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 0604536N *I (U)Advanced Undersea Prototyping*							
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	0.000	0.000	0.000	78.589	-	78.589	87.844	160.272	117.596	43.877	Continuing	Continuing
3393: *Adv Undersea Prototyping-Remote Command & Control*	0.000	0.000	0.000	10.821	-	10.821	10.902	49.161	43.967	5.541	Continuing	Continuing
3394: *Adv Undersea Prototyping-Vehicles, Propulsion & Navigation*	0.000	0.000	0.000	57.768	-	57.768	41.942	68.111	49.629	22.336	Continuing	Continuing
3395: *Adv Undersea Prototyping-Explosive Payloads*	0.000	0.000	0.000	4.404	-	4.404	27.194	29.010	24.000	16.000	Continuing	Continuing
3396: *Adv Undersea Prototyping-Non-Lethal Payloads*	0.000	0.000	0.000	5.596	-	5.596	7.806	13.990	0.000	0.000	0.000	27.392

A. Mission Description and Budget Item Justification

Advanced undersea prototyping and test of Extra Large Unmanned Undersea Vehicles (XLUUVs) will advance the development of unmanned undersea vehicles systems by leveraging existing ONR UUVs designs that are greater than 54 inches in diameter. Payloads will be customized to meet Navy needs and demonstrate useful capability for the fleet. Utilize fleet demonstrations of XLUUVs to rapidly and affordably capture tactics, techniques, and procedures in operating XLUUVs prior to formal introduction of XLUUV programs of record to the fleet. Demonstrate launch, communications, command and control, navigation, endurance, recovery, payload feasibility, and mission planning and execution for XLUUVs. XLUUV energy prototyping will leverage existing independent research and development in energy-dense technology that meet power requirements for XLUUV missions that are limited by the amount of power currently available. Efforts under this program element include research, development, test, and evaluation of advanced development model energy solutions applicable to XLUUVs for increased energy endurance and efficiency to extend the reach of unmanned undersea systems.

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 0604536N *I (U)Advanced Undersea Prototyping*		
B. Program Change Summary ($ in Millions)	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	78.589	-	78.589
Total Adjustments	0.000	0.000	78.589	-	78.589
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	78.589	-	78.589

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

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 0604536N / *(U)Advanced Undersea Prototyping*	Project (Number/Name) 3393 / *Adv Undersea Prototyping-Remote Command & Control*	

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
3393: *Adv Undersea Prototyping-Remote Command & Control*	0.000	0.000	0.000	10.821	-	10.821	10.902	49.161	43.967	5.541	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Advanced Undersea energy prototyping will leverage existing independent research and development in energy-dense technology that meets power requirements for Unmanned Undersea Vehicle (UUV) missions, which are limited by the amount of power that they can carry. Efforts under this program element include research, development, test, and evaluation of advanced development model energy solutions applicable to XLUUVs for increased energy endurance and efficiency to extend the reach of unmanned undersea systems.

This project funds risk reduction activities to include advanced development prototyping and demonstrations to accelerate the design and development of commonality and interoperability capabilities for the cross-domain (Aviation, Surface, Sub-Surface, and Ground) requirements of the Navy. Leveraging products provided by the Common Control System, these efforts will demonstrate scalable, adaptable and interoperable warfighting capabilities across the Naval cross-domain environment. The advanced development emphasis will be to encourage innovation and enable rapid integration of UxS capabilities across all domains. These efforts will define, develop and demonstrate capability that advances new technology, hardware and software of Control Systems that could be ship, shore, airborne, or expeditionary based to operate multiple and dissimilar Naval (UxSs). Supports Advanced Development and Prototyping of PE 0305205N: UAS Integration and Interoperability.

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 Energy Product Development	0.000	0.000	6.474	0.000	6.474
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Develop energy prototype components that leverage existing independent research and development in energy-dense technology to meet power requirements for XLUUV missions. Begin Advanced Development Model prototype development.					
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 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3393 / *Adv Undersea Prototyping-Remote Command & Control*

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: Advanced Energy Support ***Articles:*** ***FY 2015 Accomplishments:*** N/A ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** Support Navy technical requirements, engineering, analysis, and design necessary to utilize energy technology applicable to fleet needs for increased energy endurance and efficiency to extend reach of unmanned undersea systems. ***FY 2017 OCO Plans:*** N/A	0.000 -	0.000 -	0.791 -	0.000 -	0.791 -
Title: Advanced Energy Management ***Articles:*** ***FY 2015 Accomplishments:*** N/A ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** Provide technical guidance, project planning for advanced energy prototyping. Provide financial and contracting support. Provide Coordination between prototype developer, test support, engineering, and contractors. Project planning and program management for development of UxS cross-domain common control convergence will begin in FY 2017. FY 2017 plans include initial cross-domain requirements analyses, schedule and cost estimate planning, and planning for advanced development and prototyping activities to include any required studies. ***FY 2017 OCO Plans:***	0.000 -	0.000 -	3.556 -	0.000 -	3.556 -

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 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3393 / *Adv Undersea Prototyping-Remote Command & Control*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	10.821	0.000	10.821

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Design Advanced Energy components to reach Preliminary Design Review in FY18. Develop and build Advanced Development Model prototype and integrate system. Test Advanced Development Model prototype in FY 2021.

In coordination with UxS platforms, effort will eliminate redundant efforts, encourage innovation, and improve cost control of unmanned systems across multiple domains. Leveraging the available Common Control System (CCS) Vehicle Management (VM) and Mission Management/Mission Planning (MM/MP) capabilities and products, these risk reduction and advanced development efforts will include emerging or legacy platform components to demonstrate commonality and interoperability concepts across Naval operating domains. Using an open system architecture and an incremental development approach to encourage industry innovation and allow for rapid integration, the Advanced Development Directorate will leverage existing competitively-awarded contract vehicles, resources and prototype expertise from the other Naval SYSCOMs (i.e. NAVSEA, SPAWAR), and Naval Research activities (i.e. Office of Naval Research (ONR), Naval Research Laboratory (NRL)).

E. Performance Metrics

Demonstrate use of advanced UUV Energy technology in an Advanced Development Model prototype.

The risk reduction and advanced development efforts will use a Service-Oriented Architecture based on the OSD Unmanned Control Segment (UCS) architecture in order to maximize innovation, flexibility and technology adaptation. Each demonstration will set its respective demonstration goals/objectives and measures of success according to the stakeholder and responsible sponsor requirements

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 0604536N / *(U)Advanced Undersea Prototyping*	Project (Number/Name) 3393 / *Adv Undersea Prototyping-Remote Command & Control*	

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
Energy Prototype Contract	SS/CPFF	ARL PSU : State College, PA	0.000	0.000		0.000		6.474	Jan 2017	-		6.474	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		6.474		-		6.474	-	-	-

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
Energy Prototype Engineering Support 1	SS/CPFF	ARL PSU : State College, PA	0.000	0.000		0.000		0.561	Jan 2017	-		0.561	Continuing	Continuing	Continuing
Energy Prototype Engineering Support 2	WR	NUWC Newport : Newport, RI	0.000	0.000		0.000		0.230	Dec 2016	-		0.230	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		0.791		-		0.791	-	-	-

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
Energy Prototype Management	Various	Various : Various	0.000	0.000		0.000		0.098	Dec 2016	-		0.098	Continuing	Continuing	Continuing
Energy Prototype Travel	Various	NAVSEA : Washington, DC	0.000	0.000		0.000		0.008	Jun 2017	-		0.008	Continuing	Continuing	Continuing
Common Control System (CCS)	Various	NAVAIR : Not Specified	0.000	0.000		0.000		3.450	Nov 2016	-		3.450	0.000	3.450	-
		Subtotal	0.000	0.000		0.000		3.556		-		3.556	-	-	-

	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		10.821		-		10.821	-	-	-

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 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3393 / *Adv Undersea Prototyping-Remote Command & Control*

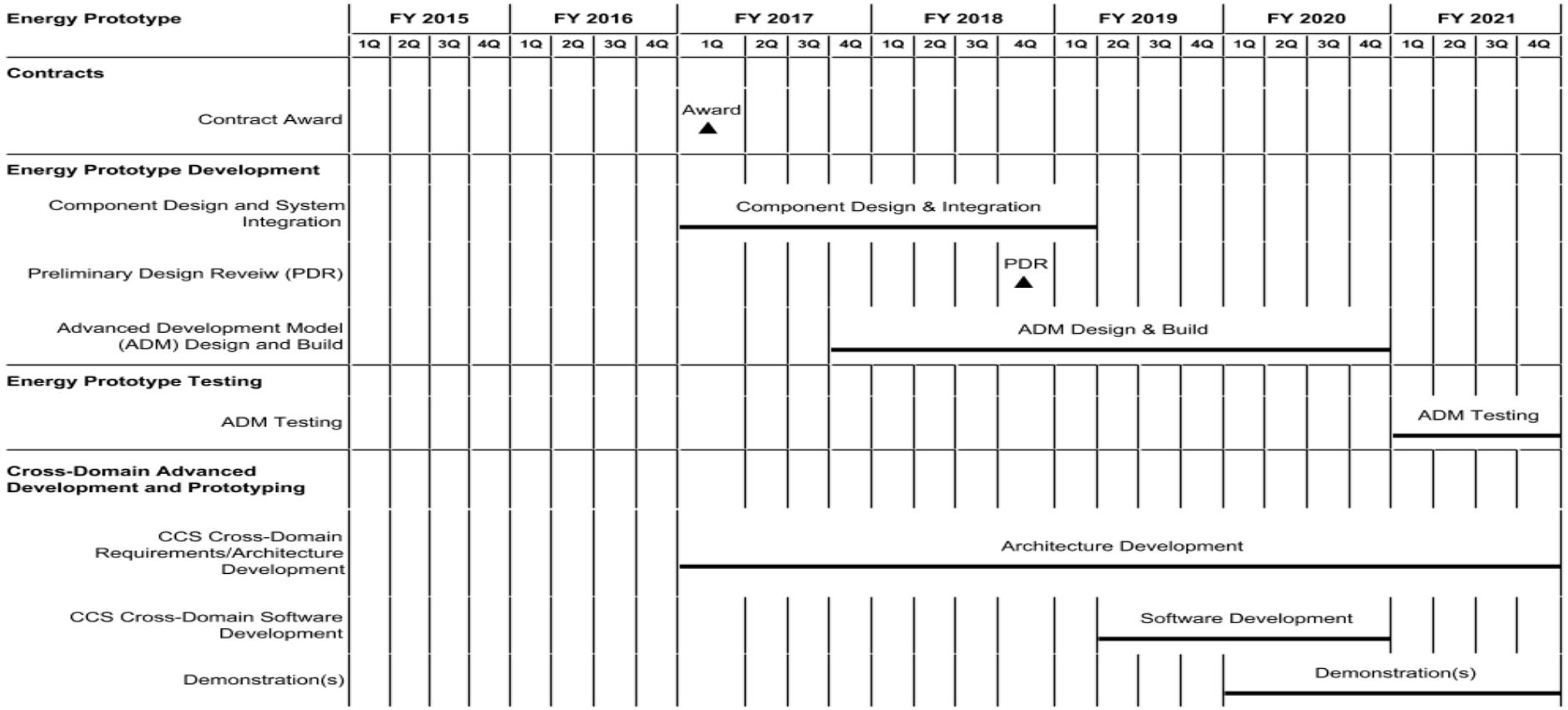

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3393 / *Adv Undersea Prototyping-Remote Command & Control*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Energy Prototype				
Contracts: Contract Award: Contract Award	1	2017	1	2017
Energy Prototype Development: Component Design and System Integration: Component Design and System Integration	1	2017	1	2019
Energy Prototype Development: Preliminary Design Reveiw (PDR): Preliminary Design Reveiw (PDR)	4	2018	4	2018
Energy Prototype Development: Advanced Development Model (ADM) Design and Build: Advanced Development Model (ADM) Design and Build	4	2017	4	2020
Energy Prototype Testing: ADM Testing: ADM Testing	1	2021	4	2021
Cross-Domain Advanced Development and Prototyping: CCS Cross-Domain Requirements/Architecture Development: Architecture Development	1	2017	4	2021
Cross-Domain Advanced Development and Prototyping: CCS Cross-Domain Software Development: Software Development	2	2019	4	2020
Cross-Domain Advanced Development and Prototyping: Demonstration(s): Demonstration(s)	1	2020	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 0604536N / *(U)Advanced Undersea Prototyping*	Project (Number/Name) 3394 / *Adv Undersea Prototyping-Vehicles, Propulsion & Navigation*	

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
3394: *Adv Undersea Prototyping-Vehicles, Propulsion & Navigation*	0.000	0.000	0.000	57.768	-	57.768	41.942	68.111	49.629	22.336	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Advanced undersea prototyping and test of Extra Large Unmanned Undersea Vehicle Systems (XLUUVs) will advance the development of unmanned undersea vehicles by leveraging existing Commercial Off The Shelf (COTS) UUVs that are greater than 54 inches in diameter. Payloads will be customized to meet Navy needs and demonstrate useful capability for the fleet. Utilize fleet demonstrations of XLUUVs to rapidly and affordably capture tactics, techniques, and procedures in operating XLUUVs prior to formal introduction of XLUUV programs of record to the fleet. Demonstrate launch, communications, command and control, navigation, endurance, recovery, payload feasibility, and mission planning and execution for XLUUVs. XLUUV energy prototyping will leverage existing independent research and development in energy-dense technology that meet power requirements for XLUUV missions that are limited by the amount of power currently available. Efforts under this program element include research, development, test, and evaluation of advanced development model energy solutions applicable to XLUUVs for increased energy endurance and efficiency to extend the reach of unmanned undersea systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: XLUUV Product Development	0.000	0.000	52.250	0.000	52.250
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Utilize a Commercial off the Shelf (COTS) XLUUV greater than 54 inches in diameter for initial demonstration, and develop a modified COTS prototype XLUUV for demonstration by the fleet. Develop prototype energy source that leverages existing independent research and development in energy-dense technology to meet power requirements for XLUUV missions. Modify COTS UUV payload to meet Navy capability needs.					
FY 2017 OCO Plans: N/A					
Title: XLUUV Support	0.000	0.000	5.000	0.000	5.000

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 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3394 / *Adv Undersea Prototyping-Vehicles, Propulsion & Navigation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** Support Navy technical requirements, engineering, analysis, and design necessary to utilize COTS XLUUVs, modified COTS XLUUVs, and energy technology applicable to fleet needs for increased energy endurance and efficiency to extend reach of unmanned undersea systems. Support analysis required for customization of COTS XLUUV payload. ***FY 2017 OCO Plans:*** N/A					
Title: XLUUV Management Services	0.000	0.000	0.518	0.000	0.518
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** Provide technical guidance, project planning and travel for XLUUV prototyping, financial and contracting support, and coordinate work with Fleet, test support, engineering support, and contractors. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	57.768	0.000	57.768

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3394 / *Adv Undersea Prototyping-Vehicles, Propulsion & Navigation*

D. Acquisition Strategy

Five XLUUV systems will be procured for demonstration both CONUS and in the PACOM theater. Payload developed under projects 3395 and 3394 will be integrated onto these vehicles to be included in fleet experimentation throughout the program to gain experience and develop CONOPS and TTPs. One vehicle will be used for experimentation with integration on surface ship, initially investigating amphibious ships with well deck. Lease Commercial Off The Shelf (COTS) XLUUV for initial fleet demonstrations in FY 2017 and FY 2018. Award sole source modified COTS XLUUV prototype contract in FY 2017.

E. Performance Metrics

Successfully demonstrate XLUUV with Fleet.

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 0604536N / *(U)Advanced Undersea Prototyping*	Project (Number/Name) 3394 / *Adv Undersea Prototyping-Vehicles, Propulsion & Navigation*	

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
Payload Design documentation	C/BA	Metron : Sterling, VA	0.000	0.000		0.000		0.250	Oct 2016	-		0.250	Continuing	Continuing	Continuing
Fabrication of 5 XLUUVs, battery energy section, Mine warfare payload	C/BA	Various : Not Specified	0.000	0.000		0.000		52.000	Mar 2017	-		52.000	78.000	130.000	-
		Subtotal	0.000	0.000		0.000		52.250		-		52.250	-	-	-

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
Design analysis	MIPR	NSWC : Washington, D.C	0.000	0.000		0.000		0.500	Oct 2016	-		0.500	2.500	3.000	-
Payload Analysis	MIPR	NRL : WASHINGTON, D.C.	0.000	0.000		0.000		0.500	Nov 2016	-		0.500	2.500	3.000	-
COTS Vechicle UUV Testing	SS/BA	BOEING : Anaheim, CA	0.000	0.000		0.000		4.000	Mar 2017	-		4.000	12.000	16.000	-
		Subtotal	0.000	0.000		0.000		5.000		-		5.000	17.000	22.000	-

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
Test support (openly competed)	C/BA	VARIOUS : TBD	0.000	0.000		0.000		0.000		-		0.000	40.000	40.000	-
Test director	MIPR	SPAWAR : SAN DIEGO, CA	0.000	0.000		0.000		0.000	Oct 2016	-		0.000	3.750	3.750	-
Demonstration of XLUUV off well deck ship (openly competed)	C/BA	VARIOUS : TBD	0.000	0.000		0.000		0.000	Nov 2016	-		0.000	9.000	9.000	-

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 0604536N / *(U)Advanced Undersea Prototyping*	Project (Number/Name) 3394 / *Adv Undersea Prototyping-Vehicles, Propulsion & Navigation*	

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
Demonstration of multple XLUUVs in PACOM theater (openly competed)	C/BA	VARIOUS : TBD	0.000	0.000		0.000		0.000		-		0.000	10.000	10.000	-
		Subtotal	0.000	0.000		0.000		0.000		-		0.000	62.750	62.750	-

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
Techncal support	MIPR	NSWC : WASHINGTON, D.C.	0.000	0.000		0.000		0.518	Oct 2016	-		0.518	3.000	3.518	-
		Subtotal	0.000	0.000		0.000		0.518		-		0.518	3.000	3.518	-

	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		57.768		-		57.768	-	-	-

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 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3394 / *Adv Undersea Prototyping-Vehicles, Propulsion & Navigation*

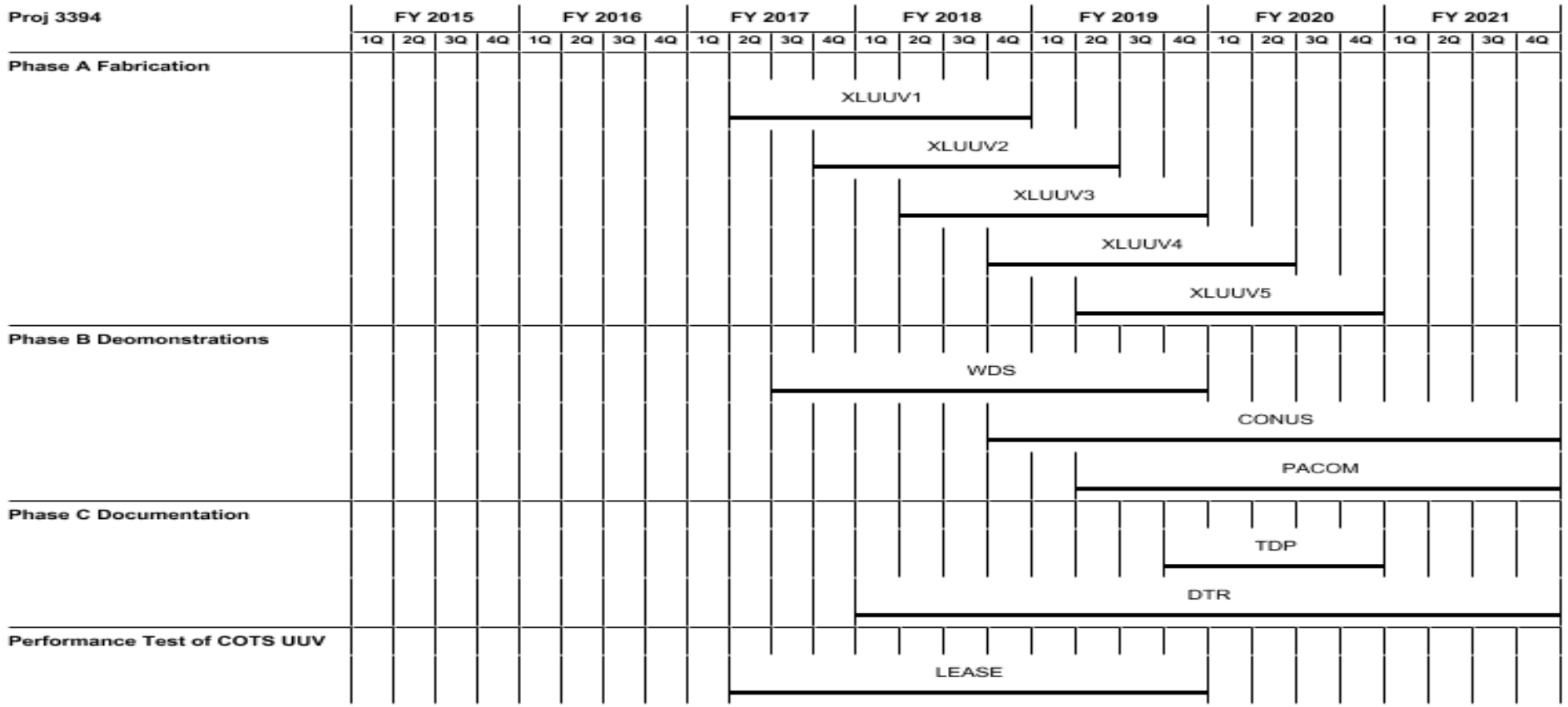

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3394 / *Adv Undersea Prototyping-Vehicles, Propulsion & Navigation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3394				
Phase A Fabrication: Phase A Fabricate XLUUV 1 (vehicle system, CDM payload, large battery energy system)	2	2017	4	2018
Phase A Fabrication: Phase A Fabricate XLUUV 2(vehicle system, CDM payload, large battery energy system)	4	2017	2	2019
Phase A Fabrication: Phase A Fabricate XLUUV 3(vehicle system, CDM payload, large battery energy system)	2	2018	4	2019
Phase A Fabrication: Phase A Fabricate XLUUV 4(vehicle system, CDM payload, large battery energy system)	4	2018	2	2020
Phase A Fabrication: Phase A Fabricate XLUUV 5(vehicle system, CDM payload, large battery energy system)	2	2019	4	2020
Phase B Deomonstrations: Phase B Demonstration - Well deck ship	3	2017	4	2019
Phase B Deomonstrations: Phase B Demonstration - CONUS	4	2018	4	2021
Phase B Deomonstrations: Phase B Demonstration - PACOM	2	2019	4	2021
Phase C Documentation: Phase C Documentation- Technal design package	4	2019	4	2020
Phase C Documentation: Phase C Documentaion- Demonstration Test reports	1	2018	4	2021
Performance Test of COTS UUV: LEASED COTS Vechicle	2	2017	4	2019

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 0604536N / *(U)Advanced Undersea Prototyping*	Project (Number/Name) 3395 / *Adv Undersea Prototyping-Explosive Payloads*	

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
3395: *Adv Undersea Prototyping-Explosive Payloads*	0.000	0.000	0.000	4.404	-	4.404	27.194	29.010	24.000	16.000	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Advanced undersea prototyping of undersea explosive payloads from XL sized UUVs. Leverage the developments at ONR for undersea weapons to complete analysis of feasibility, policy, lethality, and performance of integrating undersea weapons systems on XLUUVs. The program will design new hardware, investigate and develop new algorithms to increase lethality in the both undersea and surface targets. New C2 algorithms will be developed for advanced targeting.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Explosive Payloads	0.000	0.000	4.404	0.000	4.404
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Concept design for XLUUV undersea weapons payload and performance and lethality analysis.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	4.404	0.000	4.404

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Leverage the knowledge base at the Naval Research and Development Enterprise to complete the feasibility studies that will then lead the development of critical technology. The effort will heavily use the experience resident in the undersea weapons industrial base including Penn State ARL, Naval Undersea Warfare Center, Naval Surface Warfare Center.

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 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3395 / *Adv Undersea Prototyping-Explosive Payloads*

E. Performance Metrics

Successful launch of undersea weapon from an XLUUV. Detailed metrics are classified.

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 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3395 / *Adv Undersea Prototyping-Explosive Payloads*

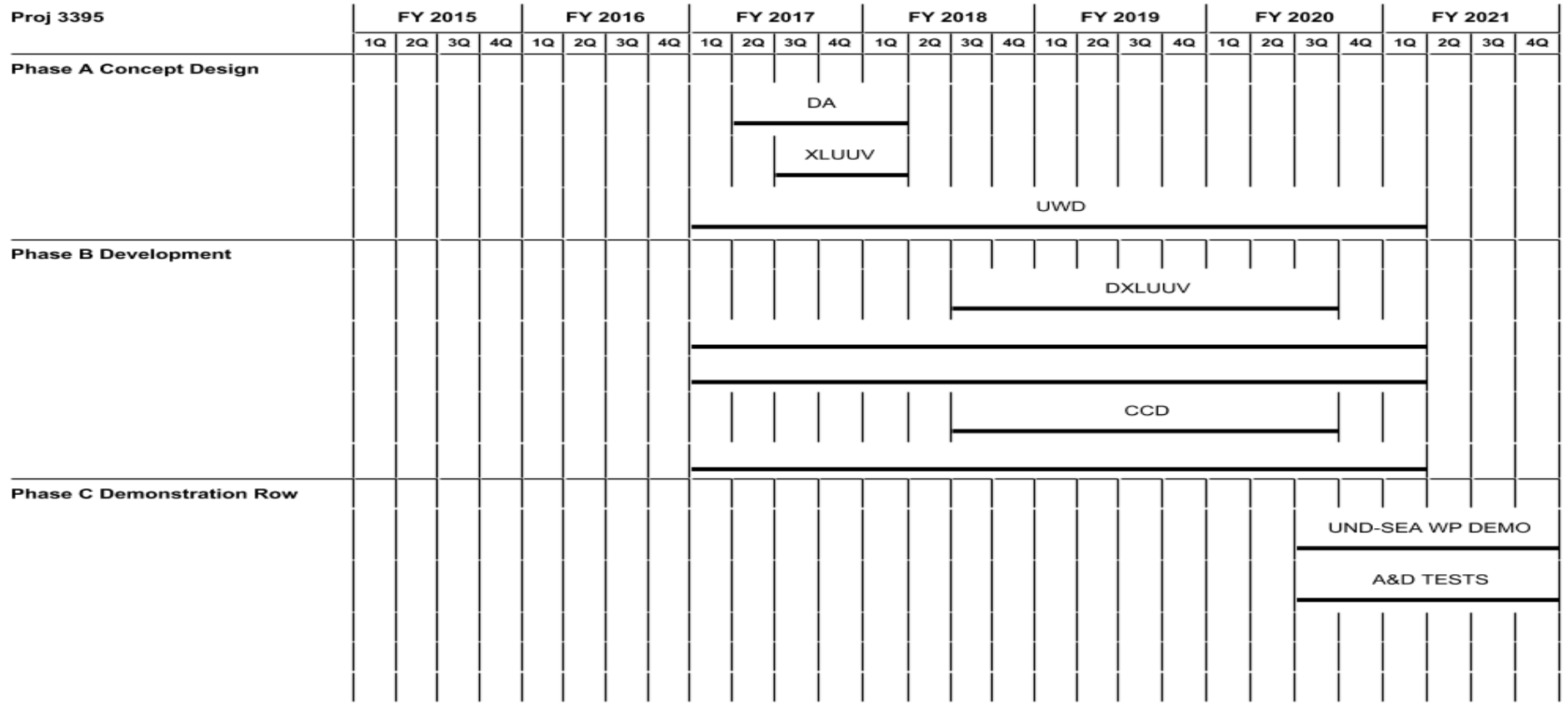
Product Development ($ in Millions)

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
XL PAYLOAD DESIGN AND DEVELOPMENT	C/BA	METRON : STERLING, VA	0.000	0.000		0.000		1.000	Mar 2017	-		1.000	9.000	10.000	-
COMMAND AND CONTROL	MIPR	SPAWAR : SAN DIEGO, CA	0.000	0.000		0.000		0.200	Jan 2017	-		0.200	1.300	1.500	-
PSU ARL	C/BA	State College : PA	0.000	0.000		0.000		3.000	Jan 2017	-		3.000	50.000	53.000	-
DE Technology	MIPR	King of Prussia : PA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
NUWC	MIPR	Keyport : WA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
NSWC	MIPR	Indian Head : MD	0.000	0.000		0.000		0.204	Jan 2017	-		0.204	25.900	26.104	-
		Subtotal	0.000	0.000		0.000		4.404		-		4.404	-	-	-

	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		4.404		-		4.404	-	-	-

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 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3395 / *Adv Undersea Prototyping-Explosive Payloads*



2017PB - 0604536N - 3395

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 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3395 / *Adv Undersea Prototyping-Explosive Payloads*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3395				
Phase A Concept Design: Phase A Concept Design- Analysis	2	2017	1	2018
Phase A Concept Design: Phase A concept design- XL UUV Interface development	3	2017	1	2018
Phase A Concept Design: Phase A Concept Design - Undersea Weapon development	1	2017	1	2021
Phase B Development: Design of XL UUV payload	3	2018	3	2020
Phase B Development: New algorithms development	1	2017	1	2021
Phase B Development: Undersea weapon hardware development	1	2017	1	2021
Phase B Development: Comand and Control development	3	2018	3	2020
Phase B Development: Developmental in water testing	1	2017	1	2021
Phase C Demonstration Row: Demonstration of undersea weapon on XLUUV	3	2020	4	2021
Phase C Demonstration Row: Analysis and documentation of demonstration tests	3	2020	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 0604536N / *(U)Advanced Undersea Prototyping*	Project (Number/Name) 3396 / *Adv Undersea Prototyping-Non-Lethal Payloads*	

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
3396: *Adv Undersea Prototyping-Non-Lethal Payloads*	0.000	0.000	0.000	5.596	-	5.596	7.806	13.990	0.000	0.000	0.000	27.392
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Advanced Undersea prototyping will experiment and demonstrate non-lethal payloads on XLUUVs. XLUUV are UUVs that are great than 54" in diameter and have long range and endurance. This effort will investigate the possibilities of employing non-lethal payloads from the XLUUV to support ISR and strike missions. The non-kinetic payload provide the warfare commander an option to stop aggressive behavior without escalating the conflict. Non-lethal payloads that will be considered include jamming, EO/IR dazzling, microwave, and other methods.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Non Lethal Payloads	0.000	0.000	5.596	0.000	5.596
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Complete the technology study.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	5.596	0.000	5.596

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3396 / *Adv Undersea Prototyping-Non-Lethal Payloads*

D. Acquisition Strategy

A technology study will be completed in the first year to examine the options available and the impact to the warfighter the different technology option bring. This will use a group of experts at the Navy Research and Development Enterprise, UARCS, and FFRDCs. A competition will be held the following year to solicit industry for development of a non-kinetic payload. The payload will be integrated and demonstrated on a Government XLUUV in FY 2019.

E. Performance Metrics

Kinetic payload integrated onto an XLUUV. Detailed metrics are classified.

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 0604536N / *(U)Advanced Undersea Prototyping*	Project (Number/Name) 3396 / *Adv Undersea Prototyping-Non-Lethal Payloads*	

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
Technology study	C/BA	VARIOUS : TBD	0.000	0.000		0.000		5.500	Oct 2016	-		5.500	0.000	5.500	-
Competition for non leathal payloads	C/BA	VARIOUS : TBD	0.000	0.000		0.000		0.076	Nov 2016	-		0.076	19.000	19.076	-
		Subtotal	0.000	0.000		0.000		5.576		-		5.576	19.000	24.576	-

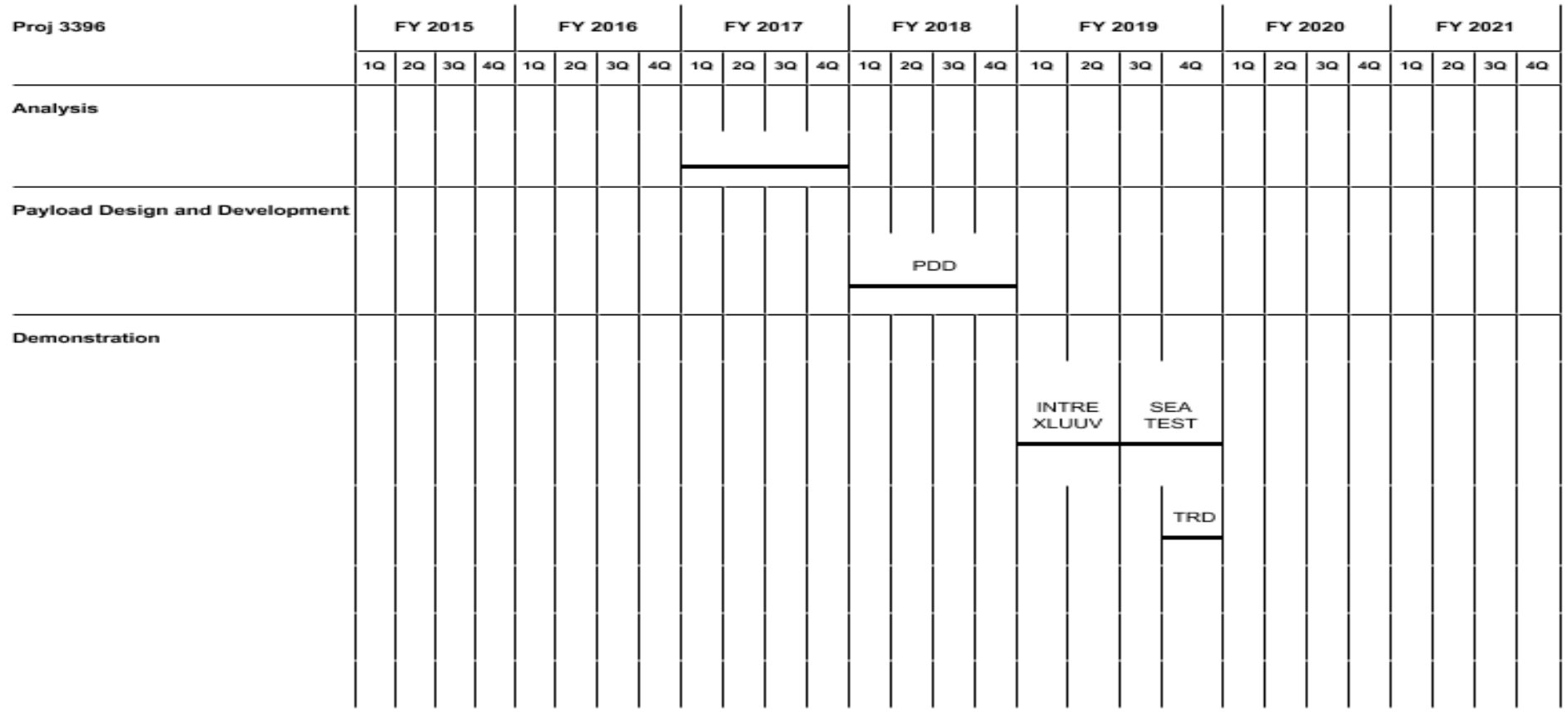
Support ($ in Millions)

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
DESIGN ANALYSIS	MIPR	NRL : WASHINGTON, D.C.	0.000	0.000		0.000		0.020	Oct 2016	-		0.020	1.300	1.320	-
		Subtotal	0.000	0.000		0.000		0.020		-		0.020	1.300	1.320	-

	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		5.596		-		5.596	20.300	25.896	-

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 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3396 / *Adv Undersea Prototyping-Non-Lethal Payloads*



2017PB - 0604536N - 3396

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 0604536N / *(U)Advanced Undersea Prototyping*	**Project (Number/Name)** 3396 / *Adv Undersea Prototyping-Non-Lethal Payloads*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3396				
Analysis: PHASE A	1	2017	4	2017
Payload Design and Development: PHASE B	1	2018	4	2018
Demonstration: Integration onto XLUUV	1	2019	2	2019
Demonstration: At sea testing on XLUUV	3	2019	4	2019
Demonstration: Test analysis, report, and documentation	4	2019	4	2019

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