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 0603382N *I Advanced Combat Systems Tech*							
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	64.083	1.582	1.631	57.034	-	57.034	57.592	57.088	58.292	59.219	Continuing	Continuing
0324: *Adv Combat System Technology*	64.083	1.582	1.631	1.651	-	1.651	1.869	1.855	1.842	1.879	Continuing	Continuing
0385: *Rapid Prototype Development*	0.000	0.000	0.000	40.356	-	40.356	40.633	40.135	41.347	42.218	Continuing	Continuing
0399: *Unmanned Rapid Prototype Development*	0.000	0.000	0.000	15.027	-	15.027	15.090	15.098	15.103	15.122	Continuing	Continuing
Program MDAP/MAIS Code: 180												

A. Mission Description and Budget Item Justification

The Advanced Combat System Technology line is to evolve the technical and business practices for programs to change to an open architecture construct. The program was constructed to mature both technical and business model integration for C5I systems programs of record in an open architecture environment. The priority was incorporating the principles of modular design and design disclosure, reusable application software, interoperability and secure information exchange, lifecycle affordability and encouraging competition and collaboration.

Project Unit 0324: Funding is to maintain and update an information exchange environment to improve transparency of design disclosure and information exchange on past and current investments to support the principle of cross-program reuse, and to provide the tools and leadership for assisting programs through the transition to Naval Open Architecture (OA). The other elements of the OA transformation effort are being realized as management efficiencies within programs. Those elements include ensuring that all naval systems, families of systems, and programs move to modular OA in accordance with Department of Defense (DoD) Instruction 5000.1 dated 12 May 2003 which mandates that all DoD programs utilize open systems architectures to rapidly field affordable and interoperable systems. By direction of the Navy Service Acquisition Executive (SAE), PEO IWS was assigned overall responsibility and authority to direct the Navy's OA effort until that duty transferred to DASN (RDTE) in 2011. The Core OA funding line has remained with PEO IWS. That policy established a need to coordinate acquisition strategies, develop guidance and tools, and develop analysis of alternatives to determine OA software reuse practices within and across the Navy Communities of Interest (COI - Surface, Subsurface, Air, Space, C4I, USMC, and ONR). This project facilitates a strategic shift in the acquisition business process to facilitate cooperative competition in cross-domain/COI business relationships. This improves innovation and economies of scale throughout the Navy and Marine Corps. This leadership effort has identified the business case and potential return on investment for moving the Navy towards an open systems approach, supported the development of open systems technologies, and integrated best business and technical practices for open systems development within Naval acquisition. Naval OA ensures Navy-wide system architectures become extensible and scalable in function, capacity, and workload to meet Joint warfighting requirements. This also includes the identification and development of common software components, functions, reuse methodologies, and extensible product lines. In summary, this funding supports the management of a reuse repository and reuse information exchange portal, and the evolving business, systems engineering, and cultural changes required across all Naval programs as they migrate to function in a Joint, net-centric warfare environment.

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 0603382N *I Advanced Combat Systems Tech*

Project Unit 0385: The Rapid Prototype Development project is new in FY17 and addresses the advancement and transition of combat systems technology. It supports the goals and objectives of the Chief of Naval Operations (CNO) Navigation Plan, Commandant of the Marine Corps (CMC) Planning Guidance, and the Cooperative Strategy for 21st Century Seapower. This project also supports the Secretary of the Navy's (SECNAV) Innovation Vision and the Implementation Directive for Better Buying Power 3.0. These efforts will reinvigorate and increase the use of prototyping and experimentation to rapidly field new warfighting capabilities, concepts and technologies, and engineering solutions.

The Rapid Prototype Development project With an emphasis on "Field Early" or "Fail Fast" methodologies, the project is intended to expedite the development, exploration and fielding of combat system innovations in six warfighting domains: surface warfare, air warfare, undersea warfare, expeditionary warfare, information dominance and special operations warfare. Prototype development efforts will be used to develop/refine Concepts of Operation (CONOPS) and operational requirements; evaluate the operational utility and technical feasibility of technology/engineering innovations; support limited fielding of prototypes (if required); and mitigate cost, schedule and performance risks associated with follow-on acquisition programs.

Project Unit 0399: The Unmanned Rapid Prototype Development project is new in FY17 and was created to implement the Secretary of the Navy's (SECNAV) reorganization of the department to emphasize unmanned warfare systems and addresses the advancement and transition of naval warfare systems technology. This project funds Navy's prioritized portfolio of unmanned system (UxS) rapid development technology initiatives based on Navy warfighting needs and capability gaps. This project supports the goals and objectives of the Chief of Naval Operations (CNO) Navigation Plan and the Cooperative Strategy for 21st Century Seapower. Additionally, this project supports the Secretary of the Navy's (SECNAV) Innovation Vision and the Implementation Directive for Better Buying Power 3.0. The project will increase the use of rapid prototyping and demonstration to quickly introduce technologically advanced UxS capabilities to the Fleet and provide warfighters with direct opportunities to explore and refine operational concepts.

The Unmanned Rapid Prototype Development project enables a strategic focus on the prioritization of UxS requirements and concepts, development of innovative UxS technologies, and the concurrent development of warfighting capabilities. With emphasis on "Field Early" or "Fail Fast" methodologies, the project will expedite the development, exploration and Fleet introduction of UxS technologies in the warfare areas of Surface, Air, Anti-Submarine, and Expeditionary Warfare, Information Dominance and Special Operations Warfare. The project will provide the Navy and Marine Corps with technical and operational utility assessments of technology/ engineering innovations; ability to refine operational requirements and concepts of operation; support limited fielding of prototypes (as required); and mitigate cost, schedule and performance risk associated with follow-on acquisition programs.

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 0603382N *I Advanced Combat Systems Tech*		
B. Program Change Summary ($ in Millions)	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**
Previous President's Budget	1.639	1.636	1.775	-	1.775
Current President's Budget	1.582	1.631	57.034	-	57.034
Total Adjustments	-0.057	-0.005	55.259	-	55.259
• Congressional General Reductions	-	-0.005			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.057	0.000			
• Rate/Misc Adjustments	0.000	0.000	55.259	-	55.259

Change Summary Explanation

The FY 2017 funding request was reduced by -$0.124 million to account for the availability of prior year execution balances.

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 0603382N / *Advanced Combat Systems Tech*	Project (Number/Name) 0324 / *Adv Combat System Technology*	

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
0324: *Adv Combat System Technology*	64.083	1.582	1.631	1.651	-	1.651	1.869	1.855	1.842	1.879	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project Unit 0324: Funding is to maintain and update a information exchange environment to improve transparency of design disclosure and information exchange on past and current investments to support the principle of cross-program reuse, and to provide the tools and leadership for assisting programs through the transition to Naval Open Architecture (OA). The other elements of the OA transformation effort are being realized as management efficiencies within programs. Those elements include ensuring that all naval systems, families of systems, and programs move to modular OA in accordance with Department of Defense (DoD) Instruction 5000.1 dated 12 May 2003 which mandates that all DoD programs utilize open systems architectures to rapidly field affordable and interoperable systems. By direction of the Navy Service Acquisition Executive (SAE), PEO IWS was assigned overall responsibility and authority to direct the Navy's OA effort until the duty transferred to DASN (RDTE) in 2011 The Core OA funding line has remained with PEO IWS. That policy established a need to coordinate acquisition strategies, develop guidance and tools, and develop analysis of alternatives to determine OA software reuse practices within and across the Navy Communities of Interest (COI - Surface, Subsurface, Air, Space, C4I, USMC, and ONR). This project facilitates a strategic shift in the acquisition business process to facilitate cooperative competition in cross-domain/COI business relationships. This improves innovation and economies of scale throughout the Navy and Marine Corps. This leadership effort has identified the business case and potential return on investment for moving the Navy towards an open systems approach, supported the development of open systems technologies, and integrated best business and technical practices for open systems development within Naval acquisition. Naval OA ensures Navy-wide system architectures become extensible and scalable in function, capacity, and workload to meet Joint warfighting requirements. This also includes the identification and development of common software components, functions, reuse methodologies, and extensible product lines. In summary, this funding supports the management of a reuse repository and reuse information exchange portal, and the evolving business, systems engineering, and cultural changes required across all Naval programs as they migrate to function in a Joint, net-centric warfare environment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Align the Naval Enterprise Across All Domains to Implement OA	0.272	0.292	0.320	0.000	0.320
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Established transition of programs to fully utilize the principles and practices of OA in accordance with the ASN(RDA) approved Naval OSA Strategy of November 2012. Transitioned the sustainment of the OSA initiative from a unique OA Executive forum to a permanent organization; the Systems Engineering Stakeholders Group. Continued to coordinate and develop the quarterly OA Report to Congress, annual budget submission 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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0324 / *Adv Combat System Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
financial reporting for this project. In FY-15 the Naval OSA Strategy was revisited and updated to stay current with changes in best practices to include all other activities as the SESG, DASN RDT&E or ASN(RDA) directs. ***FY 2016 Plans:*** Continue FY2015 Plan in addition to: Implement Enterprise architecture of modular development and maximum reuse. Promote tailor-able open standards relative to Technical Reference Frameworks attributes. ***FY 2017 Base Plans:*** Continue FY16 Plan in addition to: Extending out reach efforts to increase OSA Adoption to programs of record. ***FY 2017 OCO Plans:*** N/A					
Title: Change the Naval and Marine Corps Cultures to Institutionalize OA Principle	0.373	0.378	0.383	0.000	0.383
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continued with direct engagement with programs to improve OA principles and practices through stakeholder management, communications, mentoring, training, and curriculum adjustment. Established and maintained communication and transparency across programs to highlight new opportunities for enterprise product reuse and improved interoperability. Sustained a strong message to the public and industry on the value of OA for cost-effective management of the acquisition portfolio. ***FY 2016 Plans:*** Continue with FY2015 Plan in addition to: Adjust funding techniques for cross-Enterprise co-development. Identify best practices and collaborative forums to increase the likelihood of transitioning maturing technology into programs of record. ***FY 2017 Base Plans:*** Continue with FY2016 Plan in addition to: Coordinate the development of information systems to assist in using Technical Reference Frameworks for common platforms. ***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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0324 / *Adv Combat System Technology*

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: OA Systems Engineering Leadership	0.375	0.395	0.415	0.000	0.415
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Key activities of the third year of the strategy include inter-program alignment toward the use of common technical frameworks. Established transition of programs to fully utilize the principles and practices of OA in accordance with the ASN(RDA) approved Naval OSA Strategy of November 2012. Established collaboration and cooperation incentives, and improved techniques for finding and using modular capabilities. Completed the transformation of oversight and governance of programs that are implementing or have implemented OA principles and practices through mechanisms such as Community of Interest forums, Technical Authority, Technical Warrant Holders and Product DASN engagments.					
FY 2016 Plans: Continue FY2015 Plan in addition to: Adjust incentives for collaboration and cooperation between programs. Establish reward mechanisms for programs and personnel successful in achieving OSA implementations that rapidly integrate innovation and lower total ownership costs.					
FY 2017 Base Plans: Continue with FY2016 Plan in addition to: Sponsor Communities of Interest to support cooperation between programs.					
FY 2017 OCO Plans: N/A					
Title: Knowledge Products for Implementing OSA	0.562	0.566	0.533	0.000	0.533
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Evolved the Program Managers OSA Workbook and other associated knowledge products to position Naval Programs to take advantage of consistent business and technical practices. Established collaboration forums so that best practices can be shared so that the OA related knowledge products are kept up to date with the latest innovations being used in program execution. This included working with outside organizations such as DISA's Forge.mil as well as the Navy's NSERC/NARS environments. Ensured that DAU is addressing training on OSA as directed to them under the Better Buying Power implementation memo that assigns DASN RDT&E					

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0324 / *Adv Combat System Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
the lead for providing baseline information for curriculum development. Continued to develop new training on OA, including deployment of Naval unique training on OA throughout the SYSCOMs and PEOs. ***FY 2016 Plans:*** Continue FY2015 Plan in addition to: Minimize DAU courses to fill needed knowledge gaps. Establish an OSA mentoring program for acquisition professionals. ***FY 2017 Base Plans:*** Continue with FY2016 Plan in addition to: Continue to support update DAU courses and the OSA Program Manager's workbook. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	1.582	1.631	1.651	0.000	1.651

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This risk reduction effort evolved and shifted from a PEO IWS 1.0 task to Naval Surface Warfare Center (NSWC)/Dahlgren to an Assistant Secretary of the Navy, Research, Development & Acquisition (ASN-RDA) directed task to fund the Navy's OA Enterprise effort from this core OA Budget line (policy statement dated 5 August 2004). The strategy was further refined in the Deputy Chief of Naval Operations (DCNO) requirement of 23 December 2005 (N6/7) with guidance for this effort to assist the Milestone Decision Authority (MDA), program managers, and resource sponsors in assessing enterprise program assets where appropriate. Office of the Chief of Naval Operations (OPNAV) has directed this program to provide objective, measurable, performance based assessments as Business Case Analysis (BCA) baselines for future system changes and spiral developments.

E. Performance Metrics

Change Naval Processes and business practices to cost-effectively innovate and deploy improved warfighting capability based on fleet requirements. Provide OA Systems Engineering to field common, interoperable capabilities; Change Navy and Marine Corps Business processes to Institutionalize OA Principles.

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 0603382N / *Advanced Combat Systems Tech*	Project (Number/Name) 0324 / *Adv Combat System Technology*	

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
SE/OA Domain Support	C/FP	APL/ IET Contract : VARIOUS	2.007	0.569	Nov 2014	0.653	Nov 2015	0.569	Nov 2016	-		0.569	0.000	3.798	Continuing
Systems Engineering	MIPR	NSWC / Dahlgren : Dahlgren, VA	13.059	0.248	Nov 2014	0.261	Nov 2015	0.284	Nov 2016	-		0.284	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/CRANE, Carderock, DISA : VARIOUS	2.854	0.265	Dec 2014	0.205	Dec 2015	0.213	Dec 2016	-		0.213	0.000	3.537	Continuing
Systems Engineering	C/CPAF	ASSETT; Lockheed Martin, NJ; Gartner, VA : Washington DC	5.114	0.000		0.000		0.000		-		0.000	0.000	5.114	Continuing
OA DOMAIN SUPPORT	WR	NUWC/Newport, Spawar, Navair : VARIOUS	11.931	0.000		0.000		0.000		-		0.000	0.000	11.931	Continuing
SE/Signal Processor	C/CPAF	Lockheed Martin : VARIOUS	6.000	0.000		0.000		0.000		-		0.000	0.000	6.000	Continuing
SE/Signal Processor	C/CPAF	BAE : VARIOUS	0.300	0.000		0.000		0.000		-		0.000	0.000	0.300	Continuing
SE/Signal Processor	C/CPAF	Raytheon : VARIOUS	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	Continuing
SE/Signal Processor	WR	NSWC/DD, NRL, PHD : VARIOUS	0.600	0.000		0.000		0.000		-		0.000	0.000	0.600	Continuing
		Subtotal	41.965	1.082		1.119		1.066		-		1.066	-	-	-

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
Industry Development	C/FP	IBM, ANGLE, TBD (New IET Contract) : VARIOUS	9.432	0.373	Nov 2014	0.000		0.000		-		0.000	0.000	9.805	Continuing
Technical Data-Academia	WR	NPS-Monterey/DAU : MONTEREY, CA	2.221	0.127	Nov 2014	0.000		0.000		-		0.000	0.000	2.348	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 0603382N / *Advanced Combat Systems Tech*	Project (Number/Name) 0324 / *Adv Combat System Technology*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/FP	TRIDENT, ASSET : VARIOUS	0.309	0.000		0.000		0.000		-		0.000	0.000	0.309	Continuing
		Subtotal	11.962	0.500		0.000		0.000		-		0.000	0.000	12.462	-

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
Operational Test & Evaluation	WR	NSWC/DD : DAHLGREN, VA	2.216	0.000		0.000		0.000		-		0.000	0.000	2.216	Continuing
OA Asset Repository (SBIR Account)	WR	Miscellaneous : VARIOUS	0.150	0.000		0.000		0.000		-		0.000	0.000	0.150	Continuing
		Subtotal	2.366	0.000		0.000		0.000		-		0.000	0.000	2.366	-

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	C/CPAF	Miscellaneous : VARIOUS	3.021	0.000		0.378	Nov 2015	0.390	Nov 2016	-		0.390	Continuing	Continuing	Continuing
SBIR Assessment (Cong Add)	WR	NSWC/DD : DAHLGREN, VA	4.748	0.000		0.134	Nov 2015	0.195	Nov 2016	-		0.195	0.000	5.077	Continuing
DAWDF	TBD	TBD : TBD	0.021	0.000		0.000		0.000		-		0.000	0.000	0.021	Continuing
		Subtotal	7.790	0.000		0.512		0.585		-		0.585	-	-	-

	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	64.083	1.582		1.631		1.651		-		1.651	-	-	-

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0324 / *Adv Combat System Technology*

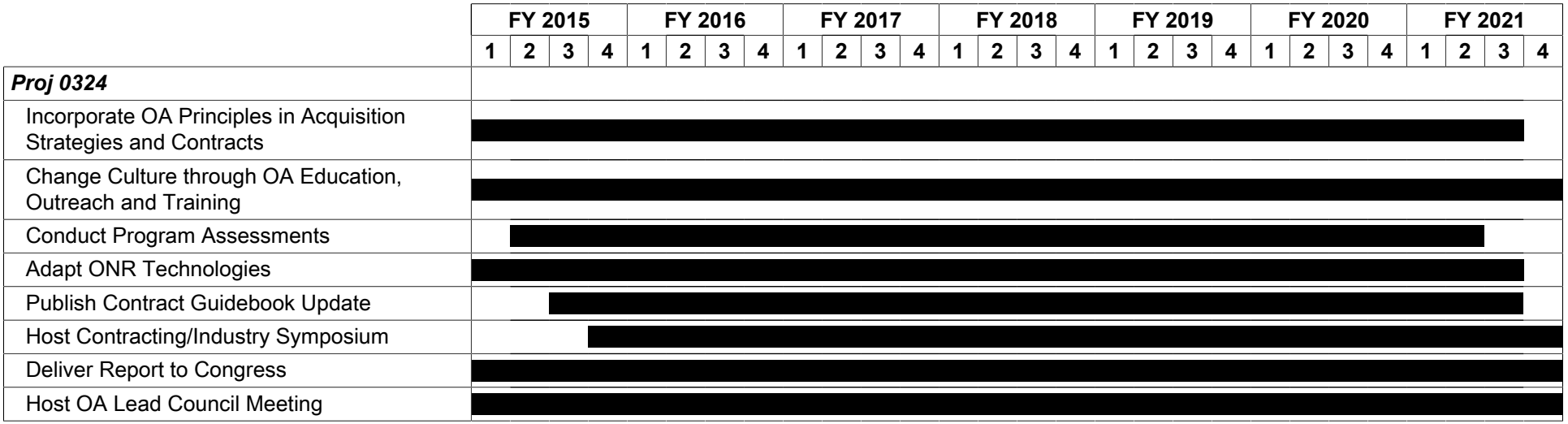

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0324 / *Adv Combat System Technology*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0324				
Incorporate OA Principles in Acquisition Strategies and Contracts	1	2015	3	2021
Change Culture through OA Education, Outreach and Training	1	2015	4	2021
Conduct Program Assessments	2	2015	2	2021
Adapt ONR Technologies	1	2015	3	2021
Publish Contract Guidebook Update	3	2015	3	2021
Host Contracting/Industry Symposium	4	2015	4	2021
Deliver Report to Congress	1	2015	4	2021
Host OA Lead Council Meeting	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 0603382N / *Advanced Combat Systems Tech*	Project (Number/Name) 0385 / *Rapid Prototype 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
0385: *Rapid Prototype Development*	0.000	0.000	0.000	40.356	-	40.356	40.633	40.135	41.347	42.218	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

This project is new in FY2017. Beginning in FY17, funding for the CNO Rapid Innovation Cell (CRIC) (Project 2140) is realigned from PE 0604707N Space and Electronic Warfare (SEW) Architecture/Eng, as well as funding from the Rapid Technology Transition (RTT) program from PE 0203761N to support to rapid prototype development in support of the CNO's Design for Maintaining Superiority strategy and lines of effort that focus on warfighting and learning faster.

A. Mission Description and Budget Item Justification

Department of Navy (DON) leadership has acknowledged that maintaining maritime superiority depends in part on our ability to accelerate the speed of warfighting and technological innovations in order to extend our advantage to offset our adversary's growing capabilities. The Rapid Prototype Development project supports the goals and objectives of the Chief of Naval Operations (CNO) Navigation Plan and Design for Maintaining Maritime Superiority, Commandant of the Marine Corps (CMC) Planning Guidance, and the Cooperative Strategy for 21st Century Seapower, and is fundamental to the DON's efforts to improve our acquisition outcomes. This project is aligned with, and in direct response to, calls for increased prototyping and experimentation in USD(AT&L)'s Better Buying Power 3.0, Secretary of the Navy's (SECNAV) Task Force Innovation direction, and the CNO direction to Achieve High Velocity Learning at Every Level. These efforts will reinvigorate and increase the use of prototyping and experimentation to rapidly field new warfighting capabilities, concepts and technologies, and engineering solutions faster than the typical budget cycle time.

The Rapid Prototype Development project funds a strategic focus on rapid prototyping and experimentation of innovative combat system technologies and engineering innovations to explore Fleet-proposed capability concepts and needs, as well as foster advancements in naval warfighting capabilities. With an emphasis on "Field Early" or "Fail Fast" methodologies, the project is intended to expedite the development, exploration and fielding of technology and engineering prototypes to provide advanced warfighting capabilities, new technologies and engineering innovations across all Naval warfighting domains. Prototype development efforts will be used to inform/refine Concepts of Operation (CONOPS) and operational requirements; evaluate the operational utility and technical feasibility of technology/engineering innovations; support limited fielding of prototypes; and mitigate cost, schedule and performance risks associated with follow-on acquisition programs.

By fully leveraging the scientific and engineering expertise and technical infrastructure within the Naval Research and Development Establishment (NR&DE), and in collaboration with, and support of, the Fleet Forces Command, Naval Warfighting Development Centers, Naval Warfare Development Command, and the Marine Corps Combat Development and Integration Command, this project will produce sensor, weapon system, and command, control, and communications prototypes to address naval warfighting challenges and/or to pursue future naval warfighting concepts. Additionally, new and emerging technologies and engineering innovations that offer the potential to reduce cost, increase readiness, or improve the overall efficiency or effectiveness of naval forces will be explored. A key distinction is that the process and battle rhythm is designed for optimal responsiveness to Fleet needs.

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

The DON will work with Congress in accordance with an agreed-to framework of governance and oversight that will ensure the effective and efficient use of this funding for its intended purpose.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Rapid Prototype Development, Experimentation and Demonstration	0.000	0.000	40.356	0.000	40.356
Articles:	-	-	-	-	-
Description: Technologies, innovations, and threats continually emerge and require rapid response. Pre-set, yearly, or even quarterly proposal/review cycles are not sufficiently responsive to the dynamic nature of cutting-edge technological breakthroughs, engineering innovations, new operational concepts, and/or emerging threats. The DON has developed a responsive and agile Department wide approach for Rapid Prototyping, Experimentation, and Demonstration (RPED). The approach: - improves alignment across Fleet and Marine Corps forces, Requirements, Budgeting, and Research & Development organizations to prioritize initiatives and streamline management and execution of rapid prototyping and experimentation, - allows the DON to "learn fast" through prototyping - completing projects as rapidly as possible to improve follow-on system acquisition decisions before incurring significant costs, - replaces the current Speed-to-Fleet process, - and unleashes the intrinsic ingenuity of the Navy's Science and Technology (S&T) community, the NR&DE, and our talented Sailors and Marines. In response to Fleet needs, the RPED approach will identify and select prototyping initiatives based on direct and continuous Fleet engagements. Integrated teams consisting of scientists and engineers from across the NR&DE are promptly deployed to interact with Fleet Commands, the Navy Warfare Development Command, and Warfighting Development Centers. The entire project initiation cycle will be completed in less than twelve weeks. The RPED approach considers maturing S&T technologies and engineering innovations produced through Future Naval Capabilities , Innovative Naval Prototypes , Naval Innovative Science and Engineering (NISE) Section 219, Emerging Capabilities and Prototypes, and commercial technologies as potential prototypes. Direct and continuous interactions between our scientists and engineers and the operators they support will drive innovation and, more importantly, align technical ideas with operational needs at the earliest stages in prototype development and experimentation. Prototypes are used to refine operational concepts and requirements through experimentation campaigns making maximum use of tools, ranges, and test facilities readily available within our NR&DE and Fleet experimentation venues. Prototypes will be demonstrated to the operational forces in less than 24 months.					

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Deliverables include actual integrated hardware/software prototype system(s) and experimentation events, CONOPS, requirements analysis, test report(s), and technical data package(s) to support experimentation events, limited fielding decisions, and to inform leadership decisions on the development of an acquisition program. ***FY 2015 Accomplishments:*** N/A ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** The FY 2017 execution plan will be finalized in Q4 FY 2016 and will address the key focus areas outlined below. It is important to note that we will continuously assess prototype initiatives to ensure we are responding to Fleet needs and priorities. 1. Electromagnetic Maneuver Warfare Electromagnetic Maneuver Warfare (EMW) is the Navy and Marine Corps warfighting approach to gain decisive military advantage in the electromagnetic spectrum, to enable freedom of action across all naval mission areas. Advanced components and prototypes will demonstrate multi-spectral sensors; passive detection, tracking, and targeting systems; real time spectrum awareness; robust, resilient circuits, transceivers, links; electronic protection; emissions management; spread spectrum techniques; deception and decoys; electronic attack (including directed energy); networked sensors and weapon systems; battle management aids; or cyber situational awareness, security, and operations. 1.1 Battlespace Awareness Emerging technology and engineering innovations from Naval/DoD research and development, industry, and academia will be integrated to demonstrate intelligence, surveillance, reconnaissance (ISR), and targeting support. Advanced sensing capabilities (ship-, airborne-, and ground-based; multi-, hyper-spectral, and other) capable of long-range sensing and discrimination are required to understand electromagnetic emissions and ultimately produce fire control quality data. This work will explore the warfighting utilization of emerging naval innovations such as Tactical Nighttime Wide-Area Surveillance, Ultra Wide Field Of View (FOV) Area Surveillance, and others.					

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Survey naval research and development, industry and academia sources for emerging sensors and processing capabilities. - Conduct trade studies to support CONOPS refinement. - Develop prototypes and perform sub-system and integration testing. - Conduct experiments at naval labs and test ranges. - Assess technical performance and operational utility at focused events such as Rim of the Pacific Exercise (RIMPAC) 2018. - Develop objectives for follow-on Fleet experiments that include alternative technologies, more robust capabilities, or alternative employment scenarios. - Assess and support INP and other emerging technologies for transition to acquisition through prototyping and experimentation. 1.2 Naval Tactical Data Links and Networks Emerging technology and engineering innovations from Naval/DoD research and development, industry, and academia will be integrated to demonstrate secure, reliable, collection, analysis, and fusion of ISR and targeting data from organic assets and sensors. This work will explore the warfighting utilization of emerging naval and industry innovations, to include INPs , such as multiple, simultaneous, wideband data links, for signal and imagery data transmission between organic assets and Battle Group level processing systems. Technologies with the potential to provide Unit-level access to ISR data will be submitted to the Fleet for experimentation. Project will integrate mature technologies developed through naval investments in the areas of low probability of intercept and detection techniques, high data rate, long-range, multi-band and wide-band links, networked and software defined modes, and encryption and signal processing technologies, as well as various Nemesis modules. - Conduct requirements analysis in support of CONOPS refinement. - Complete design and demonstration objective reviews. - Perform sub-system and integration testing. - Conduct experiments in a simulated maritime relevant environment. - Assess technical performance and operational utility. - Submit to Fleet experimentation venues such as the Naval Tactical Data Network at-sea experiment. - Assess technical performance and operational utility. - Develop objectives for follow-on experiments that include alternative technologies, more robust capabilities, or alternative employment scenarios.					

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Assess and support INP and other emerging technologies for transition to acquisition through prototyping and experimentation. 1.3 Counter ISR and Targeting Emerging technology and engineering innovations from Naval/DoD research and development, industry, and academia will be integrated to demonstrate directed energy and other prototype systems to counter enemy ISR and targeting systems, conduct electronic attack, and deploy jammers and decoys. . This work will explore the warfighting utilization of emerging naval and industry innovations, such as High Power Radio Frequency Counter-UAS, Tactical EO-IE-SIGINT Integrated for Targeting, various Nemesis modules as well as other prototypes which, due to the nature of those projects, specific applications and detailed plans are available at a higher classification level. - Technical assessment of emerging sensors, systems, and processing capabilities. - Participate and provide technical inputs to planned naval tabletop workshops, mission planning events, and wargames such as those planned in support of the Naval Integrated Fires Campaign. - Complete design and demonstration objective reviews. - Perform sub-system and integration testing. - Conduct experiments against threat surrogates in a maritime relevant environment. - Assess technical performance and operational utility. - Develop objectives for follow-on wargames and Trident Warrior/Rim of the Pacific (RIMPAC 2018). - Assess and support INP and other emerging technologies for transition to acquisition through prototyping and experimentation. 1.4 Data Fusion and Tactical Decision Aid Emerging technology and engineering innovations from Naval/DoD research and development, industry, and academia will be integrated to demonstrate automated data-fusion engines and networked tactical decision aids which leverage networked sensors, radars, combat systems, and weapons to overcome single-platform limitations. This work will explore the warfighting utilization of emerging naval and industry innovations, to include INPs, autonomous data fusion and processing modules, various Nemesis modules, as well as other prototypes. - Conduct requirements analysis in support of CONOPS refinement. - Complete demonstration objective reviews. - Software development and integration testing. - Conduct experiments in a simulated maritime relevant environment. - Assess technical performance and operational utility.					

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Human System Interface (HSI) assessments. - Develop objectives for follow-on experiments that include alternative technologies, more robust capabilities, or alternative employment scenarios. - Assess and support INP and other emerging technologies for transition to acquisition through prototyping and experimentation. 2. Undersea Dominance Undersea Dominance is focused on developing advanced components and prototypes to compliment the submarine force with affordable fixed and mobile arrays, distributed netted sensors, autonomous systems, and advanced payloads. Technologies with the potential to close anti-submarine warfare and mine warfare warfighting gaps will be submitted to the undersea dominance operating concept and mine warfare at-sea experiments. 2.1 Advanced Payloads and Sensors Emerging technology and engineering innovations from Naval/DoD research and development, industry, and academia will be integrated to demonstrate advanced payloads and sensors to support anti-submarine and mine warfare missions. This work will explore the warfighting utilization of emerging naval and industry innovations such as Remote Aerial Sonar and Communications Acoustic Laser System, Acoustic Communications modules that enable collaborative mission execution between distributed systems such as the heavy weight torpedo, Compact Rapid Attack Weapon, and Compact Modular Sensor and processing Suite as well as other projects which due to their nature, specific applications and detailed plans are available at a higher classification level. - Update requirements and CONOPS based on emerging technology and experimentation results - Conduct delta-design and delta-demonstration objective reviews - Perform acoustic sub-system and integration testing with airborne platform - Conduct experiments at Naval test ranges - Assess technical performance and operational utility - Submit to undersea dominance operating concept at-sea Fleet experiment - Assess and support INP and other emerging technologies for transition to acquisition through prototyping and experimentation. 2.2 Advanced Undersea Weapons					

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Advanced Undersea Weapons initiatives provide limited area denial capability to support Fleet operations. This work will explore the warfighting utilization of emerging naval and industry innovations such as the Multi-Compact Very Light Weight Torpedo Launcher, High Speed Electric Propulsion for the Anti-Torpedo Torpedo as well as other projects which, due to their nature, specific applications and detailed plans, are available at a higher classification level. - Provide technical input to workshops and wargames such as the Undersea Innovation Seminar War Game. - Conduct delta-design and delta-demonstration objective reviews. - Sub-system and integration testing into such programs as the ultra-lightweight torpedo. - Conduct experiments at Naval test ranges. - Assess technical performance and operational utility. - Submit experiments to mine warfare at-sea Fleet experiments such as the Undersea Domain Operation Concept at-sea experiment. - Develop objectives for follow-on experiments that include alternative technologies, more robust capabilities, or alternative employment scenarios. - Assess and support INP and other emerging technologies for transition to acquisition through prototyping and experimentation. 3. Surface Dominance Surface Dominance is focused on a fleet initiative to give the operational commander options to employ naval combat power in any anti-access/area-denial (A2/AD) environment. The emergence of sophisticated sea-denial strategies has driven a need to shift to an offensive imperative to control the seas. Increasing surface-force distributed lethality in offensive weapons and associated concept of operations need more strike options for joint-force commanders and add battlespace complexity to an adversary's calculus. The prototypes and associated experiments will explore new concepts in Naval force employment and enforce the core competencies of sea control when applied with bold new offensive methods. Prototypes in this area will explore: 1. Identification of advanced research in the sensors and weapons that can be used to project power and counter rapidly evolving missile, air, submarine, and surface threats that challenge our ability to establish dominance at the times and places of our choosing. 2. Development and exploration of new sensors and planning tools that will address a more complex targeting problem while creating more favorable conditions to project power where required.					

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
3. Experimentation with technologies and methods to more fully integrate the Navy and Marine Corps combat team to provide persistent presence that can influence and control events at sea and in the littorals. 4. Provide feedback to the planning and production of weapons, sensor, tactical tools and employment methods to address a more broadly deployed lethality. 3.1 Weapon Systems and Integration This project will explore innovative and emerging electronics and control systems, sensors, payloads, and weapons technologies that have the capability of upgrading the offensive capability of surface combatants. Rapidly integrate and demonstrate weapon system prototypes into existing and modular weapon systems to demonstrate increased lethality, range and effectiveness. This work will explore the warfighting utilization of emerging naval and industry innovations, such as advanced gun systems and propelling charge designs, low cost imaging terminal seekers, enhanced lethality warheads, and directed energy technologies. - Assess and support INPs, naval research and development emerging technologies, and industry innovations - Alternative weapon platform/payload concept optimization study - Conduct demonstration objective review - Provide technical inputs to Fleet Battle experiments and wargames - Perform sub-system and tactical decision aid integration testing - Conduct range tests - Using experimentation, assess technical performance and operational utility. - Experimentation planning for multiple alternative platforms in a maritime relevant environment. 3.2 Persistent Over-the-Horizon Engagement This aspect of the campaign will concentrate on how to use alternative weapon concepts and the integration of innovative payloads. This work will explore the warfighting utilization of emerging naval research and development and industry innovations, such as the various Nemesis modules the nature of which, specific applications and detailed plans are available at a higher classification level. - Conduct requirements and trade space analysis in support of CONOPS refinement. - Complete design and demonstration objective reviews. - Perform sub-system and integration testing. - Conduct experiments in a maritime relevant environment during Trident Warrior and RIMPAC exercises. - Assess technical performance and operational utility. - Develop objectives for follow-on experiments that include alternative technologies, more robust capabilities, or alternative employment scenarios.					

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Assess INP and other emerging technologies for transition to acquisition through prototyping and experimentation ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	40.356	0.000	40.356

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The strategy for this non-acquisition program is to fully leverage the scientific and engineering expertise and technical infrastructure within the Naval Research and Development Establishment (NR&DE), and in collaboration with and support of the Fleet Forces Command, Naval Warfighting Development Centers, Naval Warfare Development Command, and the Combat Development and Integration Command, produce technology and engineering solutions to address naval warfighting challenges and to develop innovations in future Naval warfighting concepts and capabilities.

E. Performance Metrics

Performance metrics are specific to each of the projects funded. All will include measures identified in the Statement of Objectives (SOO), including completions, successes, terminations, and iterative prototype cycle times reported against schedules and deliverables stated in the requirement documents.

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

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
Prototype Development, Experimentation and Demonstration	PO	NRL : Washington, DC	0.000	0.000		0.000		4.261	Jan 2017	-		4.261	Continuing	Continuing	Continuing
Prototype Development, Experimentation and Demonstration	PO	NSWC : Various	0.000	0.000		0.000		9.668	Jan 2017	-		9.668	Continuing	Continuing	Continuing
Prototype Development, Experimentation and Demonstration	PO	NUWC : Various	0.000	0.000		0.000		8.679	Jan 2017	-		8.679	Continuing	Continuing	Continuing
Prototype Development, Experimentation and Demonstration	PO	SPAWAR : Various	0.000	0.000		0.000		8.739	Jan 2017	-		8.739	Continuing	Continuing	Continuing
Prototype Development, Experimentation and Demonstration	PO	NAWC : Various	0.000	0.000		0.000		9.009	Jan 2017	-		9.009	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		40.356		-		40.356	-	-	-

	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		40.356		-		40.356	-	-	-

Remarks

Support and Test and Evaluation costs are directly associated with the delivery of the primary product and included in the product development cost category for rapid prototype development, experimentation and demonstration cost categories.

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

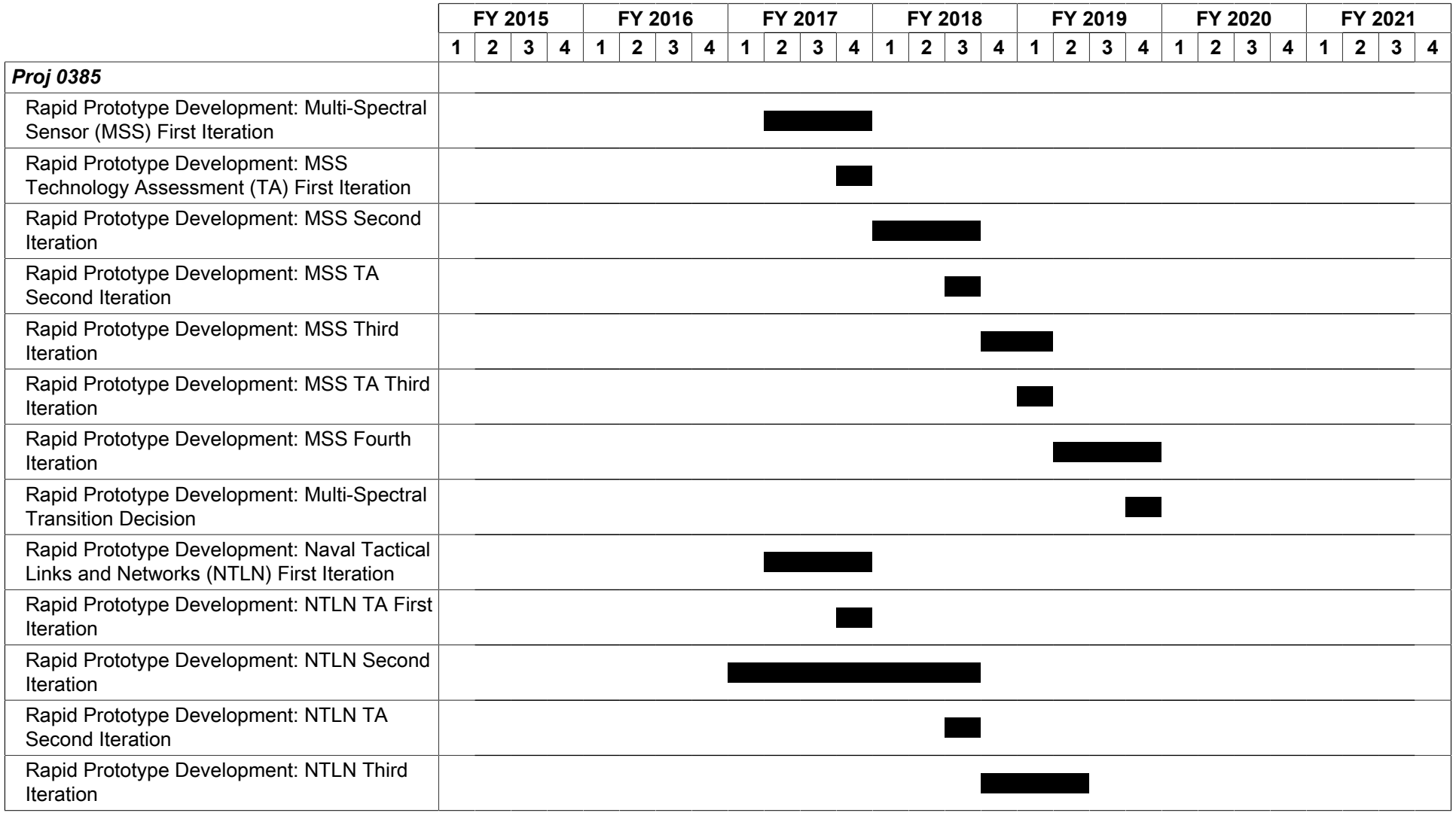

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

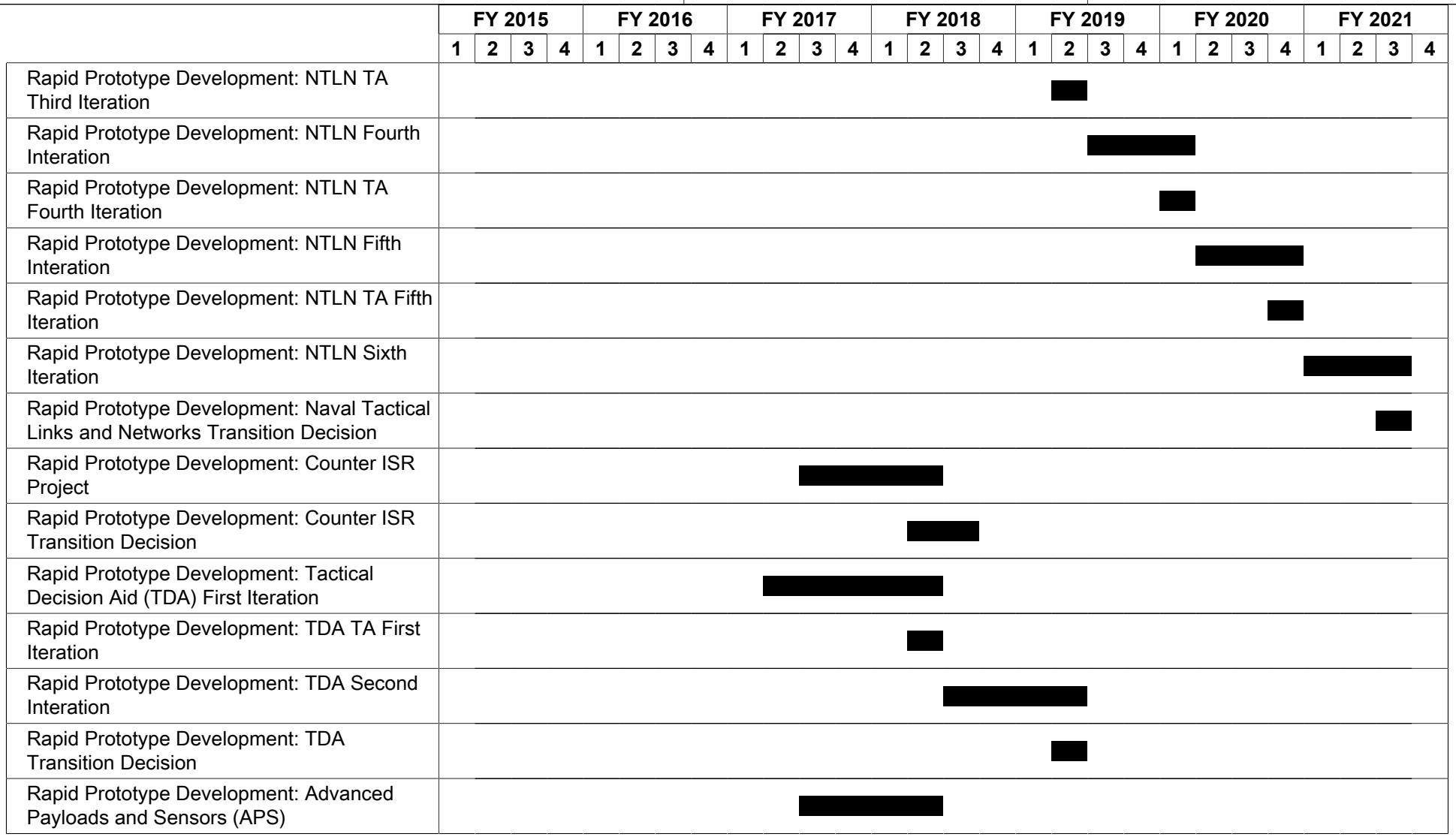

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

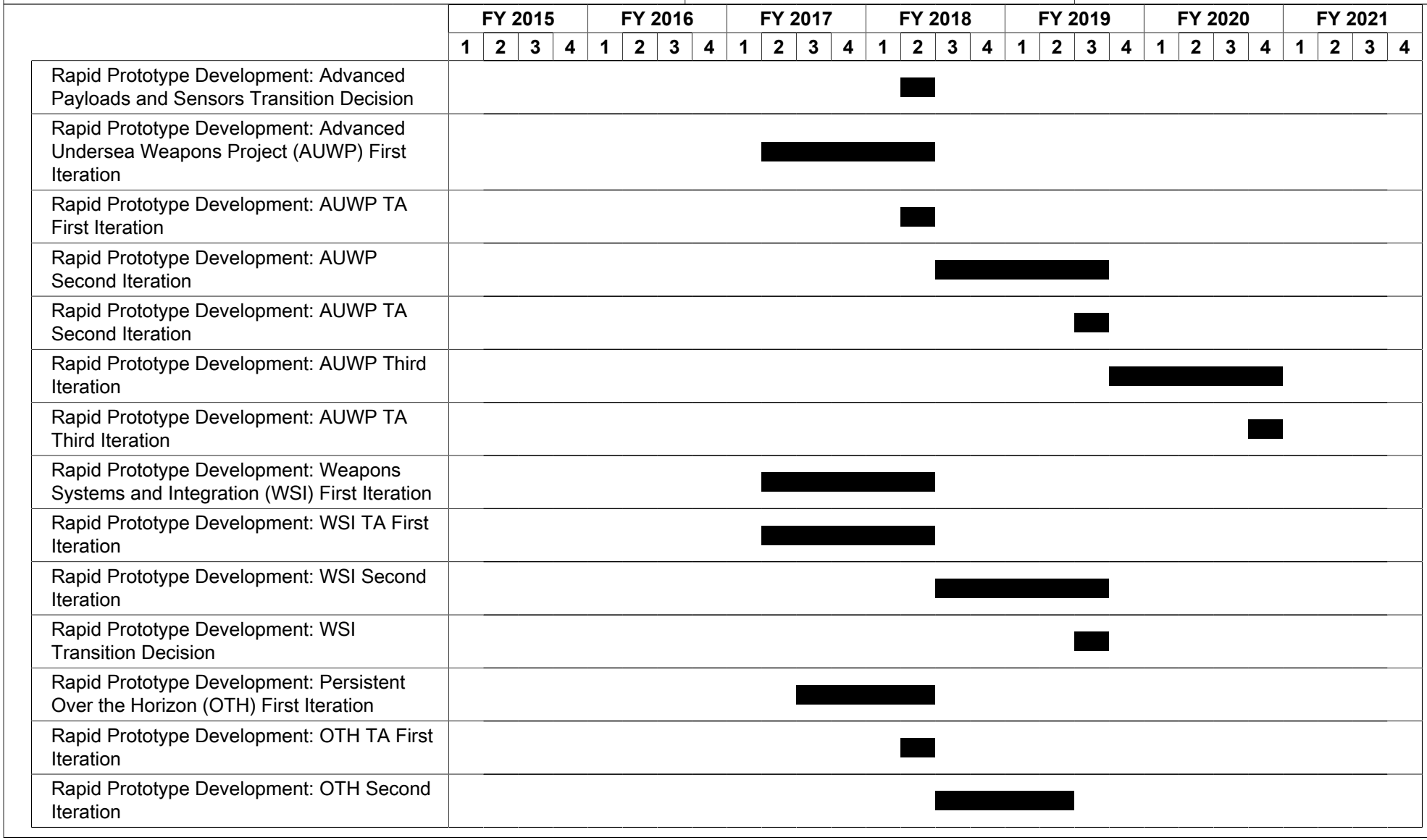

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

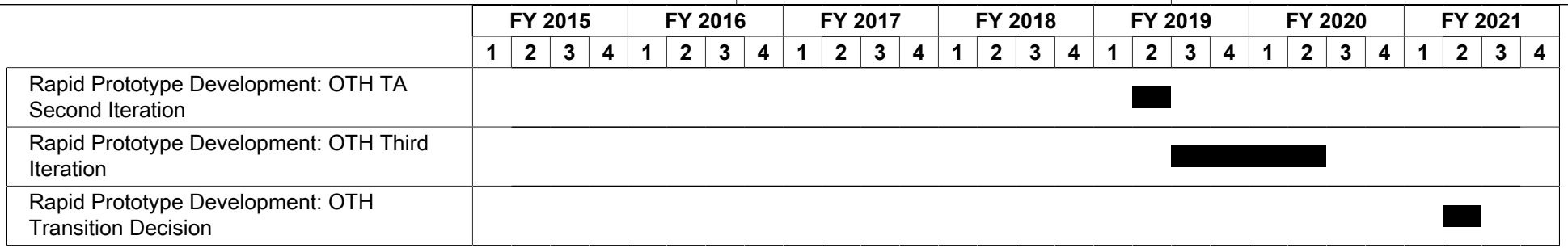

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0385				
Rapid Prototype Development: Multi-Spectral Sensor (MSS) First Iteration	2	2017	4	2017
Rapid Prototype Development: MSS Technology Assessment (TA) First Iteration	4	2017	4	2017
Rapid Prototype Development: MSS Second Iteration	1	2018	3	2018
Rapid Prototype Development: MSS TA Second Iteration	3	2018	3	2018
Rapid Prototype Development: MSS Third Iteration	4	2018	1	2019
Rapid Prototype Development: MSS TA Third Iteration	1	2019	1	2019
Rapid Prototype Development: MSS Fourth Iteration	2	2019	4	2019
Rapid Prototype Development: Multi-Spectral Transition Decision	4	2019	4	2019
Rapid Prototype Development: Naval Tactical Links and Networks (NTLN) First Iteration	2	2017	4	2017
Rapid Prototype Development: NTLN TA First Iteration	4	2017	4	2017
Rapid Prototype Development: NTLN Second Iteration	1	2017	3	2018
Rapid Prototype Development: NTLN TA Second Iteration	3	2018	3	2018
Rapid Prototype Development: NTLN Third Iteration	4	2018	2	2019
Rapid Prototype Development: NTLN TA Third Iteration	2	2019	2	2019
Rapid Prototype Development: NTLN Fourth Interation	3	2019	1	2020
Rapid Prototype Development: NTLN TA Fourth Iteration	1	2020	1	2020
Rapid Prototype Development: NTLN Fifth Interation	2	2020	4	2020
Rapid Prototype Development: NTLN TA Fifth Iteration	4	2020	4	2020
Rapid Prototype Development: NTLN Sixth Iteration	1	2021	3	2021
Rapid Prototype Development: Naval Tactical Links and Networks Transition Decision	3	2021	3	2021

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0385 / *Rapid Prototype Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Rapid Prototype Development: Counter ISR Project	3	2017	2	2018
Rapid Prototype Development: Counter ISR Transition Decision	2	2018	3	2018
Rapid Prototype Development: Tactical Decision Aid (TDA) First Iteration	2	2017	2	2018
Rapid Prototype Development: TDA TA First Iteration	2	2018	2	2018
Rapid Prototype Development: TDA Second Interation	3	2018	2	2019
Rapid Prototype Development: TDA Transition Decision	2	2019	2	2019
Rapid Prototype Development: Advanced Payloads and Sensors (APS)	3	2017	2	2018
Rapid Prototype Development: Advanced Payloads and Sensors Transition Decision	2	2018	2	2018
Rapid Prototype Development: Advanced Undersea Weapons Project (AUWP) First Iteration	2	2017	2	2018
Rapid Prototype Development: AUWP TA First Iteration	2	2018	2	2018
Rapid Prototype Development: AUWP Second Iteration	3	2018	3	2019
Rapid Prototype Development: AUWP TA Second Iteration	3	2019	3	2019
Rapid Prototype Development: AUWP Third Iteration	4	2019	4	2020
Rapid Prototype Development: AUWP TA Third Iteration	4	2020	4	2020
Rapid Prototype Development: Weapons Systems and Integration (WSI) First Iteration	2	2017	2	2018
Rapid Prototype Development: WSI TA First Iteration	2	2017	2	2018
Rapid Prototype Development: WSI Second Iteration	3	2018	3	2019
Rapid Prototype Development: WSI Transition Decision	3	2019	3	2019
Rapid Prototype Development: Persistent Over the Horizon (OTH) First Iteration	3	2017	2	2018
Rapid Prototype Development: OTH TA First Iteration	2	2018	2	2018
Rapid Prototype Development: OTH Second Iteration	3	2018	2	2019
Rapid Prototype Development: OTH TA Second Iteration	2	2019	2	2019
Rapid Prototype Development: OTH Third Iteration	3	2019	2	2020
Rapid Prototype Development: OTH Transition Decision	2	2021	2	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 0603382N / *Advanced Combat Systems Tech*	Project (Number/Name) 0399 / *Unmanned Rapid Prototype 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
0399: *Unmanned Rapid Prototype Development*	0.000	0.000	0.000	15.027	-	15.027	15.090	15.098	15.103	15.122	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

This project is new in FY2017.

A. Mission Description and Budget Item Justification

Department of Navy (DON) leadership has acknowledged that maintaining maritime superiority depends in part on our ability to accelerate the speed of warfighting and technological innovations in order to extend our advantage to offset our adversary's growing capabilities. The Unmanned Systems (UxS) Rapid Prototype Development project supports the goals and objectives of the Chief of Naval Operations (CNO) Navigation Plan and Design for Maintaining Maritime Superiority, Commandant of the Marine Corps (CMC) Planning Guidance, and the Cooperative Strategy for 21st Century Seapower, and is fundamental to the DON's efforts to improve our acquisition outcomes. This project is aligned with, and in direct response to, calls for increased prototyping and experimentation in USD(AT&L)'s Better Buying Power 3.0, Secretary of the Navy's (SECNAV) Task Force Innovation direction, and the CNO direction to Achieve High Velocity Learning at Every Level. These efforts will reinvigorate and increase the use of unmanned prototyping and experimentation to rapidly field new warfighting capabilities, concepts and technologies, and engineering solutions faster than the typical budget cycle time.

The Unmanned Rapid Prototype Development project funds a strategic focus on prioritization of UxS rapid prototyping and experimentation of innovative combat system technologies and engineering innovations to explore Fleet-proposed capability concepts and needs, as well as foster advancements in naval warfighting capabilities. With an emphasis on "Field Early" or "Fail Fast" methodologies, the project is intended to expedite the development, exploration and fielding of technology and engineering prototypes to provide advanced warfighting capabilities, new technologies and engineering innovations across all Naval warfighting domains. Prototype development efforts will be used to inform/refine Concepts of Operation (CONOPS) and operational requirements; evaluate the operational utility and technical feasibility of technology/engineering innovations; support limited fielding of prototypes; and mitigate cost, schedule and performance risks associated with follow-on acquisition programs.

By fully leveraging the scientific and engineering expertise and technical infrastructure within the Naval Research and Development Establishment (NR&DE), and in collaboration with, and support of, the Fleet Forces Command, Naval Warfighting Development Centers, Naval Warfare Development Command, and the Marine Corps Combat Development and Integration Command, this project will produce UxS sensors, weapon systems, and command, control, and communications prototypes to address naval warfighting challenges and/or to pursue future naval warfighting concepts. Additionally, new and emerging UxS technologies and engineering innovations that offer the potential to reduce cost, increase readiness, or improve the overall efficiency or effectiveness of naval forces will be explored. A key distinction is that the process and battle rhythm is designed for optimal responsiveness to Fleet needs.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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The CNO and DON will work with Congress in accordance with an agreed-to framework of governance and oversight that will ensure the effective and efficient use of this funding for its intended purpose.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Unmanned Rapid Prototype Development, Experimentation and Demonstration	0.000	0.000	15.027	0.000	15.027
Articles:	-	-	-	-	-

Description: The project implements a pioneering strategic approach to the development and introduction of innovative unmanned system (UxS) technologies to the Fleet.

The iterative rapid development cycle consists of:
- the identification of requirements and priorities for unmanned warfare systems
- the survey of existing technologies for the most promising to satisfy the warfighting needs and to close capability gaps
- the rapid prototyping and demonstration of the highest priority technologies to verify capability and military utility prior to transition to acquisition

Prototype and demonstration efforts refine the innovative UxS technologies and their associated operational concepts through a series of progressive experiments (live-virtual-constructive, test ranges, and/or at-sea experiments) leveraging the in-house Naval Research and Development Establishment (NR&DE) infrastructure and Fleet experimentation venues. Deliverables include actual integrated hardware/software prototype systems, Concept of Operations (CONOPS), requirements, test reports, technical data, and associated doctrine, organization, training, leadership and education, and personnel aspects necessary to support decision making. These decisions include the transition of technologies to acquisition, further refinement of the technology, or termination and reinvestment of remaining funds to other technologies that add military value. In addition, these efforts will enable the NR&DE to assess and support INP and other emerging technologies for efficient transition to acquisition through prototyping and experimentation. The project technology initiatives will deliver game-changing capability to meet warfighting needs and close capability gaps with unmanned systems on the ground, in the air, on the sea, and under the sea.

FY 2015 Accomplishments:
N/A

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 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0399 / *Unmanned Rapid Prototype Development*

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					
FY 2017 Base Plans: The Unmanned Systems Rapid Prototype, Development, Experimentation and Demonstration process is iterative, nimble, and responsive to warfighting needs, capability gaps, naval priorities, and technology opportunities. The FY 2017 execution plan will draw upon the focus areas, projects and plans outlined below, with final FY 2017 technologies and prioritization completed in Q4 FY 2016 based on Fleet and Type Commander (TYCOM) priorities, assessments of emerging technology, and as informed by recent analysis, wargames and other experimentation results. The project focus areas are in alignment with DoD and Navy Unmanned System Roadmaps, reflect the Navy's strategic shift in national security to the Asia-Pacific Theater, and also address the requirement to continue to reduce lifecycle costs across all systems, including unmanned systems. The FY 2017 rapid development cycle execution plan will select promising technologies for rapid prototype and demonstration consistent with the focus areas. 1. Advanced UxS Air, Surface, Undersea, and Ground System Payloads and Platforms This focus is on the development and integration of emerging UxS platforms and/or system payloads from across naval research and development, industry, and academia to inform requirements/trade space analysis, CONOPS development, and to evaluate the warfighting utility and multi-mission employment options of advanced prototypes. UxS prototypes will be evaluated through a series of iterative prototypes and demonstrations. Those UxS prototypes which demonstrate the potential to satisfy warfighting capability needs or gaps or expand UxS employment options will be incorporated into planned UxS rapid prototyping and demonstration events in FY17. Project will integrate mature technologies developed through Naval S&T investments, such as autonomous and supervisory control systems, dynamic contingency re-planning, advanced power/energy systems, artificial intelligence, advanced GPS and radar technology, Fast data fusion algorithms, and modular weapons as developed for the Autonomous Aerial Cargo Utility System (AACUS), the Common UAS Launch and Recovery Project, the Medium Displacement Unmanned Surface Vehicle (MDUSV), Cargo Unmanned Ground Vehicle (UGV), Low-cost UAV swarming Technology (LOCUST), USV swarm prototypes, and other S&T prototypes. More specifically, the emerging technologies that contribute to the following needed Joint Capability Areas (JCAs) will receive priority: a. Battlespace Awareness. UxS payloads and/or platforms in all domains (air, sea, undersea, and ground) that significantly advance the ability to conduct Intelligence, Surveillance, and Reconnaissance (ISR) and environment collection related tasks.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
b. Force Application. In the air domain, technologies for Unmanned Aircraft Systems (UAS) for air-to-air combat, electronic warfare, and suppression and defeat of enemy air defense. In the maritime domain, both Unmanned Undersea Vehicle (UUV) and Unmanned Surface Vehicle (USV) technologies for mine laying and mine neutralization. c. Protection. Advanced technologies to assist in attack prevention or effects mitigation, including explosive ordnance disposal (EOD). d. Logistics. Cargo payload or platform systems with persistence to provide resupply of sea-based assets in high risk Anti-Access/Area Denial (A2/AD) environments. Specific project efforts in this comprehensive focus area include: - Conduct warfighter requirement, capability gap, and technical solution trade space analysis. - Evaluate technology assessments and review requirements analysis. - Evaluate potential for multi-mission utility and employment options. - Develop initial design, technical performance and demonstration objectives. - Prototype interoperable payload and platform systems and capabilities. - Complete prototype system/sub-system development, integration and testing for demonstration in relevant (to include simulated) maritime environments. - Perform final design, technical performance, and demonstration objective reviews. - Provide technical and demonstration objectives in support of CONOPS/Tactics, Techniques, and Procedures (TTP) development. - Refine and deliver demonstration plans in support of experiment/Fleet exercise events. - Execute demonstration plans and assess technical performance and operational utility. - Develop design change and new objectives for follow-on experiments/Fleet exercises, as required, to address alternative technologies, addition of more robust capabilities, or alternative employment methods to include multiple-UxS scenarios. - Update requirements and CONOPS/TTPs based on experiment/Fleet exercise results. - Provide technical data to inform Fleet models, simulations and wargames. 2. Autonomy and Cognitive Behavior					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Apply emerging technology and engineering innovations in all domains to provide control of basic vehicle operations and behavior for communications, systems effectiveness, and reduced manpower. Technologies for manpower reduction during mission performance, data collection and analysis, and planning and re-planning are high priorities. Additional emerging technology includes increased system, sensor, and analytical automation to develop, record, playback, project, and parse data and deliver "actionable" intelligence. - Conduct warfighter requirement, capability gap, and technical solution tradespace analysis. - Evaluate technology assessments and review requirements analysis. - Conduct Human-System Interface (HSI) assessment. - Evaluate potential for multi-mission utility and employment. - Develop initial design, technical performance and demonstration objectives. - Complete prototype system/sub-system development, integration and testing for demonstration in relevant (to include simulated) environments. - Perform final design, technical performance, and demonstration objective reviews. - Provide technical and demonstration objectives in support of CONOPS/CONEMP development. - Refine and deliver demonstration plans in support of experiment/Fleet exercise events. - Execute demonstration plans and assess technical performance, operational utility, and extent of manpower interaction with the UxS. - Assess need for design change and new objectives for follow-on experiments/Fleet exercises that may address alternative technologies, additional capabilities, or use methods. - Update CONOPS/CONEMPS based on experiment/Fleet exercise results. - Provide technical data to inform Fleet models, simulations and wargames. 3. Common Command and Control System Leverage emerging technologies and engineering innovations which support the warfighting utility and multi-mission capability of unmanned systems across vehicle classes, variants, and domains for integration in common Naval architecture and frameworks for the common command and control of vehicles. The project integrates mature technologies developed through naval research and development investments to enable UxS long-range and autonomous operation, such as developed for the Large Diameter UUV, Autonomous Aerial Cargo Utility System and Anti-Submarine Continuous Trail Unmanned Vessel (ACTUV). Additional technologies and capabilities to be developed include doctrine, systems and procedures to dynamically task and manage remote UxS and associated sensors, and Navy UxS interoperability with United States Air Force (USAF) and DoD/OGA where operationally or fiscally beneficial.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Specific project efforts in this comprehensive focus area include: - Conduct warfighter requirement, capability gap, and technical solution tradespace analysis. - Evaluate technology assessments and review requirements analysis. - Evaluate potential for multi-platform, multi-mission utility and employment methods. - Develop initial design, technical performance and demonstration objectives. - Prototype interoperable and common command and control system technologies/capabilities, including mission planning and mission control software. - Complete prototype system/sub-system development, integration and testing for demonstration in relevant (to include simulated) environments. - Perform final design, technical performance, and demonstration objective reviews. - Provide technical and demonstration objectives in support of CONOPS/CONEMP development. - Refine and deliver demonstration plans in support of experiment/Fleet exercise events. - Execute demonstration plans and assess technical performance and operational utility. - Develop design change and new objectives for follow-on experiments/Fleet exercises. - Update requirements and CONOPS/CONEMPS based on experiment/Fleet exercise results. - Provide technical data to inform Fleet models, simulations and wargames.					
4. Common Data Exfiltration and Transport Integrate emerging technologies and engineering innovations for transporting collected data from each UxS into existing C4I networks, including technologies for UxS platforms to adaptively connect to a network; a compatible means to rapidly offload collected sensor data for immediate exploitation and analysis; the tagging and universal discovery of all UxS collected data and information; and the mitigation of potential network vulnerabilities associated with UxS data transport. Specific project efforts in this comprehensive focus area include: - Conduct warfighter requirement, capability gap, and technical solution tradespace analysis. - Evaluate technology assessments and review requirements analysis. - Evaluate potential for multi-platform, multi-mission utility and employment. - Develop initial design, technical performance and demonstration objectives. - Prototype interoperable, common, data exfiltration and transport hardware/software technologies.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Complete prototype system/sub-system development, integration and testing for demonstration in relevant (to include simulated) environments. - Perform final design, technical performance, and demonstration objective reviews. - Provide technical and demonstration objectives in support of CONOPS/TTP development. - Refine and deliver demonstration plans in support of experiment/Fleet exercise events. - Execute demonstration plans and assess technical performance and operational utility. - Develop design change and new objectives for follow-on experiments/Fleet exercises, if required, that may address alternative technologies, addition of more robust capabilities, or alternative employment methods. - Update requirements and CONOPS/TTPs based on experiment/Fleet exercise results. - Provide technical data to inform Fleet models, simulations and wargames. 5. Communication Systems, Spectrum, and Resilience Development and integration of emerging technologies to increase the availability of UxS communication links, the amount of data the communication links support, certification of the communication spectrum, and the resilience of all radio frequency (RF) subsystems against interference (e.g., electromagnetic). Advanced technologies include multi-focused, super cooled antennas, conformal phased array antennas, cloud-enabled enterprise data centers, advanced error control, network path diversity, optical communications, and commercial gateway points-of-presence with digital inter-facility transport. Specific project efforts in this comprehensive focus area include: - Conduct warfighter requirement, capability gap, and technical solution tradespace analysis. - Evaluate technology assessments and review requirements analysis. - Evaluate potential for multi-platform, multi-mission utility and employment. - Develop initial design, technical performance and demonstration objectives. - Prototype interoperable, certifiable communication systems and resilience technology. - Complete prototype system/sub-system development, integration and testing for demonstration in relevant (to include simulated) environments. - Perform final design, technical performance, and demonstration objective reviews. - Provide technical and demonstration objectives in support of CONOPS/TTP development. - Refine and deliver demonstration plans in support of experiment/Fleet exercise events. - Execute demonstration plans and assess technical performance and operational utility.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Develop design change and new objectives for follow-on experiments/Fleet exercises, if required, that may address alternative technologies, addition of more robust capabilities, or alternative employment methods. - Update requirements and CONOPS/TTPs based on experiment/Fleet exercise results. - Provide technical data to inform Fleet models, simulations and wargames. 6. Interoperability and Modularity Development and integration, in cooperation with joint, interagency, intergovernmental, and multinational (JIIM) partners, of standard information exchange requirements (IERs) that address joint and Service needs, interoperability profiles (IOPs), middleware, and other technologies needed to achieve the necessary level of interoperability across manned and unmanned systems. Emerging capabilities include software reprogrammable interfaces, universal payload adapters, federated mission computing, and multiple input/ multiple output systems and subsystems. Specific project efforts in this comprehensive focus area include: - Conduct warfighter requirement, capability gap, and technical solution tradespace analysis. - Evaluate technology assessments and review requirements analysis. - Evaluate potential for multi-platform, multi-mission utility and employment, as well as life-cycle, integration, capability upgrade, maintenance and sustainment cost savings. - Develop initial design, technical performance and demonstration objectives. - Prototype interoperable, modular services and software modules. - Complete prototype system/sub-system development, integration and testing for demonstration in relevant (to include simulated) environments. - Perform final design, technical performance, and demonstration objective reviews. - Provide technical and demonstration objectives in support of CONOPS/CONEMP development. - Refine and deliver demonstration plans in support of experiment/Fleet exercise events. - Execute demonstration plans and assess technical performance and operational utility. - Develop design change and new objectives for follow-on experiments/Fleet exercises, if required, that may address alternative technologies, addition of more robust capabilities, or alternative employment methods. - Update requirements and CONOPS/CONEMPS based on experiment/Fleet exercise results. Provide technical data to inform Fleet models, simulations and wargames.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
7. Persistent Resilience Leverage emerging technologies and engineering innovation design schema to provide more effective on-station time for unmanned vehicles in all domains. This includes development and integration of the miniaturization of avionics, power and propulsion technology; reliability, maintainability, and survivability technology improvement; optimized material properties to allow unmanned systems to endure in extreme environments ranging from sandy and hot climates to humid or freezing climates and from high altitudes to fathoms beneath the oceans; and fuel-efficient propulsion and power output technology. Advanced capabilities include reduced size, weight, power, and cooling consumption technologies, low cost/high reliability materials/ components, miniaturized warning/self-protection systems, durable materials, and efficient electrical power generation, thermal management propulsion systems. The project integrates mature technologies developed through Naval S&T investments, such as alternative fuels, power and propulsion, and energy systems (including battery, fuel cell, renewable sources) developed for the Large Diameter UUV (LDUUV), Anti-Submarine Continuous Trail Unmanned Vessel (ACTUV), and other power/energy initiatives. Specific project efforts in this comprehensive focus area include: - Conduct warfighter requirement, capability gap, and technical solution tradespace analysis. - Evaluate technology assessments and review requirements analysis. - Evaluate potential for mission endurance and/or multi-platform, multi-mission utility. - Develop initial design, technical performance and demonstration objectives. - Prototype emerging technologies. - Complete prototype system/sub-system development, integration and testing for demonstration in relevant (to include simulated) environments. - Perform final design, technical performance, and demonstration objective reviews. - Provide technical and demonstration objectives in support of CONOPS/CONEMP development. - Refine and deliver demonstration plans in support of experiment/Fleet exercise events. - Execute demonstration plans and assess technical performance and operational utility. - Develop design change and new objectives for follow-on experiments/Fleet exercises, if required, that may address alternative technologies, addition of more robust capabilities, or alternative employment methods. - Update requirements and CONOPS/CONEMPs based on experiment/Fleet exercise results. - Provide technical data to inform Fleet models, simulations and wargames. 8. Research and Intelligence/Technology Protection (RITP)					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Development and integration of emerging UxS technologies to prevent unauthorized access/control, unauthorized/unintentional disclosure of data, and preservation of technological superiority from across naval research and development, industry, and academia. Specific project efforts in this comprehensive focus area include: - Evaluate project technologies in terms of RITP preservation of critical mission advantage over adversaries. - Implement and assess information controls in project development and execution to ensure RITP is maintained. - Incorporate RITP and cyber security protection in project requirements, and investigate additional capabilities and CONOPs/CONEMPS serving to counter or mitigate adversary responses. - Prototype technologies with potential to advance RITP postures. - Execute demonstration plans and assess technical performance and operational utility. - Update project requirements and CONOPS/CONEMPs based on technology developments and experiment/ Fleet exercise results. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	15.027	0.000	15.027

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The strategy for this non-acquisition program is to fully leverage the scientific and engineering expertise and technical infrastructure within the Naval Research and Development Establishment (NR&DE), and in collaboration with and support of the Fleet Forces Command, Naval Warfighting Development Centers, Naval Warfare Development Command, and the
Combat Development and Integration Command, produce advanced technology and engineering solutions to address naval warfighting challenges and/or to develop innovations in future Naval unmanned warfighting concepts and capabilities.

E. Performance Metrics

Performance metrics are specific to each of the projects funded. All will include measures identified in the Statement of Objectives (SOO), including completions, successes,terminations, and iterative prototype cycle times reported against schedules and deliverables stated in the requirement documents.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
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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
Prototype Development, Experimentation and Demonstration	PO	NRL : Washington, DC	0.000	0.000		0.000		1.391	Jan 2017	-		1.391	Continuing	Continuing	Continuing
Prototype Development, Experimentation and	PO	NSWC : Various	0.000	0.000		0.000		3.625	Jan 2017	-		3.625	Continuing	Continuing	Continuing
Prototype Development, Experimentation and	PO	NUWC : Various	0.000	0.000		0.000		3.211	Jan 2017	-		3.211	Continuing	Continuing	Continuing
Prototype Development, Experimentation and	PO	SPAWAR : Various	0.000	0.000		0.000		3.236	Jan 2017	-		3.236	Continuing	Continuing	Continuing
Prototype Development, Experimentation and	PO	NAWC : Various	0.000	0.000		0.000		3.564	Jan 2017	-		3.564	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		15.027		-		15.027	-	-	-

	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		15.027		-		15.027	-	-	-

Remarks

Support and Test and Evaluation costs are directly associated with the delivery of the primary product and included in the product development cost category for rapid prototype development, experimentation and demonstration cost categories.

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
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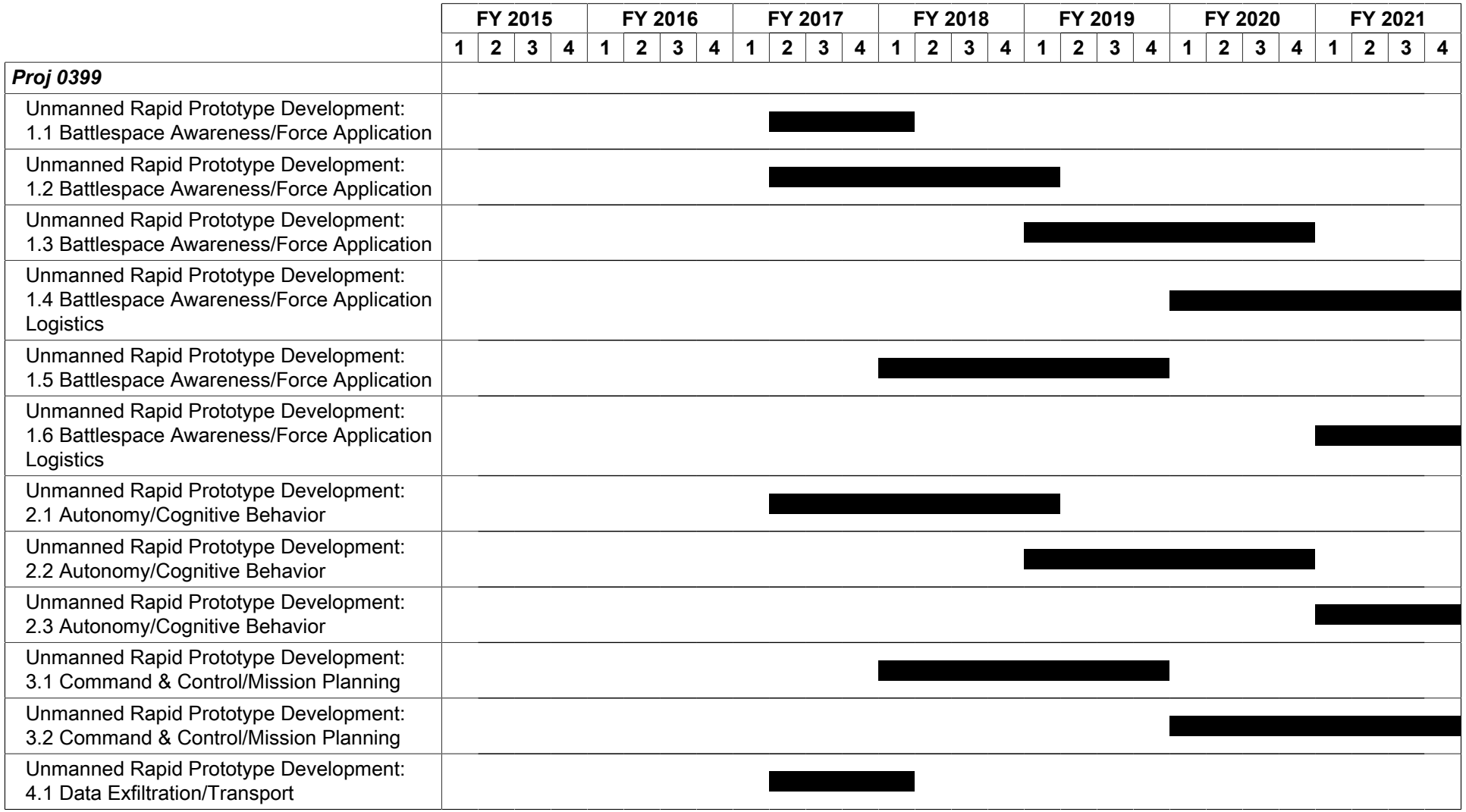

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
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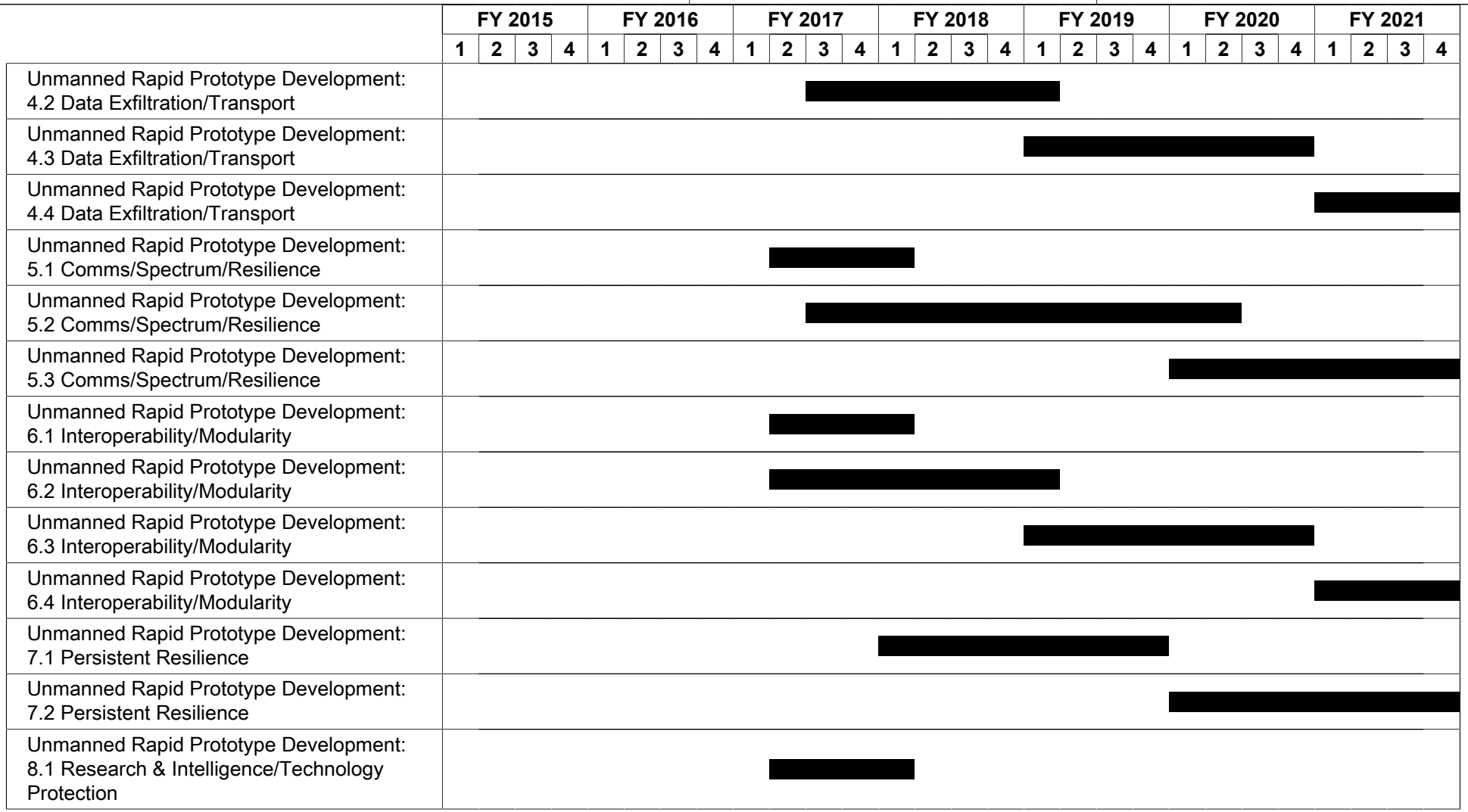

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
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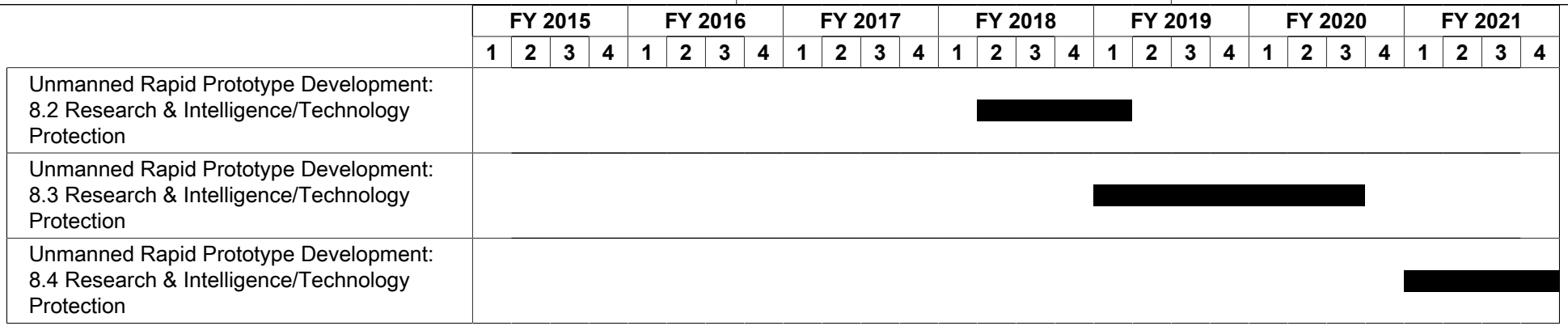

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0399				
Unmanned Rapid Prototype Development: 1.1 Battlespace Awareness/Force Application	2	2017	1	2018
Unmanned Rapid Prototype Development: 1.2 Battlespace Awareness/Force Application	2	2017	1	2019
Unmanned Rapid Prototype Development: 1.3 Battlespace Awareness/Force Application	1	2019	4	2020
Unmanned Rapid Prototype Development: 1.4 Battlespace Awareness/Force Application Logistics	1	2020	4	2021
Unmanned Rapid Prototype Development: 1.5 Battlespace Awareness/Force Application	1	2018	4	2019
Unmanned Rapid Prototype Development: 1.6 Battlespace Awareness/Force Application Logistics	1	2021	4	2021
Unmanned Rapid Prototype Development: 2.1 Autonomy/Cognitive Behavior	2	2017	1	2019
Unmanned Rapid Prototype Development: 2.2 Autonomy/Cognitive Behavior	1	2019	4	2020
Unmanned Rapid Prototype Development: 2.3 Autonomy/Cognitive Behavior	1	2021	4	2021
Unmanned Rapid Prototype Development: 3.1 Command & Control/Mission Planning	1	2018	4	2019
Unmanned Rapid Prototype Development: 3.2 Command & Control/Mission Planning	1	2020	4	2021
Unmanned Rapid Prototype Development: 4.1 Data Exfiltration/Transport	2	2017	1	2018
Unmanned Rapid Prototype Development: 4.2 Data Exfiltration/Transport	3	2017	1	2019
Unmanned Rapid Prototype Development: 4.3 Data Exfiltration/Transport	1	2019	4	2020
Unmanned Rapid Prototype Development: 4.4 Data Exfiltration/Transport	1	2021	4	2021
Unmanned Rapid Prototype Development: 5.1 Comms/Spectrum/Resilience	2	2017	1	2018
Unmanned Rapid Prototype Development: 5.2 Comms/Spectrum/Resilience	3	2017	2	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Unmanned Rapid Prototype Development: 5.3 Comms/Spectrum/Resilience	1	2020	4	2021
Unmanned Rapid Prototype Development: 6.1 Interoperability/Modularity	2	2017	1	2018
Unmanned Rapid Prototype Development: 6.2 Interoperability/Modularity	2	2017	1	2019
Unmanned Rapid Prototype Development: 6.3 Interoperability/Modularity	1	2019	4	2020
Unmanned Rapid Prototype Development: 6.4 Interoperability/Modularity	1	2021	4	2021
Unmanned Rapid Prototype Development: 7.1 Persistent Resilience	1	2018	4	2019
Unmanned Rapid Prototype Development: 7.2 Persistent Resilience	1	2020	4	2021
Unmanned Rapid Prototype Development: 8.1 Research & Intelligence/Technology Protection	2	2017	1	2018
Unmanned Rapid Prototype Development: 8.2 Research & Intelligence/Technology Protection	2	2018	1	2019
Unmanned Rapid Prototype Development: 8.3 Research & Intelligence/Technology Protection	1	2019	3	2020
Unmanned Rapid Prototype Development: 8.4 Research & Intelligence/Technology Protection	1	2021	4	2021

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