Vision 2025 At-Sea Experiment. This NWDC-coordinated at-sea event, planned for a summer 2017 execution in the Southern California operating area, will examine selected innovative technologies and enabling capabilities in an operational environment to include COMSUBFOR Undersea Rapid Capability Initiatives. * Non-Traditional Theater Anti-Submarine Warfare (ASW) At-Sea Experiment. This follow-on to the 2015 Non-Traditional Theater ASW War Game will examine selected innovative technologies and enabling capabilities, focused on a specific undersea mission, in an at-sea operational environment. EMW Experiment Campaign * In accordance with the EMW Charter, the Chief of Naval Operations (CNO) has assigned responsibility to Commander, U.S. Fleet Forces Command to create and execute the Navy-wide campaign to achieve Navy's articulated EMW end state by 2020. Additionally, the charter assigns Navy Warfare Development Command as the EMW Action Lead and the lead for the Concepts, Doctrine, and Experimentation Level of Effort (LOE). Throughout FY17, conduct a series of events designed to synchronize and align experiment initiatives with EMW tasks to provide solutions to EMW capability gaps and to ensure development of doctrine and TTP is synchronized with the introduction of new technology and provides the Fleet and Fleet trainers with required doctrine tools at the tactical and operational levels. Specific events currently planned for FY17 include: * Fleet Battle Experiment EMW (FBX EWM 17). FBX EMW 17 will consist of a series of events (nominally one per quarter) primarily aligned with Carrier Strike Group (CSG) COMPTUEX training events and CSG transits to and from deployments. The primary focus of this effort will be to exercise and validate the contents of existing and newly developed EMW-related doctrine, TTP, and CONOPS. * Navy Tactical Data Network At-Sea Experiment (Phase Two). This effort will provide a DDG with access to previously unavailable information via a prototype data network. The prototype will be installed prior to the DDG beginning intermediate training and will remain onboard throughout a deployment to enable a long term evaluation of the system's capabilities. * Real Time Spectrum Operations (RTSO) Speed to Fleet At-Sea Experiment. This CNO Speed to Fleet project will develop prototype RTSO systems that will be left behind on one or more surface combatants to support a long term evaluation of system performance and warfighting in FY17. Naval Integrated Fires (NIF) Campaign. The NIF Campaign is part of the USFF-directed and led multi-year NIFC-CA campaign plan that began in 2013 to explore NIFC-CA capabilities, C2 decision-making, training, and CONOPS/TTP development and refinement. A comprehensive campaign methodology is required to					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
synchronize delivery of all NIFC-CA DOTMLPF actions and to provide Navy leadership with insight into challenges and limitations associated with NIFC-CA in operational scenarios in order to protect its "game changing" capabilities and key programs. Throughout FY17, a series of events including tabletop exercises, leadership conferences and modeling and simulation (M&S) will be conducted. The campaign will culminate in two Operator-in-the-Loop (OITL) M&S events, one kinetic, one non-kinetic. These events will examine how NIFC-CA increment 2 and beyond and Counter - Intelligence, Surveillance, Reconnaissance and Targeting (C-ISRT) capabilities, circa 2023, contribute to air and maritime warfare in an operationally representative environment. Full Spectrum mine Warfare. * Mine Warfare (MIW) Innovation War Game. A seminar war game will be conducted in Q1/Q2 FY17 to explore how various innovative MIW technologies might be employed by the Fleet to address identified fleet warfighting capability gaps. Technologies with the most potential will be examined in a follow-on at-sea experiment. * MIW At-Sea Experiment. This at-sea event, being planned for a summer 2017 execution in the Southern California operating areas, will examine selected innovative technologies and TTPs enabling capabilities in an operational environment to support the transition of MIW capabilities from legacy manned platforms to future unmanned systems. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	5.161	3.390	8.320	0.000	8.320

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The vast majority of this funding is used to acquire intellectual capital in emerging conceptual and technical areas through contracts providing expertise in conceptual and experiment design, execution and analysis to mitigate fleet-identified current and future war fighting gaps.

E. Performance Metrics

Maritime Concept Generation and Development/Related Experimentation:
- Refine concepts and identify key performance levels necessary for implementation.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

- Demonstrate feasibility and discriminate among competing concepts and implementation alternatives.
- Understand potential military effectiveness and risk.
- Evaluate how much of the new capability and attendant force structure is needed.
- Learn how to operate the new force and combine it with the legacy force.
- Develop recommended Doctrine, Organization, Training, Materiel, Leadership, and Personnel (DOTMLP) changes.
- Develop fleet war fighting requirements for submission to the OPNAV Navy Capabilities Development Process (NCDP) to inform Navy acquisition decisions.
- Integrate emergent concepts and technologies, leading to rapid introduction of needed war fighting capabilities in the fleet.
- Rapidly mature concepts, technologies, and doctrine.
- Focus on near, mid and long term war fighting challenges to realize increased war fighting effectiveness.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Test and Evaluation	C/CPFF	Defense Technical Information Center : Ft Belvoir VA	7.000	1.815	Feb 2015	1.500	Nov 2015	3.052	Nov 2016	-		3.052	Continuing	Continuing	Continuing
System Test and Evaluation	Various	SPAWARSYSCEN : Charleston, SC	1.850	0.562	Jan 2015	0.390	Jan 2016	0.375	Jan 2017	-		0.375	Continuing	Continuing	Continuing
System Test and Evaluation	Various	ONR : Washington, DC	1.120	0.250	Mar 2015	0.000	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
System Test and Evaluation	Various	NAVSEA : Washington, DC	0.800	0.534	Jan 2015	0.000	Dec 2015	0.600	Jan 2017	-		0.600	0.000	1.934	-
System Test and Evaluation	WR	Naval Underwater Warfare Center : Newport RI	0.500	0.000		0.000		0.400	Nov 2016	-		0.400	0.000	0.900	-
System Test and Evaluation	C/CPFF	NAVSUP : Norfolk VA	0.500	1.500	May 2015	1.500	Dec 2015	3.893	Jan 2017	-		3.893	0.000	7.393	-
		Subtotal	11.770	4.661		3.390		8.320		-		8.320	-	-	-

Remarks

The vast majority of the contract costs are for contract labor; primarily on two large Multi-Award contracts, one through DTIC (Defense Services MAC) and one through NAVSUP (Joint Staff J-7 MAC). Task orders on the DS MAC contract provide the majority of the Modeling & Simulation support for experimentation and some of the experiment planner support. Task orders on the JS J-7 MAC provide the majority of the experiment design, planner, and execution support provided by NWDC to the Fleet Experimentation program. Adjustments to schedule production required due to HASC Congressional mark of $5M in FY16.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/FFP	Navy Warfare Development Command : Norfolk, VA	2.210	0.500	Feb 2015	0.000		0.000		-		0.000	0.000	2.710	-
		Subtotal	2.210	0.500		0.000		0.000		-		0.000	0.000	2.710	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*	Project (Number/Name) 2356 / *Maritime Concept Generation & Development*	

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.980	5.161		3.390		8.320		-		8.320	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

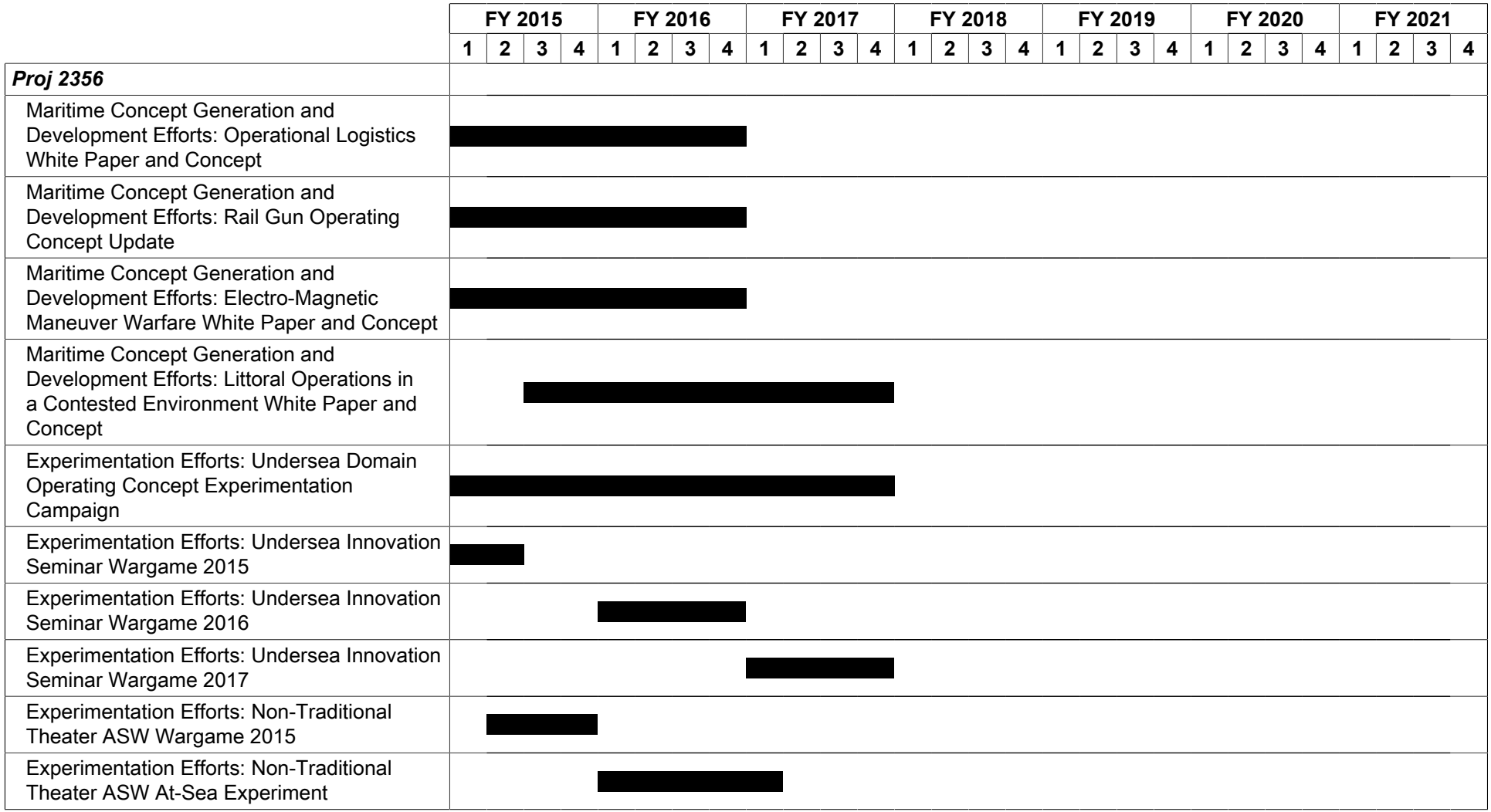

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

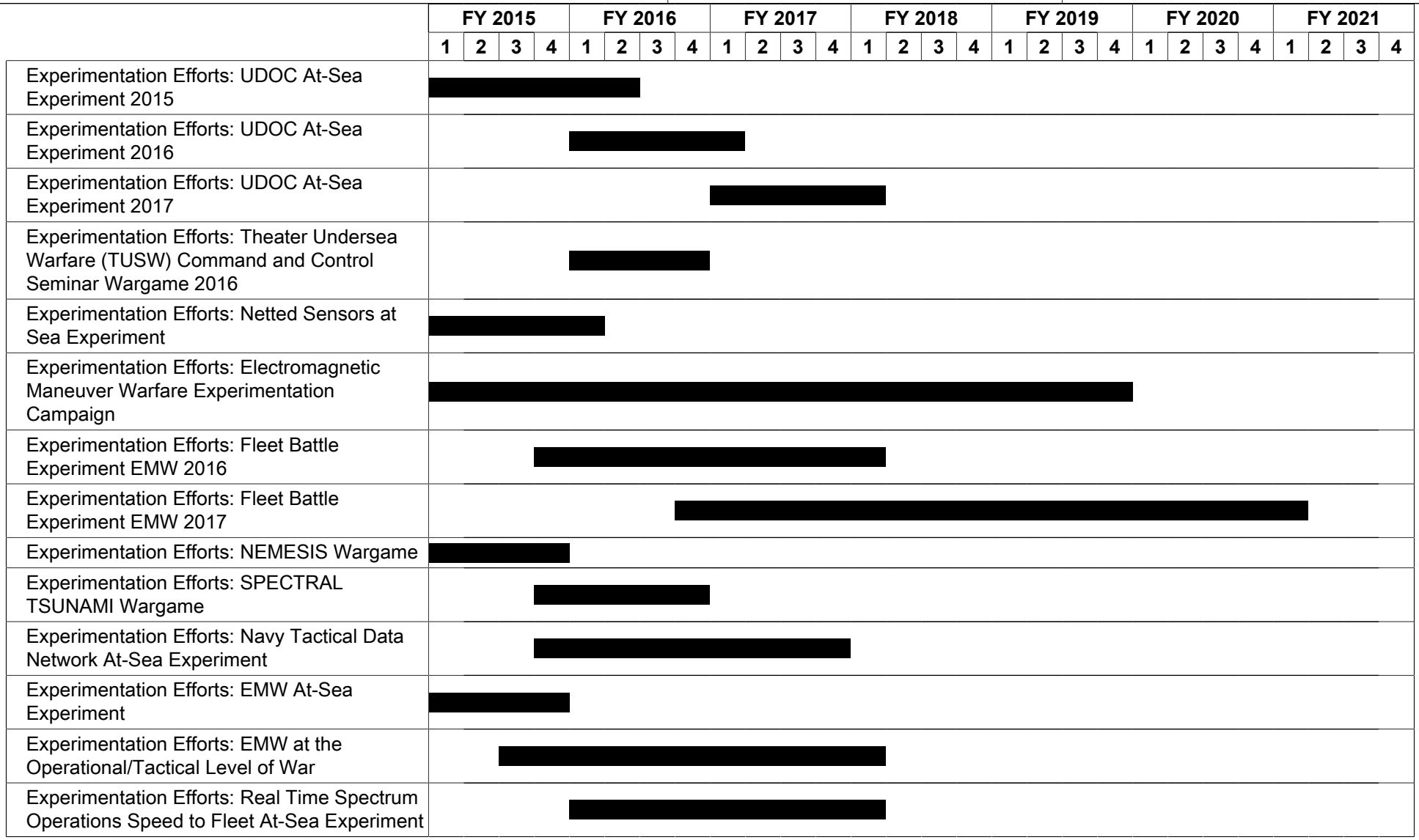

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

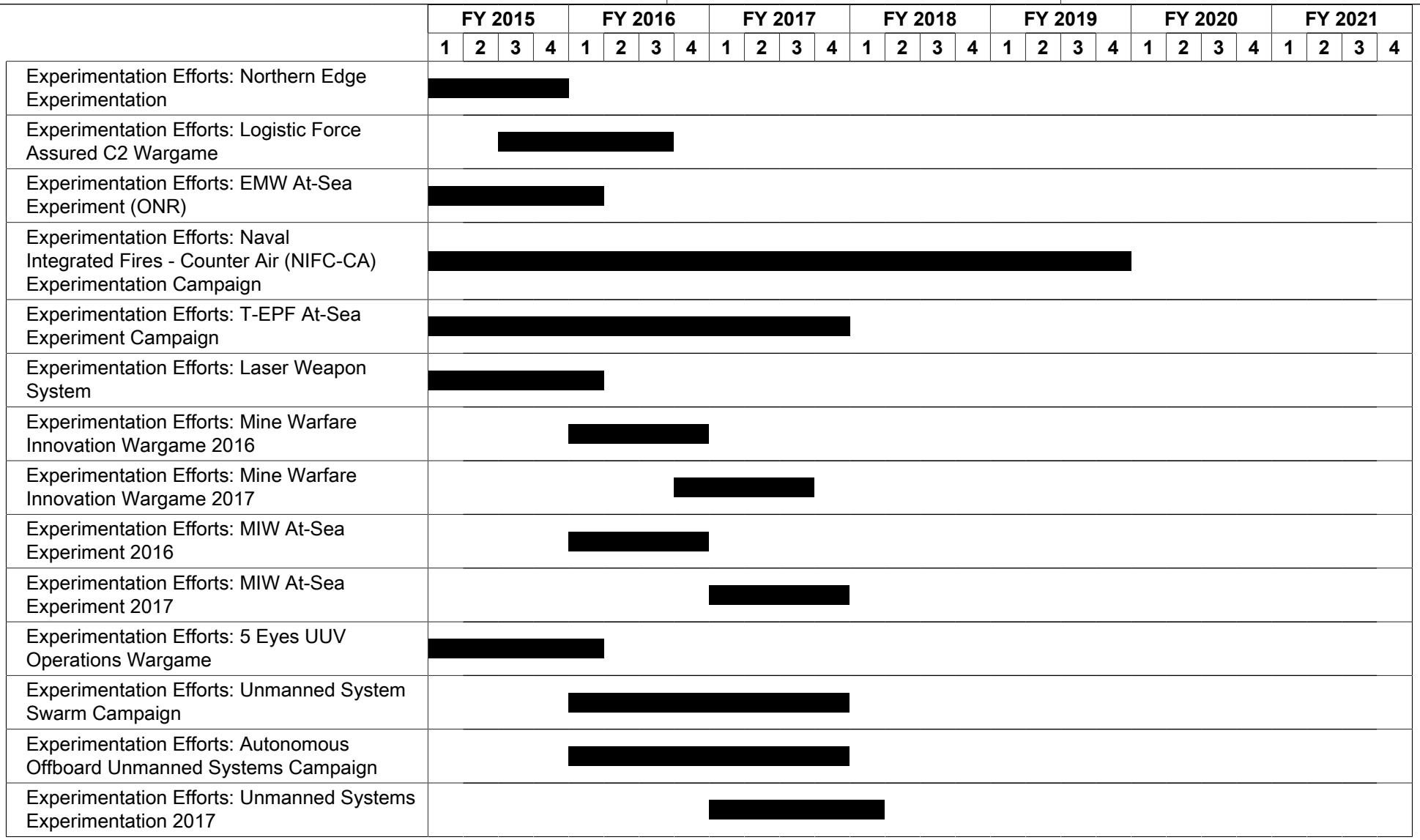

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

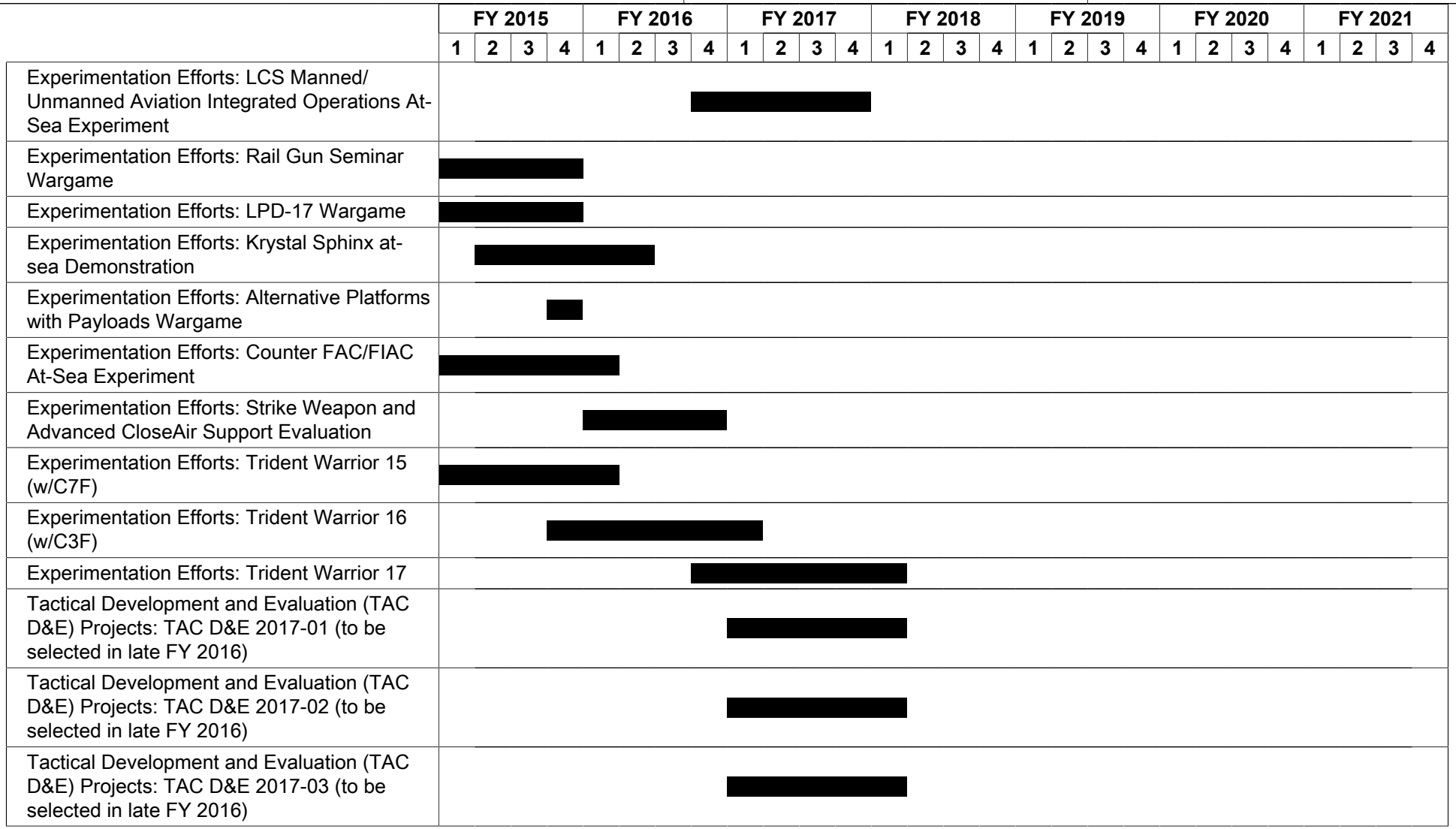

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

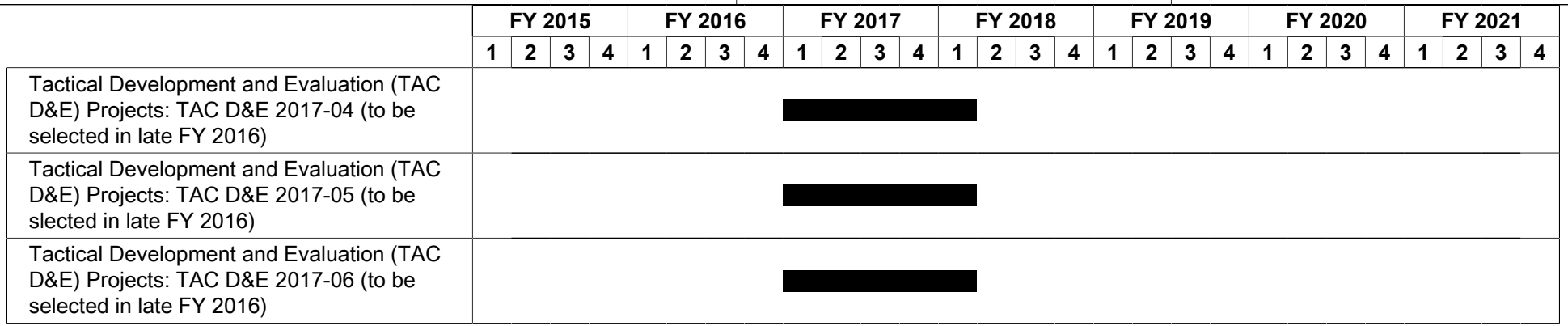

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2356				
Maritime Concept Generation and Development Efforts: Operational Logistics White Paper and Concept	1	2015	4	2016
Maritime Concept Generation and Development Efforts: Rail Gun Operating Concept Update	1	2015	4	2016
Maritime Concept Generation and Development Efforts: Electro-Magnetic Maneuver Warfare White Paper and Concept	1	2015	4	2016
Maritime Concept Generation and Development Efforts: Littoral Operations in a Contested Environment White Paper and Concept	3	2015	4	2017
Experimentation Efforts: Undersea Domain Operating Concept Experimentation Campaign	1	2015	4	2017
Experimentation Efforts: Undersea Innovation Seminar Wargame 2015	1	2015	2	2015
Experimentation Efforts: Undersea Innovation Seminar Wargame 2016	1	2016	4	2016
Experimentation Efforts: Undersea Innovation Seminar Wargame 2017	1	2017	4	2017
Experimentation Efforts: Non-Traditional Theater ASW Wargame 2015	2	2015	4	2015
Experimentation Efforts: Non-Traditional Theater ASW At-Sea Experiment	1	2016	1	2017
Experimentation Efforts: UDOC At-Sea Experiment 2015	1	2015	2	2016
Experimentation Efforts: UDOC At-Sea Experiment 2016	1	2016	1	2017
Experimentation Efforts: UDOC At-Sea Experiment 2017	1	2017	1	2018
Experimentation Efforts: Theater Undersea Warfare (TUSW) Command and Control Seminar Wargame 2016	1	2016	4	2016
Experimentation Efforts: Netted Sensors at Sea Experiment	1	2015	1	2016
Experimentation Efforts: Electromagnetic Maneuver Warfare Experimentation Campaign	1	2015	4	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Experimentation Efforts: Fleet Battle Experiment EMW 2016	4	2015	1	2018
Experimentation Efforts: Fleet Battle Experiment EMW 2017	4	2016	1	2021
Experimentation Efforts: NEMESIS Wargame	1	2015	4	2015
Experimentation Efforts: SPECTRAL TSUNAMI Wargame	4	2015	4	2016
Experimentation Efforts: Navy Tactical Data Network At-Sea Experiment	4	2015	4	2017
Experimentation Efforts: EMW At-Sea Experiment	1	2015	4	2015
Experimentation Efforts: EMW at the Operational/Tactical Level of War	3	2015	1	2018
Experimentation Efforts: Real Time Spectrum Operations Speed to Fleet At-Sea Experiment	1	2016	1	2018
Experimentation Efforts: Northern Edge Experimentation	1	2015	4	2015
Experimentation Efforts: Logistic Force Assured C2 Wargame	3	2015	3	2016
Experimentation Efforts: EMW At-Sea Experiment (ONR)	1	2015	1	2016
Experimentation Efforts: Naval Integrated Fires - Counter Air (NIFC-CA) Experimentation Campaign	1	2015	4	2019
Experimentation Efforts: T-EPF At-Sea Experiment Campaign	1	2015	4	2017
Experimentation Efforts: Laser Weapon System	1	2015	1	2016
Experimentation Efforts: Mine Warfare Innovation Wargame 2016	1	2016	4	2016
Experimentation Efforts: Mine Warfare Innovation Wargame 2017	4	2016	3	2017
Experimentation Efforts: MIW At-Sea Experiment 2016	1	2016	4	2016
Experimentation Efforts: MIW At-Sea Experiment 2017	1	2017	4	2017
Experimentation Efforts: 5 Eyes UUV Operations Wargame	1	2015	1	2016
Experimentation Efforts: Unmanned System Swarm Campaign	1	2016	4	2017
Experimentation Efforts: Autonomous Offboard Unmanned Systems Campaign	1	2016	4	2017
Experimentation Efforts: Unmanned Systems Experimentation 2017	1	2017	1	2018
Experimentation Efforts: LCS Manned/Unmanned Aviation Integrated Operations At-Sea Experiment	4	2016	4	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Experimentation Efforts: Rail Gun Seminar Wargame	1	2015	4	2015
Experimentation Efforts: LPD-17 Wargame	1	2015	4	2015
Experimentation Efforts: Krystal Sphinx at-sea Demonstration	2	2015	2	2016
Experimentation Efforts: Alternative Platforms with Payloads Wargame	4	2015	4	2015
Experimentation Efforts: Counter FAC/FIAC At-Sea Experiment	1	2015	1	2016
Experimentation Efforts: Strike Weapon and Advanced CloseAir Support Evaluation	1	2016	4	2016
Experimentation Efforts: Trident Warrior 15 (w/C7F)	1	2015	1	2016
Experimentation Efforts: Trident Warrior 16 (w/C3F)	4	2015	1	2017
Experimentation Efforts: Trident Warrior 17	4	2016	1	2018
Tactical Development and Evaluation (TAC D&E) Projects: TAC D&E 2017-01 (to be selected in late FY 2016)	1	2017	1	2018
Tactical Development and Evaluation (TAC D&E) Projects: TAC D&E 2017-02 (to be selected in late FY 2016)	1	2017	1	2018
Tactical Development and Evaluation (TAC D&E) Projects: TAC D&E 2017-03 (to be selected in late FY 2016)	1	2017	1	2018
Tactical Development and Evaluation (TAC D&E) Projects: TAC D&E 2017-04 (to be selected in late FY 2016)	1	2017	1	2018
Tactical Development and Evaluation (TAC D&E) Projects: TAC D&E 2017-05 (to be slected in late FY 2016)	1	2017	1	2018
Tactical Development and Evaluation (TAC D&E) Projects: TAC D&E 2017-06 (to be selected in late FY 2016)	1	2017	1	2018

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*	Project (Number/Name) 3319 / *Fleet Experimentation*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3319: *Fleet Experimentation*	45.815	4.979	8.864	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	59.658
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

In FY17, project 3319 will move to PE 0606355N.

A. Mission Description and Budget Item Justification

The Fleet Experimentation (FLEX) program examines the doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy (DOTMLPF-P) solutions to identified warfighter capability gaps within the FYDP. The FLEX program considers warfighting gaps identified in: Integrated Prioritized Capability Lists (IPCL) generated by Warfighting Development Centers (WDC) through the warfare improvement program; USFF/CPF's Integrated Priorities Letter (IPL) delivered annually to the CNO; USFF/CPF's Commanders' FLEX Guidance; and Navy and Joint Urgent Operational Needs Statements. In addition, FLEX addresses innovative concepts, and tactics, techniques, and procedures (TTP), and Fleet Concepts of Operation (CONOPS) that collectively mitigate Fleet-identified warfighting capability gaps as defined by Commander, U.S. Fleet Forces' (CUSFF)/Commander, Pacific Fleet's (CPF) annual FLEX guidance. Through experimentation activities such as workshops, system or seminar war games, live at-sea events, and experimentation campaigns, the FLEX program examines potential materiel and non-materiel tangible solutions that will enhance the Fleet's ability to execute assigned missions. FLEX events and campaigns are comprised of all facets of experimentation including design, planning, systems engineering and integration, execution, data collection, analysis, assessment, and the delivery of tangible products to the fleet. While Navy-centric, FLEX efforts include joint, coalition, Science and Technology (S&T), academia, and industry partners.

Experimentation is vital to continuously improving naval warfighting capabilities. As such, the FLEX program directly supports four of the five elements outlined in the Secretary of the Navy's Innovation Vision: Build the Naval Innovation Network, Improve the Use of DON Information, Accelerate Emerging Operational Capabilities to the Fleet, and Develop Game-Changing Warfighting Concepts. In accordance with the joint CUSFF and CPF FLEX instruction, the FLEX program is the conduit to conduct experimentation using operational fleet assets. As such, the FLEX program, and associated efforts of the FLEX team, provides critical support to achieve the "last tactical mile" of Navy and S&T programs. This "last tactical mile" support is delivered through "at sea" or "salt-water" testing and experimentation at the point when the technology is sufficiently mature and requires evaluation using a fleet asset - ships, airplanes, submarines, networks, and/or sailors.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Fleet Experimentation	4.979	8.864	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: FLEX is a USFF/CPF collaborative effort to address fleet prioritized capability gaps, led by USFF N8/N9, supported by Navy Warfare Development Command (NWDC), and coordinated with Naval Component Commands (NCC)/Numbered Fleets, Type Commanders (TYCOM), Systems Commands (SYSCOM), OPNAV,					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Services, Coalition, and Science & Technology (S&T) community. The Fleet Experimentation program objective is to produce recommended changes in doctrine, organization, training, materiel, leadership development, personnel, facilities, and policy (DOTMLPF-P) actions. Deliverables are focused on operational and tactical warfighting capability in the near term (within the Fiscal Year Defense Plan), and prioritized by the Commander, U.S. Fleet Forces (USFF)/Commander, Pacific Fleet (CPF) Fleet Experimentation annual guidance. NWDC plans and executes USFF/CPF approved multi-year Fleet experimentation campaigns and final reports. USFF/ CPF staff manage the follow-on DOTMLPF-P actions with OPNAV, SYSCOMs, TYCOMs and Warfighter Development Command (WDC) staffs to establish or enhance warfighting capability in Integrated Air and Missile Defense (IAMD), Amphibious Warfare (AMW), Surface Warfare (SUW), Strike Warfare (STW), Anti-Submarine Warfare(ASW),Expeditionary Warfare (EXW), Information Dominance (ID), Mine Warfare (MIW) and Anti-Terrorism/Force Protection (AT/FP). - The Operational venue to experiment, demonstrate, assess warfighting CONOPS development, concepts, doctrine/training development, techniques and procedures (TTPs), and technologies - Multi-year experiment campaigns focuses on warfighting capability per CPF/CUSFFC guidance to evaluate and transition to DOTMLPF-Policy change recommendations: - Trident Warrior is the component of FLEX that specifically targets C4I systems ***FY 2015 Accomplishments:*** The FY15 Execution Plan (ExPlan) is based on five USFF/CPF directed focus areas to include, in very broad terms, Electromagnetic Maneuver Warfare, Joint Assured Access, Integration and Interoperability, Unmanned Systems, and New Platform Introduction. The status of the FY15 ExPlan is as follows: 1. Navy Integrated Fire Control-Counter Air (NIFC-CA) War Game #2 The NIFC-CA War Game was completed 08-12 Dec 2014 at the Boeing Virtual Warfare Center. The primary purpose of this classified USFF-led war game was to identify DOTMLPF-P shortfalls to achieve full NIFC-CA Increment I capability at Initial Operational Capability (IOC) circa 2017. NIFC-CA Wargame #2 was part of the USFF-directed and led multi-year NIFC-CA campaign plan that began in 2013 to explore NIFC-CA capabilities, C2 decision-making, training, and CONOPS/TTP development and refinement. A comprehensive campaign methodology is required to synchronize delivery of all NIFC-CA DOTMLPF-P actions and to provide Navy leadership with insight into challenges and limitations associated with NIFC-CA in operational scenarios in order to protect its "game changing" capabilities and key programs.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Primary results of this effort will inform a revised NIFC-CA Fleet Concept of Operations (CONOPS) and will inform Fleet Readiness Training Plan (FRTP) development and certification standards. Results will also inform development of future Naval Integrated Fires (NIF) campaign events designed to support future capability delivery and provide capability gap analysis to Navy resource sponsors. The final experiment report dated 28 Feb 2015 is available in FIMS. Execute experimentation as laid out in the FLEX Execution Plan for 2015 including: 1. Naval Integrated Fire Control-Counter Air (NIFC-CA) Campaign Wargame 2. Focus: Execute NIFC-CA Wargame 2 in Dec 2014. Navy leadership requires awareness and understanding of NIFC-CA capabilities to protect its "game changing" potential and associated pillar programs. A comprehensive methodology is required to synchronize delivery of all NIFC-CA doctrine, organization, training, materiel, leadership, personnel, facilities, and policy (DOTMLPF-P) actions, and Navy leadership requires insight into challenges and limitations associated with NIFC-CA in operational scenarios. Throughout FY15, a series of events including modeling and simulation (M&S) development were conducted. The wargame culminated in an Operator-in-the-Loop (OITL) M&S event. This event examined how NIFC-CA increment 1 capabilities, circa 2017, contribute to air warfare in an operationally representative environment. Objectives: - Inform decisions on: - Concepts of Operation (CONOPS), tactics, techniques, and procedures (TTP), and Operational Task (OPTASK) modifications, - Training requirements and future experimentation, - NIFC-CA pillar program investments. - Investigate: - C2 flow/decision making - Battlespace management and deconfliction in a joint engagement zone (JEZ), - Combat ID (CID) with National Technical Means (NTM) and 5th-4th Generation fighter integration,					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Operations in an electronic attack (EA) environment, - Counter-intelligence, surveillance, reconnaissance (C-ISR)/counter-targeting (CTTG) impact on red force response (postwargame). Functions: USFFC proposes continued Fleet - OPNAV NIFC-CA partnership including: - Support a United States Fleet Forces Command (USFFC)-led multi-year NIFC-CA campaign plan to explore NIFC-CA capabilities, C2 decision-making, training, CONOPS, and TTP. - Inform development/refinement of NIFC-CA Fleet CONOPS, Integrated Air and Missile Defense (IAMD) TTPs, and OPTASKs. - Inform the Fleet training continuum from schoolhouse to Fleet Synthetic Training (FST) to Composite Training Unit Exercise (COMPTUEX). Costing Data: - NIFC-CA workshops, fleet participant travel, and Senior Leadership Seminar - Workshop included: CID, TTP, Air Defense Commander (ADC)/Composite Warfare Commander (CWC)/Rules of Engagement (ROE), CTTG/Electromagnetic Warfare (EMW), SLS - Wargame execution IT weeks, TTP execution check, and final execution weeks - Wargame data analysis support - Core wargame cost including: - Increased to three BL-9 - Modeling and simulation, technical support, and venue - F-22/F-15 Integration - Manned F-22s and constructive F-15s - Leverages combination of NTM, Info Gateway for 5th-4th Gen FTRs/L16 - Blue EA (EA-18G) - Explicit effect modeling of jammers - Improved capability to support Growler employment/contribution to integrated fire control (IFC) - Dynamic Red Team - Manned threat fighters, enemy Operator in the Loop (OITL) reaction to Blue actions Participants: - Subject Matter Experts (SME) from fleet, training, doctrine, acquisition, and test communities					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Future generations of NIFC-CA stakeholders Deliverables: - Wargame Glideslope - Preliminary workshops (CID, Blue Force Laydown, TTP Development, Air Defense Syndicate) - Wargame planning, scenario and Data Collection and Analysis Plan (DCAP) development, IT testing and M&S engineering - Dry runs/TTP week/wargame execution - Post-wargame workshop (C-ISR/T) - Wargame 2 - Counter ISR/C-Targeting workshop - Understand how EMW and C-ISR/T techniques can be applied to achieve desired results to counter Red force ability to target Blue force location, and/or disrupt Red force ability to conduct coordinated attacks (ex. simultaneous Time on Target (TOT), threat axis, etc.) based on results of AC-14C. - NIFC-CA wargame 2 Senior Leader Seminar (SLS) Accomplishments - Evaluate potential kill chains for desirability, relevancy, - Create ideal and realistic wargame 2 mission plan, - Provide guidance for updating NIFC-CA CONOPS, - Identify operationally relevant capability gaps, - Inform resource sponsors of NIFC-CA utility and improvements necessary to achieve capability potential. 2. Electromagnetic Maneuver Warfare (EMW) Experimentation Campaign The EMW experimentation campaign consists of multiple events throughout 2015 designed to explore innovative concepts and technologies associated with EMW. EMW is the Navy's warfighting approach to gain decisive military advantage in the electromagnetic spectrum (EMS) to enable freedom of action across all Navy mission areas. Individual components of the overall EMW campaign include: o NEMESIS War Game This Office of Naval Research (ONR) sponsored war game was conducted by NWDC and completed 23-26 Feb 2015. The primary purpose of the war game was to obtain fleet stakeholder input into the requirements for and					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
design of a classified ONR Innovative Naval Prototype. The results of this effort will be used to design prototypes that could eventually be fielded as a Navy program of record. o EMW At-Sea Experiment Phase 1 of this multi-phase effort was completed in March 2015. The classified details of this effort are available in FIMS. Results of this effort will be used to develop new or refine existing tactics, techniques, and procedures (TTP). o Northern Edge 2015 During joint exercise Northern Edge 2015, held 15-26 Jun 15 in the Joint Pacific Alaska Range Complex (JPARC), NWDC executed four specific classified initiatives focused on maritime operations in a complex EMS environment. Results of this effort will inform cyber development and will be used to develop new or refine existing TTP. EMW At Sea Experiment This ONR-sponsored at-sea experiment will execute in the Virginia Capes operating areas from 10-16 Aug 2015. Once completed, classified details of this effort will be available in FIMS. 3. Alternative Platforms with Payloads (APPS) Seminar War Game As directed and led by USFF and in support of OPNAV staff, NWDC planned, executed, and assessed the APPS war game completed 12-13 Nov 2014. Combatant Commander (CCDR) steady-state requirements are straining surface combatant (CRUDES and Amphibious) capacities to source and sustain Phase 0/1 missions. The purpose of this FLEX effort was to identify mission payloads with enablers that would allow selected USNS Military Sealift Command (MSC) vessels to support selected CCDR steady state missions. Comprised of two events, a workshop in September 2014 and the seminar war game, the primary objectives were to: define Navy Component Commander (NCC) identified mission sets; define platform baseline; identify required payloads to support mission sets; identify disparities between platform's baseline and mission payload; and identify enablers to integrate platform and mission payload. Missions examined included: Counter Illicit Trafficking, Intelligence, Surveillance, and Reconnaissance, Humanitarian Assistance/Disaster Relief, Survey Operations, Support to Special Operations Forces, Theater Security Cooperation, and Crisis Response.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
The platforms considered were Joint High Speed Vessel (JHSV), Mobile Landing Platform (MLP), Auxiliary Cargo and Ammunition Ship (T-AKE), and Large, Medium Speed Roll-on/Roll-Off (LMSR). NWDC promulgated the APPS final experiment report on 25 Mar 2015, and the report is available on the Fleet Experimentation Information Management System (FIMS) SIPRNET portal. Findings and recommendations of this effort will be used to inform the USFF/CPF 2017 POM input to OPNAV. 4. Undersea Domain Operating Concept (UDOC) Experimentation Campaign The UDOC experimentation campaign, begun in 2014 and continues into 2015, examines DOTMLPF-P solutions that exploit the undersea environment to achieve cross-domain synergies and enable joint operational access. FY15 efforts will focus on the evaluation of several innovative capabilities and concepts. Individual components of the FY15 UDOC campaign include: o Undersea Innovation War Game This Commander, Submarine Forces-sponsored and NWDC-conducted war game was completed 07-10 Apr 2015 at NWDC's headquarters. During the war game, participants evaluated the military utility of selected innovative technologies and enabling capabilities to address Anti Access Area Denial (A2AD) through Joint Assured Access scenarios for operational planning phases 0 through 2. Results of this war game will be used to make decisions regarding which innovative technologies to pursue further based on military utility. Non-Traditional Theater ASW War Game This Commander, Submarine Forces-sponsored and NWDC-conducted war game is being planned for a July 2015 execution at NWDC's headquarters. During the war game, participants will evaluate courses of action for dealing with current operational challenges. Classified details of this war game are available in FIMS. UDOC 2015 This Commander, Submarine Forces-sponsored and NWDC-conducted at-sea event, is planned for an August 2015 execution in the Southern California operating area and will examine selected innovative technologies and enabling capabilities in an operational environment. 5. Joint High Speed Vessel At Sea Experiment Campaign Conducted at the direction of CUSFF and in direct support of the OPNAV-led Littoral Combat Ship (LCS)/JHSV Council, the objective of the JHSV campaign is to evaluate the effectiveness of using various Adaptive Force					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Packages (AFPs) to expand JHSV platform employment options, beyond that of intra-theater logistics and personnel transport. Initial focus is on mission options involving little or no modification to the existing sea frame. Phase One of the 2015 effort was executed 13-26 Jun 2015 during USNS SPEARHEAD's (JHSV 1) Commander, Fourth Fleet (C4F) Southern Partnership Station (SPS) deployment. Phase One explored the platform's capability to support Expeditionary Mine Counter Measures (EMCM) operations and Maritime Command and Control. Phase Two, executing 15-22 Jul 2015, will examine the platform's capability to support Afloat Forward Staging Base (AFSB) operations, Counter Illicit Trafficking, Maritime Command and Control, and Intelligence, Surveillance and Reconnaissance operations using a telescoping mast to extend radar horizon, a small-boat docking facility, and small Unmanned Air Systems (UAS) operations (in conjunction with special forces). In addition to a final experiment report, the products of this effort will include revisions to the JHSV Platform Wholeness, JHSV Warfighting, and Adaptive Force Packages (AFP) Fleet CONOPS. More importantly, results will inform key investment decisions under consideration by OPNAV regarding the employment of adaptable sensor, communication, and support payloads enabling JHSV to conduct a range of missions beyond those it was originally built to perform. 6. Trident Warrior 2015 (TW15) The Trident Warrior 2015 (TW15) advanced at-sea warfighting experiment, co-led by Commander, Seventh Fleet (C7F) and NWDC, will execute in 3 phases from Jun through Sep 2015 in C7F AOR to include participation in PACOM/PACFLT exercise Talisman Sabre 2015. The TW15 effort will evaluate 17 technology and/or TTP initiatives designed to close warfighting gaps focused on: C2 of EMW assets in a contested environment, assured communications, long range Surface Warfare (SUW), and counter-ISR. To date, all planning meetings have been conducted, and a significant planning effort focused on ensuring technologies planned for shipboard/ashore installation will meet installation and Information Assurance certification and accreditation requirements has been completed. In addition to a final experiment report, expected products of TW15 include change recommendations to existing doctrine publications and development/refinement of draft doctrine (Tactical Memorandums). 7. Laser Weapon System (LaWS) Operational Demonstration The highly successful (and highly publicized) Solid State Laser Weapon System (LaWS) Quick Reaction Capability (SSL QRC) operational demonstration was completed 13-21 Nov 2014 on USS PONCE (AFSB 15) in Commander, Fifth Fleet (C5F) area of operations. The FLEX program has played a crucial role in the overall development of LaWS. In August 2012, during Black Dart 2012 (a FY12 FLEX event), the Navy Air and Missile					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Defense Command (NAMDC), supported by NWDC, led the execution of a fleet experiment that resulted in the first successful engagement of an unmanned aerial vehicle - with a laser weapon system - from a U.S. Navy destroyer - USS DEWEY (DDG 105). The results achieved during Black Dart 2012 were so successful that they led the CNO to direct Naval Sea Systems Command (NAVSEA) to forward deploy the system to the Middle East on USS PONCE (AFSB-15). Without the FLEX program, LaWS, the Navy's most revolutionary weapon of the 21st century, would not have made it onto a surface combatant and eventually onto PONCE. ? In addition to providing data collection, analysis, and execution support in theater, NWDC has delivered the final experiment report and has developed a SSL Tactical Memorandum (TACMEMO) focused on operational employment, tactics, techniques and procedures, and command and control of weapon employment. 8. LPD 17 Employment Options Through a series of workshops and at-sea observation events, NWDC is conducting an experiment examining the feasibility of using the LPD-17 class to perform additional missions as a Regional/Sector Air Defense Coordinator and/or an alternate Command and Control Platform. During the KEARSARGE ARG/26 Marine Expeditionary Unit (MEU) Post Deployment Brief (PDB), CUSFF directed the identification of potential employment areas that differ from traditional LPD employment. Results of this effort will inform changes to LPD-17 Class Required Operational Capabilities/Projected Operating Environment (ROC/POE), LPD-17 Class Tactical Manual, LPD-17 manning plan, and other related documents. 9. Rail Gun Seminar War Game At the request of the NAVSEA Rail Gun program office and in support of CUSFF continuing efforts to evaluate new platforms and weapon systems prior to Fleet introduction, NWDC executed a Rail Gun seminar war game from 15-18 June 2015. Results of this effort will contribute to a revised Rail Gun Operating Concept encompassing new missions and target sets envisioned for the rail gun and its associated hyper-velocity projectile. Results will also inform preparations for the first at-sea Rail Gun demonstration planned for FY16 aboard JHSV. 10. Collaborative Unmanned Undersea Vehicles (UUV) Operations From 14-18 Sep 2015, NWDC will conduct a seminar war game to develop common tactics and procedures for employment of integrated UUVs operating in a FVEY (Five Eyes - an intelligence alliance comprising Australia, Canada, New Zealand, the United Kingdom, and the United States) environment. Currently each member of the FVEY community is developing, in isolation, TTPs for UUV operations limiting collaboration and information exchange regarding use of similar UUV systems and associated data.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
This effort will produce a TACMEMO addressing UUV operations in a shared battle space that is FVEY releasable. 11. Netted Sensors At Sea Experiment This Naval Air Systems Command (NAVAIR) sponsored and NWDC coordinated effort, planned for 14-18 Sep 2015 execution in Virginia Capes operating area, will explore several initiatives focused on technologies and TTP that will improve Navy capability to passively find, fix, track, target, and ID surface and air contacts at extended ranges, largely in support of long range SUW. In addition to a final experiment report, this effort will inform NAVAIR (PMA 231 and 265) efforts to shorten timelines to geo-locate short-duration emitters and enhance combat identification (CID) capability through networked sensors. 12. Counter FAC/FIAC At Sea Experiment This effort, planned for Sep or Oct 2015 execution in Virginia Capes operating area, will evaluate the effectiveness of employing an unarmed Switchblade Unmanned Air System (UAS) versus Fast Attack Craft (FAC) and Fast Incoming Attack Craft (FIAC) representative targets. In addition to a final experiment report, this effort will provide DOTMLPF-P recommendations to inform acquisition investment decisions and will recommend revisions to current counter FAC and FIAC doctrine. 13. Bold Alligator 2014 - Digital Call for Fire During exercise Bold Alligator 2014, conducted in FY15 from 29 Oct to 10 Nov 2014 in the Virginia Capes operating area, NWDC coordinated execution of an experiment exploring the end-to-end, machine-to-machine transmission of a Naval Surface Fire Support (NSFS) digital call for fire from a Forward Observer/Fire Support Coordination Center through the Supporting Arms Coordination Center on USS KEARSARGE (LHD 3) to the Naval Fires Control System on USS WINSTON CHURCHILL (DDG 81). The experiment was conducted via high frequency (HF) communications path and SIPRNET. The primary objective of this experiment was to determine the exact nature and extent of various challenges that arise when attempting to complete an end-to-end digital call for fire. Results of this experiment will be used by the technical community (primarily Navy Surface Warfare Center, Port Hueneme) to refine system configuration and troubleshooting procedures that will, in turn, be used to update fleet operating procedures.					
FY 2016 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
The FY16 ExPlan is based on four USFF/CPF directed focus areas to include, in very broad terms, Multi-mission Electromagnetic Maneuver Warfare, Naval Integrated Fires, Full Spectrum Mine Warfare, and Unmanned Systems. In addition to the four named, FLEX will also be leveraged to support new platform introduction capabilities. Experimentation will be executed as laid out in the draft FLEX ExPlan for FY 2016 as follows: 1. Electromagnetic Maneuver Warfare Experiment Campaign In accordance with the EMW Charter, CNO has assigned responsibility to CUSFF to create and execute the Navy-wide campaign to achieve Navy's articulated EMW end state by 2020. Additionally, the charter assigns NWDC as the EMW action lead and the lead for the Concepts, Doctrine, and Experimentation. Throughout FY16, a series of events designed to synchronize and align experiment initiatives with EMW tasks to provide solutions to EMW capability gaps and to ensure development of doctrine and TTP is synchronized with the introduction of new technology will be conducted. Additionally, these events will be conducted to develop and provide the Fleet and Fleet trainers with required doctrine tools at the tactical and operational levels. Specific events planned for FY16 include: 2. Fleet Battle Experiment (FBX EWM 16) FBX EMW 16 will consist of a series of events (nominally one per quarter) primarily aligned with Carrier Strike Group (CSG) Composite Training Unit Exercise (COMPTUEX) events and CSG transits to and from deployments. The primary focus of this effort will be to exercise and validate the contents of existing and newly developed EMW-related doctrine, TTP, and CONOPS. 3. EMW at the Operational/Tactical Level of War This effort will focus on examining EMW functionality at the Operational and Tactical Levels of War and to assess how well the Fleet is operationalizing EMW into routine daily Fleet operations. 4.Navy Lighterage At-Sea Demonstration This effort will examine the warfighting utility of a prototype addressing a Fleet urgent operational need. 5.Electro-Optical/Infrared (EO/IR) Engagement Capability Workshop This effort will examine the potential of various electro-optical and infrared technology solutions for use on unmanned systems to provide long range (beyond organic radar horizon) fire control quality data.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
6.Passive Radar Demonstration This effort will examine the warfighting utility of a passive radar system and its ability to conduct live operations in support of Integrated Air and Missile Defense (IAMD). This land-based demonstration will inform plans for a FY17 follow-on shipboard installation and at-sea experiment. 7.Navy Tactical Data Network At-Sea Experiment This Commander, Tenth Fleet (C10F) sponsored effort will provide a DDG with access to previously unavailable information via a prototype data network. The prototype will be installed prior to the DDG beginning intermediate training and will remain onboard throughout deployment to enable a long term evaluation of the system's capabilities. 8.Naval Integrated Fires (NIF) Campaign 3 NIF Campaign 3 is part of the USFF-directed and led multi-year NIFC-CA campaign plan that began in 2013 to explore NIFC-CA capabilities, C2 decision-making, training, and CONOPS/TTP development and refinement. A comprehensive campaign methodology is required to synchronize delivery of all NIFC-CA DOTMLPF-P actions and to provide Navy leadership with insight into challenges and limitations associated with NIFC-CA in operational scenarios in order to protect its "game changing" capabilities and key programs. Throughout the remainder of FY15 USFF will conduct a series of tabletop workshops, mission planning events, and modeling and simulation analysis that will culminate in a non-kinetic operator-in-the-loop (OITL) system war game in Nov 2015 and a kinetic OITL system war game in Mar 2016. Primary results of this effort will inform development of an Integrated Counter Intelligence, Surveillance, Reconnaissance, and Targeting (C-ISRT) Fleet Concept of Operations (CONOPS), a revision to NIFC-CA Fleet Concept of Operations (CONOPS), and will inform Fleet Readiness Training Plan (FRTP) training and certification standards. The results will also inform development of future Naval Integrated Fires (NIF) campaign events designed to support future capability delivery and provide capability gap analysis to Navy resource sponsors. 9. Undersea Domain Operating Concept (UDOC) Experimentation Campaign The FY16 UDOC experimentation campaign consists of several events/efforts supporting Commander, Submarine Forces (COMSUBFOR) and the Navy Undersea Warfighting Development Center. Specific events planned for FY16 include:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Undersea Innovation Seminar War Game A seminar war game will be conducted in Q1/Q2 FY16 to explore how innovative technologies, such as those within the COMSUBFOR Undersea Rapid Capability Initiatives (URCI), might be employed by the Fleet to exploit use of the undersea, deny the adversary's use of the undersea, and provide war-winning cross domain effects. Theater Undersea Warfare (TUSW) Command and Control (C2) Seminar War Game A TUSW C2 seminar war game will be conducted in Q1/Q2 FY16 to examine options for C2 of naval operations in and through the undersea domain in two future timeframes (2018 and 2025) to inform development of an Undersea Warfare Command Concept of Operations. UDOC At-Sea Experiment This COMSUBFOR-sponsored and NWDC-conducted at-sea event, planned for a summer 2016 execution in the Southern California operating area, will examine selected innovative technologies and enabling capabilities in an operational environment to include COMSUBFOR Undersea Rapid Capability Initiatives. Non-Traditional Theater Anti-Submarine Warfare (ASW) At-Sea Experiment This follow-on to the 2015 Non-Traditional Theater ASW War Game will examine selected innovative technologies and enabling capabilities, focused on a specific undersea mission, in an at-sea operational environment. 11. Trident Warrior 2016 At-Sea Experiment The Trident Warrior 2016 (TW16) experiment, co-led by Commander, Third Fleet (C3F) and NWDC, will execute in conjunction with exercise Rim of the Pacific (RIMPAC) from Jun through Aug 2016 in C3F AOR. This effort will evaluate approximately 30 technology and/or TTP-related initiatives to close warfighting gaps identified across multiple POM-17 Integrated Prioritized Capability Lists (IPCLs). TW16 will support OPNAV, Space and Naval Warfare Systems Command (SPAWAR), program offices, Office of Naval Research (ONR), Naval Research Lab (NRL), and others in the spiral development of prototype capabilities at sea and in the hands of warfighters. 12. C4F JHSV At-Sea Experiment Campaign This campaign will be conducted at the direction of CUSFF and in direct support of the OPNAV-led LCS/ JHSV Council. The objective of the campaign is to evaluate the effectiveness of using various Adaptive Force					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Packages (AFPs) to expand JHSV platform employment options, beyond that of intra-theater logistics and personnel transport, with an initial focus on mission options involving little or no modification to the existing sea frame. The 2016 effort will execute in the Jun-Aug 2016 timeframe during JHSV C4F Southern Partnership Station deployment to evaluate multiple technologies enhancing JHSV's capability to serve as an Afloat Forward Staging Base (AFSB) and improve JHSV ISR capabilities. This effort will support development and validation of a JHSV as an AFSB Fleet CONOPS. 13. Strike Weapon and Advanced Close Air Support Evaluations This Naval Air Warfighting Development Center (NAWDC) sponsored live-fire effort will evaluate weapon performance and developmental TTPs for employing air-delivered weapons and conducting Close Air Support in a complex electromagnetic spectrum (EMS) environment. Results of this effort will be incorporated into appropriate TTPs and also into air wing training curriculum. 14. Mine Warfare (MIW) Innovation War Game A seminar war game will be conducted in Q1/Q2 FY16 to explore how various innovative MIW technologies might be employed by the Fleet to address identified fleet warfighting capability gaps. Technologies with the most potential will be examined in a follow-on at-sea experiment. MIW At-Sea Experiment This at-sea event, planned for a summer 2016 execution in the Southern California operating area, will examine selected innovative technologies and TTPs enabling capabilities in an operational environment to support the transition of MIW capabilities from legacy manned platforms to future unmanned systems. Unmanned System Swarm Series of Events A seminar war game will be conducted to examine the warfighting utility of ONR's low cost Unmanned Air Vehicle (UAV) swarming technology (LOCUST) to inform a follow-on at-sea experiment in FY17. An ONR-sponsored at-sea experiment will be conducted examining warfighting utility and employment options of an Unmanned Surface Vehicle (USV) swarm. This is a follow-on to ONR's initial at-sea demonstration conducted in August 2014. Autonomous Offboard Unmanned Systems (UxS) Campaign					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
This COMPACFLT-sponsored effort will examine the warfighting utility and multiple employment options offered by various types of unmanned systems in support of naval warfare missions with an emphasis on how unmanned systems can be a force multiplier. ***FY 2017 Base Plans:*** N/A ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	4.979	8.864	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This funding supports 15 to 25 significant warfighting experiment campaigns/events encompassing over one hundred individual experiment initiatives annually. These campaigns/events focus on addressing fleet identified significant capability gaps. The majority of this funding is applied toward acquiring intellectual capital in emerging technical areas through contracts providing engineering expertise, experiment design, execution and analysis support, range support, certification and accreditation of technical capabilities, targets, and supporting air assets, and it is also used to purchase engineering and integration costs associated with conducting campaign-based experiments.

E. Performance Metrics

Fleet Experimentation:
- Refine concepts and identify key performance levels necessary for implementation.
- Demonstrate feasibility and discriminate among competing concepts and implementation alternatives.
- Understand potential military effectiveness and risk.
- Evaluate how much of the new capability and attendant force structure is needed.
- Learn how to operate the new force and combine it with the legacy force.
- Develop recommended Doctrine, Organization, Training, Materiel, Leadership, and Personnel (DOTMLP) changes.
- Develop fleet war fighting requirements for submission to the OPNAV Navy Capabilities Development Process (NCDP) to inform Navy acquisition decisions.
- Integrate emergent concepts and technologies, leading to rapid introduction of needed war fighting capabilities in the fleet.
- Rapidly mature concepts, technologies, and doctrine.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Test and Evaluation	MIPR	Defense Technical Information Center : Ft Belvoir VA	4.136	0.225	Sep 2015	1.400	Jun 2016	0.000		-		0.000	0.000	5.761	-
Systems Test and Evaluation	C/FFP	NAVSEA : Washington DC	3.514	0.065	Mar 2015	0.200	Mar 2016	0.000		-		0.000	0.000	3.779	-
Systems Test and Evaluation	C/FFP	SPAWAR : San Diego CA	4.991	0.200	Aug 2015	1.600	Mar 2016	0.000		-		0.000	0.000	6.791	-
Systems Test and Evaluation	C/FFP	SPAWARSYSCEN Atlantic : Charleston SC	3.323	0.000		0.000		0.000		-		0.000	0.000	3.323	-
Systems Test and Evaluation	Various	SPAWARSYSCEN Pacific : San Diego CA	2.977	0.115	Mar 2015	0.400	Mar 2016	0.000		-		0.000	0.000	3.492	-
Systems Test and Evaluation	Various	Naval Undersea Warfare Center : Newport RI	1.399	0.400	Mar 2015	0.400	Jun 2016	0.000		-		0.000	0.000	2.199	-
Systems Test and Evaluation	Various	Naval Surface Warfare Center : CA, IN, MD, VA	2.970	0.848	Aug 2015	0.600	Jul 2016	0.000		-		0.000	0.000	4.418	-
Systems Test and Evaluation	C/FFP	Naval Postgraduate School : Monterey CA	1.595	0.052	Feb 2015	0.000		0.000		-		0.000	0.000	1.647	-
Systems Test and Evaluation	C/FFP	Navy Warfare Development Command : Norfolk VA	1.213	0.000		0.000		0.000		-		0.000	0.000	1.213	-
Systems Test and Evaluation	C/FFP	Naval Research Laboratory : Washington DC	0.250	0.139	Apr 2015	0.500	Jun 2016	0.000		-		0.000	0.000	0.889	-
System Test and Evaluation	C/FFP	Naval Air Warfare Center : Point Mugu CA	0.691	0.200	Jul 2015	0.600	Jun 2016	0.000		-		0.000	0.000	1.491	-
Systems Test and Evaluation	C/FFP	Fleet Industrial Supply : Norfolk VA	0.729	0.000		0.000		0.000		-		0.000	0.000	0.729	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*	Project (Number/Name) 3319 / *Fleet Experimentation*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Test and Evaluation	C/FFP	Naval Air Warfare Center Aircraft Division : CA, MD, NJ	7.309	0.434	Jul 2015	0.800	Aug 2016	0.000		-		0.000	0.000	8.543	-
System Test and Evaluation	MIPR	Air Force Research Lab : Wright Patterson AFB OH	1.250	0.488	Apr 2015	0.400	Mar 2016	0.000		-		0.000	0.000	2.138	-
System Test and Evaluation	C/FFP	Navy System Management Activity : Washington DC	1.116	0.030	Apr 2015	0.800	Jun 2016	0.000		-		0.000	0.000	1.946	-
System Test and Evaluation	C/FFP	Naval Surface Warfare Center : Corona CA	0.246	0.000		0.000		0.000		-		0.000	0.000	0.246	-
System Test and Evaluation	C/FFP	CECOM : Aberdeen Proving Grounds MD	0.150	0.000		0.000		0.000		-		0.000	0.000	0.150	-
System Test and Evaluation	C/FFP	DMEA : Sacramento CA	0.535	0.000		0.000		0.000		-		0.000	0.000	0.535	-
System Test and Evaluation	Various	Naval Surface Warfare Command : Dahlgren VA	0.201	0.193	May 2015	0.200	Jun 2016	0.000		-		0.000	0.000	0.594	-
System Test and Evaluation	Various	APG-Army : Natick	0.467	0.000		0.000		0.000		-		0.000	0.000	0.467	-
System Test and Evaluation	Various	Naval air Warfare Center : CA, NJ	0.514	0.000		0.000		0.000		-		0.000	0.000	0.514	-
System Test and Evaluation	Various	BTR per DCNO N2N6 : To Project 3311	0.460	0.000		0.000		0.000		-		0.000	0.000	0.460	-
System Test and Evaluation	Various	Air Force Research Lab/RI : Rome NY	0.000	0.223	Apr 2015	0.400	Mar 2016	0.000		-		0.000	0.000	0.623	-
System Test and Evaluation	Various	Office of Naval Research : Arlington VA	0.000	0.317	May 2015	0.200	Jul 2016	0.000		-		0.000	0.000	0.517	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Test and Evaluation	Various	USFF : Norfolk, VA	0.000	0.610	Sep 2015	0.364	May 2016	0.000		-		0.000	0.000	0.974	-
System Test and Evaluation	Various	Pacific Missile Range Facility : Pekekha HI	0.000	0.198	Aug 2015	0.000		0.000		-		0.000	0.000	0.198	-
System Test and Evaluation	Various	SUPSHIP CNR : Bath ME	0.000	0.042	Aug 2015	0.000		0.000		-		0.000	0.000	0.042	-
System Test and Evaluation	Various	Defense Logistics Agency : Philadelphia MD	0.000	0.200	Aug 2015	0.000		0.000		-		0.000	0.000	0.200	-
		Subtotal	40.036	4.979		8.864		0.000		-		0.000	0.000	53.879	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/FFP	SPAWAR : San Diego CA	3.190	0.000		0.000		0.000		-		0.000	0.000	3.190	-
Program Management	C/FFP	Naval Postgraduate School : Montery CA	0.700	0.000		0.000		0.000		-		0.000	0.000	0.700	-
Program Management	C/FFP	Naval Air Warfare Center Aircraft Division : Patuxent River MD	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
Program Management	C/FFP	Naval Surface Warfare Command : DahlgrenVA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Program Management	Various	Naval Surface Warfare Center : Corona CA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Program Management	MIPR	Defense Technical Information Center: VA : Ft Belvoir VA	1.639	0.000		0.000		0.000		-		0.000	0.000	1.639	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	5.779	0.000		0.000		0.000		-		0.000	0.000	5.779	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	45.815	4.979		8.864		0.000		-		0.000	0.000	59.658	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

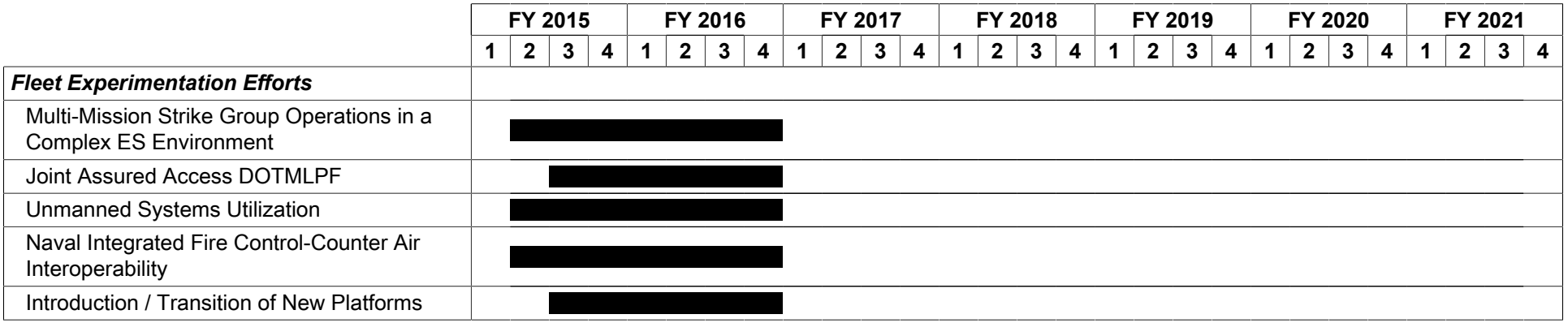

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Fleet Experimentation Efforts				
Multi-Mission Strike Group Operations in a Complex ES Environment	2	2015	4	2016
Joint Assured Access DOTMLPF	3	2015	4	2016
Unmanned Systems Utilization	2	2015	4	2016
Naval Integrated Fire Control-Counter Air Interoperability	2	2015	4	2016
Introduction / Transition of New Platforms	3	2015	4	2016