Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
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 0603563N *I Ship Concept Advanced Design*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	190.596	14.359	36.891	89.419	-	89.419	82.387	55.459	24.400	26.204	Continuing	Continuing
2196: *Design, Tools, Plans and Concepts*	2.347	0.432	23.309	37.267	-	37.267	35.230	21.989	0.683	0.765	Continuing	Continuing
3161: *NAVSEA Tech Authority*	182.656	9.774	13.582	27.817	-	27.817	33.153	19.343	17.467	19.062	Continuing	Continuing
3376: *Strategic Sealift*	5.593	4.153	0.000	6.335	-	6.335	6.004	6.127	6.250	6.377	Continuing	Continuing
4037: *Common Hull Auxiliary Multi-Mission Platform (CHAMP)*	0.000	0.000	0.000	18.000	-	18.000	8.000	8.000	0.000	0.000	0.000	34.000

A. Mission Description and Budget Item Justification

The FY 2019 funding request was reduced by $1.000 million to account for the availability of prior year execution balances.

Explore alternative surface and expeditionary ship force structures (encompassing amphibious warfare), advanced surface ship and unmanned surface vehicles concepts, and new and emerging technical architectures and solutions in support of pre-acquisition mission needs analysis, mission area analysis and planning, and systems engineering. The objective is a more affordable, mission capable surface ship force including increased ship production capability; ships with reduced manning, reduced operating and support costs, and greater utilization of the latest technology. The program directly supports the Navy Shipbuilding Plan and NAVSEA Technical Authority with state-of-the-art design tools and methods that develop technical options and requirements for surface ship force structure, ship & unmanned vehicle concepts, advanced material and manufacturing efforts, and improved engineering prototypes and solutions for ships that may become part of the shipbuilding plan.

Project 2196 - This project supports the next step in the development of a transformed naval force by accomplishing Pre Milestone A (especially pre-concept) decision efforts for all potential surface ships, specifically future surface combatants and unmanned surface vehicles supporting the Future Surface Combatant (FSC) Analysis of Alternatives (AoA). These efforts are the required first step in the definition and integration of total ship systems, including combat systems, weapons systems and Hull, Mechanical and Electrical (HM&E) systems. This project funds concept development engineering, mission effectiveness analysis, and other analyses for formulation of future surface ship force structure along with development of the tools to accomplish these efforts. Efforts include advanced ship concept studies, ship and ship systems technology assessments, and the development and upgrade of ship concept design and engineering tools, methods and criteria.

Project 3161 - This project is the only R&D effort that provides a coordinated approach to the development of cross platform ship and weapon system designs and technologies 'common' to multiple ships and systems. This project directly informs technical standards for design, construction, certification and operation and provides an avenue for innovative solutions and technologies to compete with legacy product requirements and specifications. This project conducts risk reduction of alternative technical architectures, designs and technology solutions that meet Fleet operational and technical requirements at lower cost, and develops engineering capabilities in the areas of design tools, criteria and methods. This project funds a prioritized portfolio of time-sensitive initiatives through the Cross Platform Systems Development (CPSD) program, supporting NAVSEA Technical Authority and associated risk reduction activity. The areas of exploration for CPSD include Ship Technology Improvements, Fleet Maintenance and Life Cycle Cost Reduction, Advanced Manufacturing and Material Technology, Digital Framework/Electromagnetic

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
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 0603563N *I Ship Concept Advanced Design*

Environment and Development and Unmanned Systems and Cyber security. The research products developed by this project directly support and influence both in-service fleet requirements and future acquisition programs by providing a range of technically acceptable alternatives and evaluation of emerging technologies. The prototypes, standards/specs, tools and processes and other products developed in this project focus on technical requirements and technologies applicable to multiple ship classes or systems. Products from this project transition directly to early-stage ship design for Ship Preliminary Design and Feasibility Studies, Program Executive Office (PEO) ship acquisition programs, and Systems Engineering Technical Authority (SETA) requirements documentation. Tasks within this project include R&D efforts focused on increasing sustainment technologies and improving performance at reduced cost for current and future naval platforms.

Project 3376 - Strategic Sealift Research and Development - Develops new concepts and technologies which can be applied to or will enable future strategic sealift, and Seabasing systems. The technologies include ship configuration concepts, equipment to increase cargo handling and cargo loading/unloading rates (including commercial and merchant ship systems), improved man/machine interfaces, improved structural configurations and materials, and Logistics-Over-the-Shore (LOTS) equipment and system improvements. FY2018, FY2016, and prior years efforts were funded under the National Defense Sealift Fund (NDSF) BA 04 Project 3116 Strategic Sealift Research and Development.

Project 4037 - This project supports Common Hull Auxiliary Multi-Mission Platform (CHAMP)Design and Total Ship Integration. The CHAMP concept leverages a new approach to requirements generation and shipbuilding to replace aging mission specific designs with a common hull to reduce life cycle costs, leverage tailored payloads, and stabilize the industrial base. Identified missions include: sealift, aviation intermediate maintenance support, medical services, command & control, and submarine tending. Funding will inform requirements definition, early industry engagement and follow-on assessment across CHAMP mission functionality.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	14.590	36.891	47.662	-	47.662
Current President's Budget	14.359	36.891	89.419	-	89.419
Total Adjustments	-0.231	0.000	41.757	-	41.757
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.211	0.000			
• Program Adjustments	0.000	0.000	43.054	-	43.054
• Rate/Misc Adjustments	0.000	0.000	-1.297	-	-1.297
• Congressional General Reductions Adjustments	-0.020	-	-	-	-

Change Summary Explanation

Proj: 3161 NAVSEA Tech Authority

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
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 0603563N *I Ship Concept Advanced Design*

Increase = $13.000 million - funds added for comprehensive set of cyber warfighting capabilities to meet existing Fleet cybersecurity gaps, added distributed cyber test capability, cyber test and assessment capability and cybersecurity T&E policy, directives and requirements.

Increase = $6.700 million - funds additive manufacturing to provide increased Fleet readiness and improve warfighting capacity by enabling production at or near the point of need.

Decrease = -$1.000 million - The FY 2019 funding request was reduced by $1.000 million to account for the availability of prior year execution balances.

Proj: 3376 Strategic Sealift
Increase = $6.335 million - National Defense Sealift Fund (NDSF) disestablished transferring funds into RDTEN.

Proj: 4037 Common Hull Auxiliary Multi-Mission Platform (CHAMP)
Increase = $18.000 million - funds new program to start early industry studies for a replacement to several ship classes for CHAMP Design and Total Ship Integration efforts.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603563N / *Ship Concept Advanced Design*	Project (Number/Name) 2196 / *Design, Tools, Plans and Concepts*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2196: *Design, Tools, Plans and Concepts*	2.347	0.432	23.309	37.267	-	37.267	35.230	21.989	0.683	0.765	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides the foundation for an affordable and mission capable surface ship force. It also supports the next step in the development of a transformed naval force by accomplishing the pre-milestone A (especially pre-concept decision) efforts for all potential surface ships. These efforts are the required first step in the integration of total ship systems, including combat systems, weapons systems and Hull, Mechanical and Electrical (HM&E) systems. Inadequate early planning and ship concept formulation can result in down-stream design, construction and operational problems. A more subtle and severely negative impact of neglecting this early effort is that the "best" concepts and technologies may never even be considered and the greatest potential ship design advances never realized. Designs and technologies must consider how to meet the threat. This project supports this requirement.

This project funds concept development engineering, mission effectiveness analysis, and other analyses for formulation of future surface ship force structure along with development of the tools to accomplish these efforts. Advanced ship concept studies, ship and ship systems technology assessments, and the development and upgrade of ship concept design and engineering tools, methods, and criteria are also funded in this project.

This project:

(1) Develops alternative surface ship force structure concepts including the ships and unmanned vehicles.
(2) Evaluates the mission capability effectiveness and costs for these alternative surface fleet architectures.
(3) Performs fleet war fighting/mission effectiveness assessment studies.
(4) Identifies future surface ship requirements and characteristics necessary to meet future threats and support mission needs.
(5) Investigates new affordable ship concepts and evaluates technologies necessary to support these concepts.
(6) Provides design methods and automated design tools to develop and evaluate ship concepts.
(7) Supports development of Initial Capabilities Documents (ICD) and analogous early requirements documents for future ships.

These efforts are done to support analysis; mission needs development and technology assessment in support of future fleet concepts and potential ship acquisition programs. These efforts are fundamental to the Navy's formulation of the future fleet requirements.

These efforts supports and maintains naval ship design and engineering capabilities in the design phase of developing concept design tools, criteria and methods.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 2196 / *Design, Tools, Plans and Concepts*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Ship Concepts and Mission Need Analysis	0.432	0.452	0.473	0.000	0.473
Articles:	-	-	-	-	-
Description: Develop ship concepts and perform analysis for potential ships and Force Architecture 10-30 years out in shipbuilding plan. ***FY 2018 Plans:*** Develop engineering tools, methods, and criteria used for ship designs. Advance methodologies and tools for expediting ship design. ***FY 2019 Base Plans:*** Evaluate multi-mission effectiveness and costs, and develop ship concept designs. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor adjustments from FY18 to FY19.					
Title: Future Surface Combatant Studies	0.000	22.857	36.794	0.000	36.794
Articles:	-	-	-	-	-
Description: This effort will lay the analytic foundation for the development of the Future Surface Combatant (FSC) post Capabilities Based Assessment. Ships produced from this effort will fill critical gaps in the fleet in the 2030 timeframe created by the decommisioning of CG 47, DDG 51, and LCS 1/2 ships. Unmanned vehicle efforts will expand conops to decouple mission capability from manned force structure. ***FY 2018 Plans:*** Conduct ship design and unmanned vehicle studies to support analytic foundation for the development of a Future Surface Combatant post Capabilities Based Assessment (CBA). Develop FSCs and associated unmanned surface vehicles including mission payloads, sensors and handling systems. Define technical requirements for: modular unmanned system mission payloads, common control systems, launch & recovery (L&R) system concepts					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 2196 / *Design, Tools, Plans and Concepts*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Develop technical requirements and standards for unmanned system autonomous operations, define host ship technical requirements and interface standards ***FY 2019 Base Plans:*** The support necessary to support a Request For Proposal (RFP) for Preliminary Design by FY20 requires a significant increase in human capital (both government and contractor) to perform the requisite studies and analyses necessary to develop, finalize and evaluate system and mission requirements; and develop Milestone-documentation in support of Preliminary Design. Funding will also be used to continue to conduct ship design and unmanned vehicle studies to support analytic foundation for the development of a Future Surface CBA. Develop FSCs and associated unmanned surface vehicles including mission payloads, sensors and handling systems. Define technical requirements for: modular unmanned system mission payloads, common control systems, L&R system concepts. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** In FY19, an additional $13.937M is required to complete full Analysis of Alternatives for Future Surface Combatant to support a Request For Proposal (RFP) for Preliminary Design by FY20.					
Accomplishments/Planned Programs Subtotals	0.432	23.309	37.267	0.000	37.267

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• RDTEN/0204202N: *DDG-1000*	45.187	140.500	161.264	-	161.264	132.337	133.781	88.573	16.617	Continuing	Continuing
• RDTEN/0603512N: *Carrier Systems Development*	7.516	9.296	5.440	-	5.440	5.401	5.531	5.637	5.778	Continuing	Continuing
• RDTEN/0603564N: *Ship Preliminary Design/Feasibility*	13.451	12.012	13.348	-	13.348	22.534	9.320	9.494	9.687	Continuing	Continuing
• RDTEN/0604567N: *Ship Contract Design/Live Fire T&E*	82.946	67.166	60.062	-	60.062	59.688	54.596	55.677	56.859	Continuing	Continuing
• RDTEN/0603582N: *Combat System Integration*	23.839	24.674	16.351	-	16.351	27.921	16.015	15.509	26.496	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 2196 / *Design, Tools, Plans and Concepts*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

This is a non-acquisition program that develops, evaluates, and validates early stages of total ship concepts and technologies in support of SCN planning and potential future ship acquisition programs. This program also supports development, demonstration, evaluation, and validation of engineering tools, methods, and criteria for those concept designs and assessments.

E. Performance Metrics

Quarterly Program Reviews

Monthly Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603563N / *Ship Concept Advanced Design*	Project (Number/Name) 2196 / *Design, Tools, Plans and Concepts*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	Various Contractors : Various	0.584	0.000		0.715	Feb 2018	4.000	Feb 2019	-		4.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Various	0.906	0.000		1.375	Feb 2018	1.000	Feb 2019	-		1.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC DD : Dahlgren, VA	0.000	0.000		5.500	Nov 2017	2.250	Nov 2018	-		2.250	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC PL : Philadelphia, PA	0.000	0.000		3.125	Nov 2017	2.750	Nov 2018	-		2.750	Continuing	Continuing	Continuing
Systems Engineering	WR	SPAWAR : San Diego, CA	0.000	0.000		1.375	Nov 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	JHU APL : Baltimore, MD	0.000	0.000		3.219	Feb 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC CD : Carderock, MD	0.000	0.000		0.000		4.000	Oct 2018	-		4.000	Continuing	Continuing	Continuing
Engineering Development	C/CPFF	Various Contractors : Various	0.171	0.000		0.000		7.127	Feb 2019	-		7.127	Continuing	Continuing	Continuing
Engineering Development	WR	NSWC CD : Carderock, MD	0.637	0.432	Jan 2017	8.000	May 2018	6.460	Nov 2018	-		6.460	Continuing	Continuing	Continuing
Engineering Development	C/BA	NSWC : Various	0.000	0.000		0.000		1.610	Feb 2019	-		1.610	Continuing	Continuing	Continuing
Demonstration & Evaluation	C/CPFF	Various Contractors : Various	0.029	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test & Evaluation	C/CPFF	Various Contractors : Various	0.020	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Engineering Development	WR	NSWC PL : Philadelphia, PA	0.000	0.000		0.000		4.440	Nov 2018	-		4.440	0.000	4.440	-
Engineering Development	WR	NSWC DD : Dahlgren, VA	0.000	0.000		0.000		3.630	Nov 2018	-		3.630	0.000	3.630	-
		Subtotal	2.347	0.432		23.309		37.267		-		37.267	Continuing	Continuing	N/A

Remarks

Significant increases for Systems Engineering and Engineering Development tasking with both contractor and Navy Warfare Center activities stems from requirement to complete full Analysis of Alternatives to support and issue a Request For Proposal for Preliminary Design by FY20.

This funding is essential to:

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 2196 / *Design, Tools, Plans and Concepts*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
- Ensure participation in AoA/requirements development teams to examine the alternative concepts and feasibility of acquisition strategies - Prepare required documents for Alternative Systems Reviews (ASR) after the AoA and Navy determines preferred material solution(s) - Perform operational & technical analysis on preferred material solutions - Establish program framework and strategies - Prepare required Milestone A documents for preferred material solution(s) - Develop technology development strategy															

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.347	0.432		23.309		37.267		-		37.267	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 2196 / *Design, Tools, Plans and Concepts*

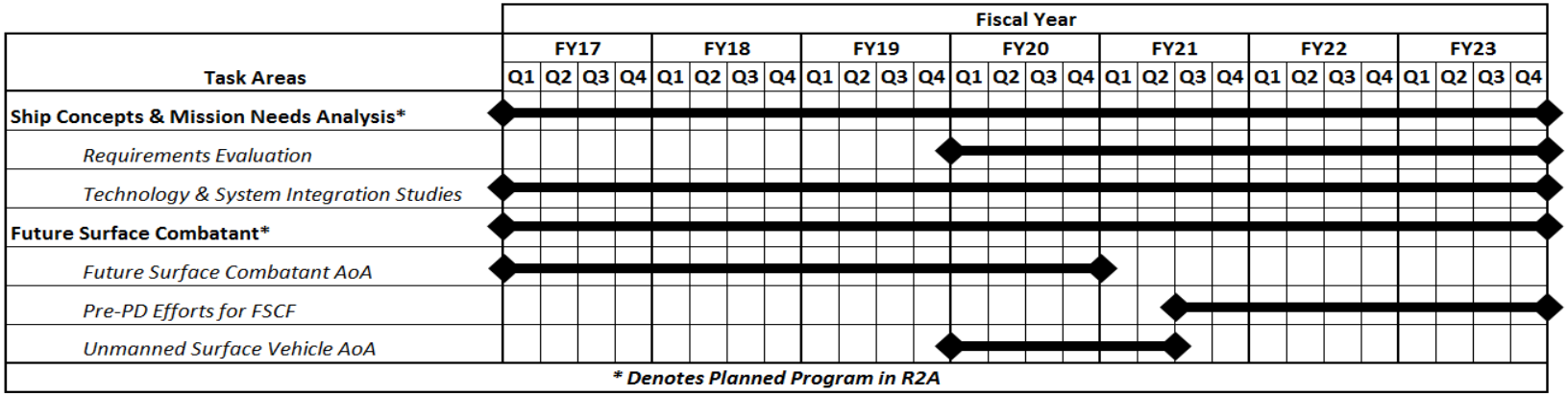

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 2196 / *Design, Tools, Plans and Concepts*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2196				
Ship Concepts and Mission Needs Analysis	1	2017	4	2023
Requirements Evaluation	1	2020	4	2023
Technology & System Integration Studies	1	2017	4	2023
Future Surface Combatant	1	2017	4	2023
Pre-Preliminary Design Efforts for Future Surface Combatant Force	1	2021	4	2023
Unmanned Surface Vehicle AoA	1	2020	4	2021
Future Surface Combatant AoA	1	2017	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603563N / *Ship Concept Advanced Design*	Project (Number/Name) 3161 / *NAVSEA Tech Authority*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3161: *NAVSEA Tech Authority*	182.656	9.774	13.582	27.817	-	27.817	33.153	19.343	17.467	19.062	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

All Cross Platform System Development (CPSD) Pillars have been rebaselined in FY19 to better address CNO and NAVSEA Chief Engineer (SEA05) technical priorities. FY18 Pillars remain as requested in PRESBUD.

A. Mission Description and Budget Item Justification

This project has been established to support the NAVSEA Tech Authority with the coordination of design and development efforts for cross-platform applicability to result in more affordable, mission-capable, and interoperable surface ship forces including ships that are less expensive to build and operate with reduced manning, reduced support costs, and greater utilization of emerging technology.

NAVSEA Tech Authority efforts under Project 3161, known as the Cross Platform Systems Development (CPSD) Program transition directly to early-stage ship design for Ship Preliminary Design and Feasibility Studies and other Program Executive Office (PEO) ship design programs. While these efforts support concept exploration and mission needs assessment for potential future ship acquisition programs, they also develop cross-program technology solutions and associated technical authority products. They are not direct efforts for specific, authorized shipbuilding programs. This project is the only R&D effort that provides a coordinated, collaborative approach to the development of: cross-platform naval ship and weapon system design, as well as engineering capabilities in the areas of design tools, criteria, and methods. This project also provides innovative solutions for current Fleet issues involving Technical Authority, such as interoperability issues with new systems or platforms, or broad technology insertion topics.

In FY18, the CPSD program was rebaselined to account for a decreasing budget to the following functional areas:

CPSD 1.0 - Platform Concept Advanced Development
CPSD 2.0 - Platform Design and Certification Tools/Engineering and Tech Data Exchange Development
CPSD 3.0 - Ship Systems Engineering/Modular Ship Systems Development
CPSD 5.0 - High Speed Ships and Craft Engineering
CPSD 6.0 - Alternate Power Systems Engineering
CPSD 8.0 - Embedded Interoperability (I/O) Engineering
CPSD 9.0 - Mission Capability Systems Engineering
CPSD 13.0 - Cybersecurity
CPSD 14.0 - Future Surface Combatant Study

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3161 / *NAVSEA Tech Authority*

In FY19, all CPSD Pillars have been rebaselined again to better address CNO and NAVSEA Chief Engineer (SEA05) technical priorities and shall be comprised of the following functional areas:

CPSD A - Ship Technology Improvements
CPSD B - Fleet Maintenance and Life Cycle Cost Reduction
CPSD C - Additive and Advanced Manufacturing Technology
CPSD D - Digital Framework/Electromagnetic Environment and Development
CPSD E - Unmanned Systems
CPSD F - Cybersecurity

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Platform Concept Advanced Development (CPSD 1.0)	0.158	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: This effort directly supports the Navy's ability to understand risk and associated cost of surface and expeditionary warfare assets; Unmanned Surface Vehicle (USV) design and analysis. ***FY 2018 Plans:*** N/A. OCO: N/A. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** In FY19, the work accomplished under this pillar will be rolled into pillar CPSD E - Unmanned Systems.					
Title: Platform Design and Certification Tools/Engineering and Tech Data Exchange (CPSD 2.0)	0.244	1.313	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: This effort supports the development of validation tools to certify the safety and mission capability of platform concepts and subsequently ships; establishes the integrated NAVSEA suite; and advances design methods, validation tools, and manpower tools to aid in rapid total platform definition and assessment.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3161 / *NAVSEA Tech Authority*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 Plans: Develop additional analytical capabilities (i.e. tools to simulate various sea states and ship motions). Additionally, preliminary design specifications must be developed to establish material selection criteria. Support the development of validation tools to certify the safety and mission capability of platform concepts. This effort advances platform design methods, design validation tools, manpower tools and tools to aid in rapid total platform definition. OCO: N/A. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** In FY19, the work accomplished under this pillar has been transitioned into pillar CPSD A - Ship Technology Improvements.					
Title: Ship Systems Engineering /Modular Ship Systems Development (CPSD 3.0) ***Articles:*** ***Description:*** This effort supports Ship system development with a focus on technology transition, modularity and ship system technology integration to support ongoing ship modernization. ***FY 2018 Plans:*** Continue to analyze the logistical and engineering aspects of the application of 3D modeling and printing technology in metals and powders. Continue assessment of technology solutions for aluminum cracking. OCO: N/A. ***FY 2019 Base Plans:***	1.742 -	2.173 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3161 / *NAVSEA Tech Authority*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** In FY19, the work accomplished under this pillar has been transitioned into pillar CPSD C - Additive and Advanced Manufacturing Technology.					
Title: High Speed Ships and Craft Engineering (CPSD 5.0) ***Articles:*** ***Description:*** This effort supports the development of concepts for future high speed ships that promise improved mission effectiveness in mobility, survivability and warfare mission areas. ***FY 2018 Plans:*** N/A. OCO: N/A. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** In FY19, the work accomplished under this pillar will be rolled into pillar CPSD A - Ship Technology Improvements.	0.204 -	0.000 -	0.000 -	0.000 -	0.000 -
Title: Alternative Power Systems Engineering (CPSD 6.0) ***Articles:*** ***Description:*** This effort investigates concepts for ships with alternative HM&E/power/propulsion systems evaluating effectiveness in mobility, survivability, hull, mechanical/electrical and in traditional and evolving warfare mission areas.	0.158 -	0.500 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 Plans: Investigate trimaran ship component model data to support the Project Agreement with Japan. OCO: N/A. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** In FY19, the work accomplished under this pillar has been transitioned into pillar CPSD D - Digital Framework/ Electromagnetic Environment and Development.					
Title: Embedded Interoperability (I/O) Engineering (CPSD 8.0) ***Articles:*** ***Description:*** This effort establishes and executes a dedicated process for evaluating the interoperability performance of warfare systems early in the acquisition cycle, prior to certification. Embedded I/O ensures that fewer mission critical system failures degrade the ultimately fielded war fighting capability. Focus on emerging Open Architecture warfare systems, including LCS Class. ***FY 2018 Plans:*** N/A. OCO: N/A. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:***	0.084 -	0.000 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** In FY19, the work accomplished under this pillar will be rolled into pillar CPSD B - Fleet Maintenance and Life Cycle Cost Reduction.					
Title: Mission Capability Systems Engineering (CPSD 9.0) ***Articles:*** ***Description:*** This effort supports the development of force-level systems engineering criteria and guidance at the Systems of Systems (SoS) and Family of Systems (FoS) level. This effort allows for the enhanced warfighter and system performance with reduced personnel costs with project costs savings. ***FY 2018 Plans:*** Funds development of an overarching open architecture concept that couples hull, mechanical and electrical (HM&E) systems to develop a "system of systems". The concept of open architecture must be implemented in the design of the future surface fleet to ensure cross platform and multi-mission capability. The concept of modularity will allow the Navy to have greater flexibility which decreases program costs (do more with less). Validate required mission performance against fully functional and degraded array conditions. OCO: N/A. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** In FY19, the work accomplished under this pillar has been transitioned into pillar CPSD B - Fleet Maintenance and Life Cycle Cost Reduction.	0.368 -	1.500 -	0.000 -	0.000 -	0.000 -
Title: Cybersecurity (CPSD 13.0) ***Articles:***	4.816 -	8.096 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: This supports the research, design, development and testing of cybersecurity solutions for shipboard Hull Mechanical and Electrical (HM&E) , Navigation Systems, Combat Systems, and other shipboard control systems. It also supports the development of specifications and standards for the cybersecurity of all Navy Control Systems (NCS). ***FY 2018 Plans:*** Develop, implement, and operate a whole ship system of systems cyber test bed (USS SECURE). There is urgent need to secure Navy control systems and there is also insufficient production ready applications available that meet Navy requirements. In order to have a common cybersecurity solution adopted, it is essential that the tools and testing capabilities be available quickly. The additional funds will significantly accelerate development of deployable capabilities. Continue to research, develop, and mature various cross-platform cybersecurity solutions including but not limited to: situational awareness tools, boundary defense capabilities, cyber security optimized network design, network reconnaissance and discovery, and operational indifference to malicious intent. Continue spiral development and test and evaluation of cybersecurity technologies in shipboard environment. Continue to mature capability for Destroyer Fleet and Carriers and expand capability to Amphibious Fleet. Continue development of specifications and standards for Cybersecurity of NCS. OCO: N/A. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** In FY19, the work accomplished under this pillar has been transitioned into pillar CPSD F - Cybersecurity. .					
Title: Future Surface Combatant Studies (CPSD 14.0)	2.000	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: This effort will lay the analytic foundation for the development of the Future Surface Combatant (FSC) post Capabilities Based Assessment. Ships produced from this effort will fill critical gaps in the fleet in the 2030 timeframe created by the decommisioning of CG 47, DDG 51, and LCS 1/2 ships. Unmanned vehicle efforts will expand conops to decouple mission capability from manned force structure. ***FY 2018 Plans:*** The FSC studies project moves to PU 2196 in FY18. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A					
Title: Cybersecurity (CPSD F) ***Articles:***	0.000 -	0.000 -	16.739 -	0.000 -	16.739 -
Description: Description: This supports the research, design, development and testing of Cybersecurity solutions for shipboard Hull Mechanical and Electrical (HM&E), Navigation Systems, Combat Systems, and other shipboard control systems. It also supports the development of specifications and standards for the Cybersecurity of all Navy Control Systems (NCS). This pillar was created for FY19 and follow-on years and includes FY18 pillars CPSD 13.0. ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:*** Efforts will concentrate on ensuring the stability and supportability of hardware and software to be deployed operationally. Long term ownership and maintenance of capabilities will be established. Since cybersecurity is a constantly evolving environment, efforts will continue to research, develop, and mature various cross-platform cybersecurity solutions including but not limited to: situational awareness tools, boundary defense capabilities, cyber security optimized network design, network reconnaissance and discovery, and operational					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
indifference to malicious intent. Continue development of specifications and standards for cybersecurity of NCS. Cybersecurity implementation will be expanded to additional classes of ships on a schedule to be determined based on availability. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase from FY 18 to FY19 ($8.643M) between CPSD 13.0 ($8.096 million) and CPSD F ($16.739 million) to fund additional work to transition capabilities to a technology readiness level commensurate with deployment, such as testing, documentation, and ship change planning. Long term ownership and maintenance of capabilities will be established. Funding also provides the ability to back fit targeted capabilities for legacy/in service platforms; and allows for the update and management of deployed software/hardware. Funding will also accelerate the development of a distributed Cyber test capability that provides a system of systems cyber test and assessment capability and will provide cyber assessments of systems, systems-of-systems, platforms, strike groups and theater level missions.					
Title: Ship Technology Improvements (CPSD A) ***Articles:*** ***Description:*** This effort provides for the analysis of ship system technologies to reduce design and construction costs. This also includes the development of validation tools to certify the safety and mission capability of platform concepts and subsequently ships. ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:*** Continue the development of ship construction technology improvements to reduce risk related to alternative technical architectures and designs. Complete support of tri-maran hull configuration performance evaluation. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:***	0.000 -	0.000 -	1.340 -	0.000 -	1.340 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
This pillar was created for FY19 and follow-on years and includes FY18 pillars CPSD 2.0 & 5.0 ($1.313M in FY18). Minor funding increase by inflation adjustment, as selected tasking in FY19 is expected to be commensurate with FY18 tasking.					
Title: Fleet Maintenance and Life Cycle Cost Reduction (CPSD B) ***Articles:*** ***Description:*** This effort funds the development of tools, analyses and technologies to reduce fleet life cycle costs, reduce life-cycle failure risk and improved refurbishment cycles. This will allow the Navy to better meet fleet operational and technical requirements and lower cost. ***FY 2018 Plans:*** N/A. ***FY 2019 Base Plans:*** Develop technologies to reduce in-service costs and technical risk associated with deployed technologies and systems. FY19 shall include a focus on technology improvements to reduce known in-service deficiencies. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** This pillar was created for FY19 and follow-on years and includes FY18 pillars CPSD 8.0 & 9.0 ($1.5M in FY18). Minor funds decrease.	0.000 -	0.000 -	1.150 -	0.000 -	1.150 -
Title: Additive and Advanced Manufacturing Technology (CPSD C) ***Articles:*** ***Description:*** This effort funds the development of additive manufacturing technologies, advanced coating techniques, topology optimization and materials characterization and selection. This pillar was created for FY19 and follow-on years and includes FY18 pillars CPSD 3.0. ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:*** Funding transitioned from FY18 CPSD Pillar 3.0 will be utilized to analyze the logistical and engineering aspects of the application of 3D modeling and additive manufacturing (AM) technology for metal and polymer	0.000 -	0.000 -	7.360 -	0.000 -	7.360 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
components. Further conduct material characterization and selection efforts for both additively manufactured and conventional materials. Additional funding provided in FY19 will be used to accelerate CNO additive manufacturing priorities and aligns them with technical authority requirements and products. Solutions will provide the foundation to increase Fleet readiness and improve warfighting capacity by enabling production at or near the point of need. Specific efforts include development of AM design and manufacturing standards; determining AM equipment performance requirements in dynamic environments (I.e. shipboard); ship integration requirements for AM equipment; and navy-specific AM industrial base requirements including digital file transfer and cyber. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding increase from FY18 to FY19 (+$7.360 million) is attributed to the approval of CNO-directed initiative to expedite Additive Manufacturing benefit to the fleet as increased warfighter capability and improved readiness, in addition to transitioning requirements from FY18 CPSD Pillar 3.0 into Functional Area CPSD C.					
Title: Digital Framework/Electromagnetic Environment and Development (CPSD D) ***Articles:*** ***Description:*** Develop an understanding and address the energy demands of the future fleet including power management and energy harvesting. ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:*** Develop power management and distribution technologies. Complete ship display system testing. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** This pillar was created for FY19 and follow-on years and includes FY18 pillars CPSD 6.0 ($0.500M in FY18).	0.000 -	0.000 -	0.625 -	0.000 -	0.625 -
Title: Unmanned Systems (CPSD E) ***Articles:***	0.000 -	0.000 -	0.603 -	0.000 -	0.603 -

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: This effort funds the development and advancement of NAVY unmanned systems across various platforms. Note: Unmanned system efforts in years prior to FY19 were captured under CPSD Pillar 1.0. ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:*** Efforts focus on the development of rapid deployment and swarming technologies (and the deployment of such weapon systems). Swarming technologies require funding to provide weapon system alternatives for both large and small scale unmanned platforms. Perform evaluation of multi-scaled vehicles for deployment from various host vessels. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor increase for unmanned systems efforts.					
Accomplishments/Planned Programs Subtotals	9.774	13.582	27.817	0.000	27.817

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• RDTEN/0204202N: *DDG-1000*	45.187	140.500	161.264	-	161.264	132.337	133.781	88.573	16.617	Continuing	Continuing
• RDTEN/0603512N: *Carrier Systems Development*	7.516	9.296	5.440	-	5.440	5.401	5.531	5.637	5.778	Continuing	Continuing
• RDTEN/0603564N: *Ship Preliminary Design/ Feasibility Studies*	13.451	12.012	13.348	-	13.348	22.534	9.320	9.494	9.687	Continuing	Continuing
• RDTEN/0604567N: *Ship Contract Design/Live Fire T&E*	82.946	67.166	60.062	-	60.062	59.688	54.596	55.677	56.859	Continuing	Continuing
• RDTEN/0603582N: *Combat System Integration*	23.839	24.674	16.351	-	16.351	27.921	16.015	15.509	26.496	Continuing	Continuing

Remarks

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D. Acquisition Strategy

This is a non-acquisition program that develops, evaluates, and validates early stages of total ship concepts and technologies in support of SCN planning and potential future ship acquisition programs. This program also supports development, demonstration, evaluation, and validation of engineering tools, methods, and criteria for those concept designs and assessments. This program provides validated engineering tools, methods, and criteria for ship, and weapon system concept designs and assessments while fostering collaboration and coordination of efforts resulting in more effective use of funding.

E. Performance Metrics

Quarterly Program Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	Various Contractors : Various	18.436	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC, NUWC, CDSA : Various	62.829	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Engineering Development	C/CPFF	DRS : Stevensville, MD	3.249	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Engineering Development	WR	NSWC, NUWC : Various	53.465	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Demonstration & Evaluation	WR	NSWC : Various	20.044	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Demonstration & Evaluation	WR	SPAWAR : Various	1.922	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation	WR	NSWC : Various	11.910	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC DD : Dahlgren, VA	0.200	0.200	May 2017	0.200	May 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC CD : Carderock, MD	0.800	1.480	Dec 2016	1.000	Dec 2017	1.050	Dec 2018	-		1.050	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC PL : Philadelphia, PA	0.874	0.874	May 2017	0.872	May 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NRL : Washington, D.C.	0.046	0.046	Aug 2017	0.046	Aug 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	ALION : Wahington, D.C.	0.120	0.120	May 2017	0.120	May 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	CSC : Washington, D.C.	0.300	0.300	Jul 2017	0.300	Jul 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	MIPR	Army Research Lab : Aberdeen Proving Ground, MD	0.075	0.075	Jul 2017	0.075	Jul 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Engineering Development	WR	NUWC Newport : Newport, RI	0.132	0.132	Dec 2016	0.382	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Engineering Development	WR	NUWC Keyport : Keyport, WA	0.150	0.150	Nov 2016	0.150	Nov 2017	0.000		-		0.000	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Development	WR	NSWC Crane : Crane, IN	0.169	0.169	Dec 2016	0.169	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Engineering Development	WR	NSWC DD : Dahlgren, VA	0.425	0.425	May 2017	0.800	May 2018	0.500	Dec 2018	-		0.500	Continuing	Continuing	Continuing
Engineering Development	WR	NSWC CD : Carderock, MD	1.324	0.265	Dec 2016	1.775	Dec 2017	1.278	Dec 2018	-		1.278	Continuing	Continuing	Continuing
Engineering Development	WR	NSWC PD : Philadelphia, PA	0.244	0.244	Nov 2016	0.294	Nov 2017	0.500	Nov 2018	-		0.500	Continuing	Continuing	Continuing
Engineering Development	C/CPFF	CSC : Washington, D.C.	0.100	0.100	Jul 2017	0.100	Jul 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Engineering Development	C/CPFF	JHU APL : Baltimore, MD	0.200	0.200	May 2017	0.200	May 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Demonstration & Evaluation	WR	NUWC Keyport : Keyport, WA	0.050	0.050	Mar 2017	0.050	Mar 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Demonstration & Evaluation	WR	NSWC CD : Carderock, MD	0.250	0.250	Dec 2016	0.250	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Demonstration & Evaluation	WR	NSWC PD : Philadelphia, PA	0.125	0.125	Dec 2016	0.125	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Cybersecurity Technologies	C/CPFF	JHU/APL : Baltimore, MD	1.585	1.583	May 2017	3.791	May 2018	1.500	May 2019	-		1.500	Continuing	Continuing	Continuing
Cybersecurity Technologies	C/CPFF	MITRE : McLean, VA	0.304	0.304	Oct 2016	0.500	Oct 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Cybersecurity Technologies	MIPR	PNNL DOE : Richland, WA	0.300	0.300	Jul 2017	0.300	Jul 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Engineerign Development	WR	NSWC CD : Carderock, MD	0.000	0.000		0.000		1.330	Oct 2018	-		1.330	0.000	1.330	-
Engineerign Development	WR	NUWC Keyport : Keyport, WA	0.000	0.000		0.000		0.020	Oct 2018	-		0.020	0.000	0.020	-
Engineering Development	WR	PHD NSWC : Port Hueneme, CA	0.030	0.030	May 2017	0.030	May 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Engineerign Development	C/CPFF	Various Contractors : Various	0.000	0.000		0.000		5.350	Oct 2018	-		5.350	0.000	5.350	-

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Cybersecurity Technologies	WR	NUWC Keyport : Keyport, WA	0.000	0.000		0.000		0.350	Dec 2018	-		0.350	0.000	0.350	-
Cybersecurity Technologies	WR	NUWC Newport : Newport, RI	0.000	0.000		0.000		0.600	Dec 2018	-		0.600	0.000	0.600	-
Cybersecurity Technologies	WR	NSWC Crane : Crane, IN	0.000	0.000		0.000		0.350	Dec 2018	-		0.350	0.000	0.350	-
Cybersecurity Technologies	WR	NSWC DD : Dahlgren, VA	0.000	0.000		0.000		7.600	Dec 2018	-		7.600	0.000	7.600	-
Cybersecurity Technologies	WR	NSWC PD : Philadelphia, PA	0.000	0.000		0.000		2.100	Dec 2018	-		2.100	0.000	2.100	-
		Subtotal	179.658	7.422		11.529		22.528		-		22.528	Continuing	Continuing	N/A

Remarks

Product development cost growth identified for Engineering Development in FY19 is required to support CPSD efforts. Additive Manufacturing and traditional materials technology are high growth areas in FY19 that will provide increased Fleet readiness and improve warfighting capacity by enabling production at or near the point of need. ***Cybersecurity Technologies cost growth funds added for comprehensive set of cyber warfighting capabilities to meet existing Fleet cybersecurity gaps, added distributed cyber test capability, cyber test and assessment capability and cybersecurity T&E policy, directives and requirements. Funding moved from engineering development and systems engineering categories to better define cyber-specific funding allocations.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NUWC Newport : Newport, RI	0.100	0.100	Dec 2016	0.100	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC DD : Dahlgren, VA	0.100	0.100	Mar 2017	0.100	Mar 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC CD : Carderock, MD	0.250	0.250	Dec 2016	0.250	Dec 2017	0.500	Dec 2018	-		0.500	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC PD : Philadelphia, PA	0.125	0.125	Oct 2016	0.175	Oct 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	G2OPS : Virginia Beach, VA	0.250	0.250	Mar 2017	0.250	Mar 2018	0.000		-		0.000	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	JHU/APL : Baltimore, MD	0.100	0.100	May 2017	0.100	May 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Cybersecurity Technologies	WR	NSWC CD : Carderock, MD	0.000	0.000		0.000		1.489	Dec 2018	-		1.489	0.000	1.489	-
Cybersecurity Technologies	MIPR	SPAWAR : Various	0.000	0.000		0.000		0.250	Dec 2018	-		0.250	0.000	0.250	-
Cybersecurity Technologies	C/CPFF	Various Contractors : Various	0.000	0.000		0.000		1.500	Jan 2019	-		1.500	0.000	1.500	-
		Subtotal	0.925	0.925		0.975		3.739		-		3.739	Continuing	Continuing	N/A

Remarks

Cybersecurity Technologies cost growth funds added for comprehensive set of cyber warfighting capabilities to meet existing Fleet cybersecurity gaps, added distributed cyber test capability, cyber test and assessment capability and cybersecurity T&E policy, directives and requirements. Funding moved from engineering development and systems engineering categories to better define cyber-specific funding allocations.Funding moved from engineering development and systems engineering categories to better define cyber-specific funding allocations.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Planning & Execution	WR	NSWC DD : Dahlgren, VA	0.020	0.020	Dec 2016	0.020	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Cybersecurity Technologies	WR	NSWC CD : Carderock, MD	0.450	0.250	Dec 2016	0.250	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Cybersecurity Technologies	C/CPFF	JHU/APL : Baltimore, MD	0.100	0.450	May 2017	0.100	May 2018	0.500	May 2019	-		0.500	Continuing	Continuing	Continuing
		Subtotal	0.570	0.720		0.370		0.500		-		0.500	Continuing	Continuing	N/A

Remarks

Cost growth at JHU/APL for T&E is due the acceleration of a distributed Cyber test capability.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603563N / *Ship Concept Advanced Design*	Project (Number/Name) 3161 / *NAVSEA Tech Authority*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PM/Travel	Allot	NAVSEA HQ : Washington, DC	0.700	0.049	Dec 2016	0.050	Dec 2017	0.050	Dec 2018	-		0.050	Continuing	Continuing	Continuing
DAWDF	Various	Not Specified : Not Specified	0.145	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Mgmt Spt	WR	NUWC Newport : Newport, RI	0.032	0.032	Dec 2016	0.032	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Program Mgmt Spt	WR	NSWC DD : Dahlgren, VA	0.100	0.100	Dec 2016	0.100	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Program Mgmt Spt	WR	NSWC CD : Carderock, MD	0.250	0.250	Nov 2016	0.250	Nov 2017	0.250	Nov 2018	-		0.250	Continuing	Continuing	Continuing
Program Mgmt Spt	C/CPFF	CSC : Washington, D.C.	0.105	0.105	Jul 2017	0.105	Jul 2018	0.250	Nov 2018	-		0.250	Continuing	Continuing	Continuing
Program Mgmt Spt	C/FFP	ARDEC : Picatinny Arsenal, NJ	0.100	0.100	Jun 2017	0.100	Jun 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Program Mgmt Spt	MIPR	PNNL DOE : Richland, WA	0.071	0.071	Jul 2017	0.071	Jul 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Cybersecurity Technologies	C/CPFF	CSC : Washington, D.C.	0.000	0.000		0.000		0.250	Dec 2018	-		0.250	0.000	0.250	-
Cybersecurity Technologies	C/CPFF	Alion : Washington, D.C.	0.000	0.000		0.000		0.250	Dec 2018	-		0.250	0.000	0.250	-
		Subtotal	1.503	0.707		0.708		1.050		-		1.050	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	182.656	9.774		13.582		27.817		-		27.817	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3161 / *NAVSEA Tech Authority*

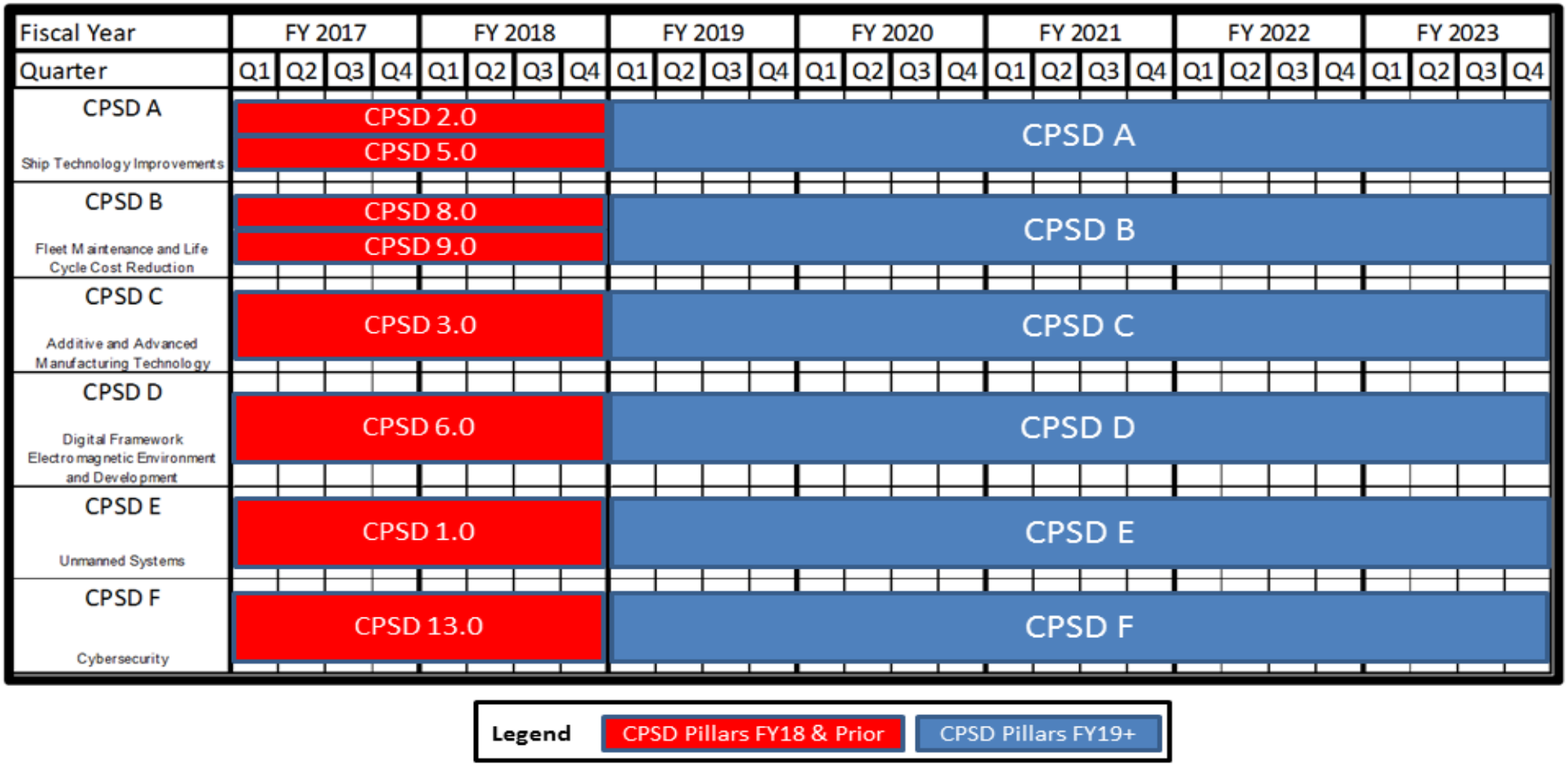


Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3161 / *NAVSEA Tech Authority*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3161				
Platform Concept Advanced Development	1	2017	4	2018
Ship Systems Engineering/Modular Ship Systems Development (PNA)	1	2017	4	2018
Alternative HM&E Systems Engineering	1	2017	4	2018
Mission Capability Affordability and Sustainment	1	2017	4	2018
Cybersecurity Technologies	1	2017	4	2018
Future Surface Combatant Study	1	2017	4	2018
High Speed Ships and Craft Engineering (HFP)	1	2017	4	2018
Embedded Interoperability Engineering	1	2017	4	2018
Platform Design and Certification Tools/Engineering and Tech Data Exchange Development	1	2017	4	2018
Future Surface Combatant Studies	1	2017	4	2017
CPSD A - Ship Technology Improvements	1	2019	4	2023
CPSD B - Fleet Maintenance and Life Cycle Cost Reduction	1	2019	4	2023
CPSD C - Additive and Advanced Manufacturing Technology	1	2019	4	2023
CPSD D - Digital Framework/Electromagnetic Environment and Development	1	2019	4	2023
CPSD E - Unmanned Systems	1	2019	4	2023
CPSD F - Cybersecurity	1	2019	1	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603563N / *Ship Concept Advanced Design*	Project (Number/Name) 3376 / *Strategic Sealift*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3376: *Strategic Sealift*	5.593	4.153	0.000	6.335	-	6.335	6.004	6.127	6.250	6.377	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 3376 - Strategic Sealift Research and Development - Develops new concepts and technologies which can be applied to or will enable future strategic sealift, and Seabasing systems. The technologies include ship configuration concepts, equipment to increase cargo handling and cargo loading/unloading rates (including commercial and merchant ship systems), improved man/machine interfaces, improved structural configurations and materials, and Logistics-Over-the-Shore (LOTS) equipment and system improvements.

Note: FY2018, FY2016 and prior year efforts were financed under the National Sealift Defense Fund (NDSF) BA 04, Project 3116 (Strategic Sealift Research and Development. FY2017 and FY2019-FY2023 efforts are financed under this program element.

FY 18 NDSF BA 04 Project 3116 amount: $6.425 million

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Shipboard Crane Systems/Shipboard Cargo Systems	1.311	0.000	3.800	0.000	3.800
Articles:	-	-	-	-	-
FY 2018 Plans: FY2018 efforts are being funded under the National Defense Sealift Fund (NDSF) BA 04, Project 3116 (Strategic Sealift Research and Development). FY18 = $2.925M					
FY 2019 Base Plans: Continue investigation and demonstration of shipboard crane/cargo system improvements including weapons handling and transfer capabilities.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: National Defense Sealift Fund (NDSF) disestablished transferring funds into RDTEN. Minor increase (+$875K) from FY18 ($2.925M). The increase in the Shipboard Crane category is due to efforts related to Vertical Launch System rearming and MPS fleet crane enhancement. The plan during FY19 is to implement and conduct					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3376 / *Strategic Sealift*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
shipboard demonstrations of systems, technologies, and procedures developed during FY18 for VLS rearming and to conduct a shipboard installation and underway test of upgraded crane controls on USNS Pililaau.					
Title: Sealift Concept Development ***Articles:*** ***FY 2018 Plans:*** FY2018 efforts are being funded under the National Defense Sealift Fund (NDSF) BA 04, Project 3116 (Strategic Sealift Research and Development). FY18 = $1.900M ***FY 2019 Base Plans:*** Continue providing Sealift Research and Technology development and program guidance. Conduct Sealift ship concept development and analysis. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** National Defense Sealift Fund (NDSF) disestablished transferring funds into RDTEN. Minor decrease from FY2018 (-$1.150M).	1.842 -	0.000 -	0.750 -	0.000 -	0.750 -
Title: Lighter/HSV Seabase to Shore Cargo Transfer ***Articles:*** ***FY 2018 Plans:*** FY2018 efforts are being funded under the National Defense Sealift Fund (NDSF) BA 04, Project 3116 (Strategic Sealift Research and Development). FY18 = $1.600M ***FY 2019 Base Plans:*** Continue development and demonstration of at-sea vehicle transfer capability. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** National Defense Sealift Fund (NDSF) disestablished transferring funds into RDTEN. Minor decrease from FY2018 (-$1.215M).	1.000 -	0.000 -	0.385 -	0.000 -	0.385 -
Title: Advanced Tools	0.000	0.000	1.400	0.000	1.400

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3376 / *Strategic Sealift*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Articles:	-	-	-	-	-
FY 2018 Plans: FY2018 efforts are being funded under the National Defense Sealift Fund (NDSF) BA 04, Project 3116 (Strategic Sealift Research and Development). No funding for this subproject effort in PB18 budget. ***FY 2019 Base Plans:*** Continue investigation and demonstration of individual and multiship motion measurement and prediction. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** National Defense Sealift Fund (NDSF) disestablished transferring funds into RDTEN. The increase (+$1.400M) of the Advanced Tools effort reflects a planned increase in prototype development and shipboard installation efforts for individual and multiship motion measurement and prediction technology. The result of this increased effort is to allow the technology to be evaluated and matured based on performance in an operational environment on a variety of vessel types.					
Accomplishments/Planned Programs Subtotals	4.153	0.000	6.335	0.000	6.335

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• NDSF/0900 (3116): *Strategic Sealift Research and Development*	0.000	6.425	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	65.256

Remarks

D. Acquisition Strategy

Not applicable for SEALIFT R&D efforts.

E. Performance Metrics

Annual Program Review.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3376 / *Strategic Sealift*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Shipboard Crane Systems/ Shipboard Cargo Systems	WR	Various Contractors : Various	1.250	1.311	Jan 2017	0.000		3.800	Jan 2019	-		3.800	Continuing	Continuing	Continuing
Sealift Concept Development	WR	Various Contractors : Various	1.283	1.842	Jan 2017	0.000		0.750	Jan 2019	-		0.750	Continuing	Continuing	Continuing
Lighter/HSV Seabase to Shore Cargo Transfer	WR	Various Contractors : Various	3.060	1.000	Jan 2017	0.000		0.385	Jan 2019	-		0.385	Continuing	Continuing	Continuing
Advance Tools	WR	Various : Various	0.000	0.000		0.000		1.400	Jan 2019	-		1.400	Continuing	Continuing	Continuing
		Subtotal	5.593	4.153		0.000		6.335		-		6.335	Continuing	Continuing	N/A

Remarks

1. FY2018, FY2016 and prior years (FY14 and earlier) were funded under NDSF BA 04 Project 3116 Strategic Sealift Research and Development.
2. Award dates reflect initial date of incremental funding execution.

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.593	4.153		0.000		6.335		-		6.335	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3376 / *Strategic Sealift*

Exhibit R-4, RDT&E Schedule Profile: PB 19 Navy		Date: January 2018
Appropriation/Budget Activity 4557/ 04	**R-1 Program Element (Number/Name)** PE 0603563N, Ship Concept Advanced Design	**Project (Number/Name)** Project 3376 Strategic Sealift

Note: FY2018, FY2016 and prior year (FY14 and earlier) efforts were financed under the National Sealift Defense Fund (NDSF) BA 04, Project 3116 (Strategic Sealift Research and Development. FY 2017, FY2019 and out-year funds are financed under this program element.

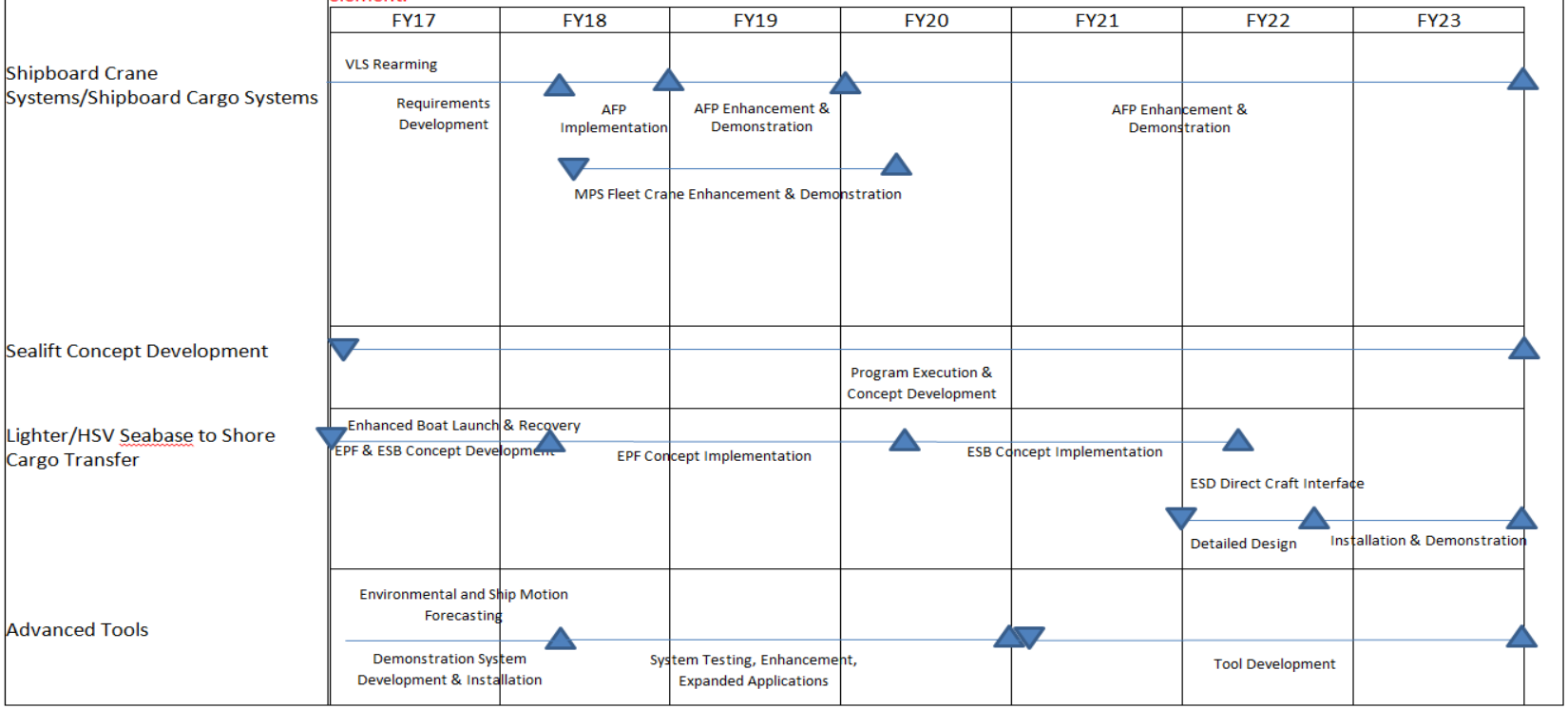


Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3376 / *Strategic Sealift*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3376				
Shipboard Crane Systems/Shipboard Cargo Systems	1	2017	4	2023
Sealift Concept Development	1	2017	4	2023
Lighter/HSV Seabase to Shore Cargo Transfer	1	2017	4	2023
Advanced Tools	1	2017	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603563N / *Ship Concept Advanced Design*	Project (Number/Name) 4037 / *Common Hull Auxiliary Multi-Mission Platform (CHAMP)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
4037: *Common Hull Auxiliary Multi-Mission Platform (CHAMP)*	0.000	0.000	0.000	18.000	-	18.000	8.000	8.000	0.000	0.000	0.000	34.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Note: This program is a new start in FY19.

The Common Hull Auxiliary Multi-mission Platform (CHAMP) concept leverages a new approach to requirements generation and shipbuilding to replace aging mission specific designs with a common hull to reduce life cycle costs, leverage tailored payloads, and stabilize the industrial base. Identified CHAMP missions include: Sealift, Aviation Intermediate Maintenance support, Medical Services, Command & Control, and Submarine Tending. FY 2019 funding supports Industry Studies to inform requirements definition, provide early industry engagement and follow-on assessment across CHAMP mission functionality.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: CHAMP Design and Total Ship Integration	0.000	0.000	18.000	0.000	18.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: CHAMP Design and Total Ship Integration - Issue Industry Studies RFP, conduct source selection and award Industry Studies contracts. Industry Studies will include trade studies and analysis on main machinery, reconfigurable system arrangements, and ship and reconfigurable system interfaces. Develop and initiate initial acquisition planning documents. Coordinate with NAVSEA, MSC, PEO Ships, CNO, ASN RD&A, OSD and Fleet.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: New program to support integrated concept ship design, requirements definition for the CHAMP program. Funds added to start early industry studies for a replacement to several ship classes.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	18.000	0.000	18.000

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 4037 / *Common Hull Auxiliary Multi-Mission Platform (CHAMP)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Develop and issue Industry Studies RFP for award of multiple contracts in FY19 to participate in trade studies and analysis on main machinery, reconfigurable system arrangements, and ship and reconfigurable system interfaces. Based on the results of the tradeoffs, develop integrated design and inform Government requirements definition for future ship acquisition.

E. Performance Metrics

None.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 4037 / *Common Hull Auxiliary Multi-Mission Platform (CHAMP)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Design Trade-off Tool & Design Studies	WR	NSWC : MD	0.000	0.000		0.000		1.000	Nov 2018	-		1.000	1.000	2.000	-
Industry Studies	C/FFP	Various : Various	0.000	0.000		0.000		13.000	Jul 2019	-		13.000	3.000	16.000	-
Engineering Support	Various	Various : Various	0.000	0.000		0.000		3.000	Nov 2018	-		3.000	3.500	6.500	-
		Subtotal	0.000	0.000		0.000		17.000		-		17.000	7.500	24.500	N/A

Remarks

Funds new program to start early industry studies for a replacement to several ship classes for CHAMP Design and Total Ship Integration efforts.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RFP & Program Documentation Development	Various	Various : Various	0.000	0.000		0.000		1.000	Nov 2018	-		1.000	0.500	1.500	-
		Subtotal	0.000	0.000		0.000		1.000		-		1.000	0.500	1.500	N/A

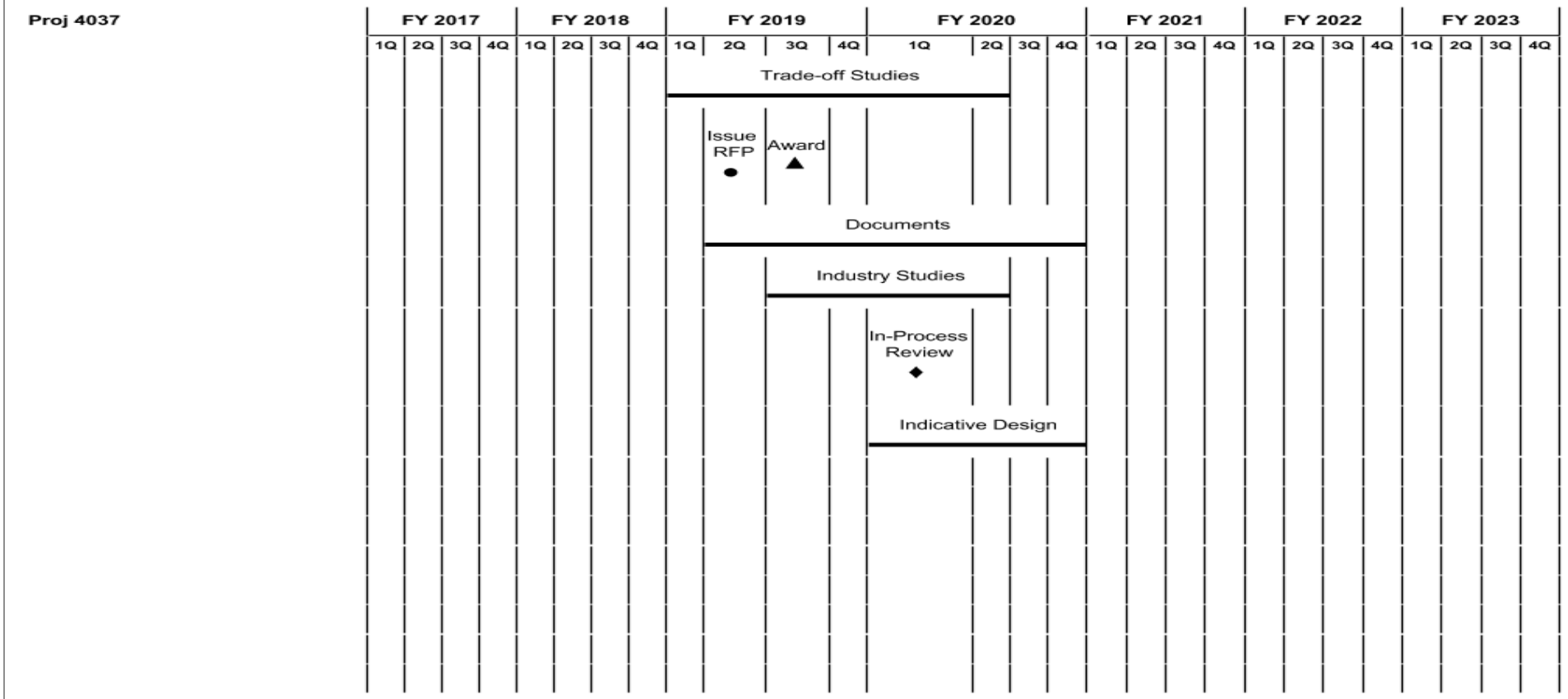
Remarks

Funds new program to start early industry studies for a replacement to several ship classes for CHAMP Design and Total Ship Integration efforts.

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		18.000		-		18.000	8.000	26.000	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 4037 / *Common Hull Auxiliary Multi-Mission Platform (CHAMP)*



2019PB - 0603563N - 4037

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 4037 / *Common Hull Auxiliary Multi-Mission Platform (CHAMP)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4037				
Design Trade-off Tool & Design Studies	1	2019	2	2020
Issue Industry Studies Request for Proposal	2	2019	2	2019
Industry Studies Award	3	2019	3	2019
Program Documentaion Development	2	2019	4	2020
Industry Studies	3	2019	2	2020
In-Process Review	1	2020	1	2020
Indicative Design Development	1	2020	4	2020