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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy **Date:** May 2021

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	83.732	4.906	7.526	7.182	-	7.182	-	-	-	-	-	-
3216: <i>Tactical Support Center-Integration</i>	55.523	4.232	6.307	6.004	-	6.004	-	-	-	-	-	-
4005: <i>In-Service Carrier Systems Development</i>	28.209	0.674	1.219	1.178	-	1.178	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) addresses technology areas associated with Command and Control (C2) of the MH-60R/S Seahawk Helicopter, as well as the development of other technologies and enhancements for Aircraft Carrier-based systems.

PROJECT 3216: The AN/SQQ-34 Aircraft Carrier Tactical Support Center (CV-TSC) program delivers Anti-Submarine Warfare (ASW) and Surface Warfare (SUW) combat capability to the Aircraft Carrier. This Project provides incremental development to deliver frequent capability updates to the Fleet, developing, testing, certifying, and fielding system upgrades and cyber-security patches. The Project maintains interoperability with current and future interfaces; supports mission data exchange; improves track/sensor processing and analysis techniques; improves mission planning; improves data recording, reconstruction, and distribution; improves embedded simulation and training capabilities and implements cyber-security measures to effectively employ overall CVN self-defense capabilities. CV-TSC integrates sensor data from Off-Board Aircraft, Organic Platform Sensors, Minotaur Multi-Sensor Fused Track Data, Link-16 Track Data, Ship Self Defense System (SSDS) Track Data (non-Product Line Architecture (non-PLA) and Product Line Architecture (PLA), Global Command and Control System (GCCS) Over-the-Horizon Track Data, and Environmental and Threat Databases to assess the threat and assist the Tactical Action Officer (TAO) and Carrier Strike Group (CSG) to effectively employ overall CVN self-defense capabilities. CV-TSC generates real-time ASW/SUW information and recommendations, tactical planning and employment of ASW/SUW assets, ASW/SUW sensor data processing and analysis, and distribution of tactically significant data. Aircraft supported include: MH-60R/S Seahawk, P-8 Poseidon, MQ-4C Triton, and future ASW/SUW systems.

PROJECT 4005: The In-Service Carrier Systems Development Demonstration and Validation Program develops new technology and enhancements to deliver an affordable, robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment. The program provides the system architecture, requirements/specification development, technology selection, software development (including software baseline), manpower requirements, Total Ownership Costs (TOC), as well as land-based and shipboard testing of new technologies to improve shipboard operations.

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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>
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B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	4.997	7.559	7.393	-	7.393
Current President's Budget	4.906	7.526	7.182	-	7.182
Total Adjustments	-0.091	-0.033	-0.211	-	-0.211
• Congressional General Reductions	-	-0.033			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.091	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.211	-	-0.211

Change Summary Explanation

FUNDING CHANGES SINCE PREVIOUS PRESIDENT'S BUDGET AT THE OVERALL PE LEVEL:

- FY 2020 decrease of \$-0.091M is the result of the Small Business Innovative Research (SBIR) transfer.
- FY 2021 decrease of \$-0.033M reflects the fair-share application of a Congressional undistributed reduction.
- FY 2022 decrease of \$-0.211M reflects the application of service contract savings and Navy Working Capital Fund (NWCF) and miscellaneous rate adjustments.

PROJECT 3216 - FY 2021 TO FY 2022 BUDGET REQUEST DECREASE:

- FY 2021 (\$6.307M) to FY 2022 (\$6.004M) decrease (\$-0.303M) is due to the incorporation of NWCF rate adjustments and the application of service contracts savings.

PROJECT 3216 - SCHEDULE CHANGES SINCE PREVIOUS PRESIDENT'S BUDGET:

- CV-TSC Fleet Capability Release (FCR)-5 development has been split into two separate deliveries: FCR-5 (Technical Insertion (TI-16)) and FCR-5A (Minotaur Integration) because of the accelerated delivery of FCR-5 required for CVN-79. FCR-5/TI-16 development for CVN-79 will complete in 4Q21, Independent Verification & Validation (IV&V) will occur from 4Q21 to 2Q22, and Integrated Shipboard Network System/Consolidated Afloat Network Enterprise System (ISNS/CANES), Platform Information Technology/Information Assurance (PIT/ATO), Element Certification, and Combat System Test (CST) will occur in 2Q22.

PROJECT 4005 - FY 2021 TO FY 2022 BUDGET REQUEST DECREASE:

- FY 2021 (\$1.219M) to FY 2022 (\$1.178M) decrease (\$-0.041M) reflects the completion of the C4I Network performance modeling and analysis requirement and the NWCF rate adjustment.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy										Date: May 2021		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>				Project (Number/Name) 3216 / <i>Tactical Support Center-Integration</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
3216: <i>Tactical Support Center-Integration</i>	55.523	4.232	6.307	6.004	-	6.004	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AN/SQQ-34 Aircraft Carrier Tactical Support Center (CV-TSC) Project delivers Anti-Submarine Warfare (ASW) and Surface Warfare (SUW) combat capability to the Aircraft Carrier. This Project provides incremental development to deliver frequent capability updates to the Fleet, developing, testing, certifying, and fielding system upgrades and cyber-security patches. The Project maintains interoperability with current and future interfaces; supports mission data exchange; improves track/sensor processing and analysis techniques; improves mission planning; improves data recording, reconstruction, and distribution; improves embedded simulation and training capabilities and implements cyber-security measures to effectively employ overall CVN self-defense capabilities. CV-TSC integrates sensor data from Off-Board Aircraft, Organic Platform Sensors, Minotaur Multi-Sensor Fused Track Data, Link-16 Track Data, Ship Self Defense System (SSDS) Track Data (non-Product Line Architecture (non-PLA) and Product Line Architecture (PLA)), Global Command and Control System (GCCS) Over-the-Horizon Track Data, and Environmental and Threat Databases to assess the threat and assist the Tactical Action Officer (TAO) and Composite Warfare Commander (CWC) to effectively employ overall CVN self-defense capabilities. CV-TSC generates real-time ASW/SUW information and recommendations, tactical planning and employment of ASW/SUW assets, ASW/SUW sensor data processing and analysis, and distribution of tactically significant data. Aircraft supported include: MH-60R/S Seahawk, P-8 Poseidon, MQ-4C Triton, and future ASW/SUW systems.

System development is accomplished through the following initiatives:

- 1) Maintaining interoperability with the local CVN warfare systems through current and future interfaces;
- 2) Continuing to support mission data exchange and tactical control with current and future ASW/SUW assets and their mission systems;
- 3) Improving track and sensor processing and analysis techniques as new track and sensor data becomes available;
- 4) Improving mission planning support for the ASW/SUW missions conducted from the CVN;
- 5) Improving data recording, reconstruct, and distribution to meet the decreasing timelines associated with getting tactically significant data to other end users both on and off platform;
- 6) Improving embedded simulation and training capabilities to enable operator proficiencies; and
- 7) Implementing cyber security measures.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: CV-TSC Development / Integration / Test / Certification	4.232	6.307	6.004	0.000	6.004
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>	Project (Number/Name) 3216 / <i>Tactical Support Center-Integration</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>Description: CV-TSC's evolutionary acquisition approach to developing, testing, certifying, and fielding system upgrades and cyber-security patches is implemented through a series of phased Fleet Capability Releases (FCRs).</p> <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - Complete development of FCR-5 (TI-16) for CVN-79. - Complete integration of FCR-5 (TI-16) hardware/software baseline specific for CVN-79. - Complete integration with Ship Self Defense System (SSDS) Advanced Capability Build-20 (ACB-20) combat system. - Begin FCR-5A (Minotaur Integration). - Complete System Engineering Technical Reviews (SETR) including System Requirements Review (SRR), Preliminary Design Review (PDR) and Critical Design Review (CDR). <p>FY 2022 Base Plans:</p> <ul style="list-style-type: none"> - Complete Independent Verification and Validation (IV&V) for FCR-5 (TI-16). - Complete certifications required for fielding, to include Cybersecurity Risk Management Framework (RMF) Step 6 for Information Assurance (IA) Accreditation, Platform Information Technology (PIT) / Authorization to Operate (ATO), Integrated Shipboard Network System (ISNS) and Consolidated Afloat Network Enterprise Systems (CANES) Certifications, PEO IWS Element Certification, and Combat System Test (CST) Certification for FCR-5 (TI-16). - Complete FCR-5A (Minotaur Integration) development. - Complete IV&V for FCR-5A (Minotaur Integration). - Integrate, test, and demonstrate FCR-5A Minotaur Integration capability. <p>FY 2022 OCO Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The FY 2021 (\$6.307M) to FY 2022 (\$6.004M) decrease (\$-0.303M) is due to the incorporation of Navy Working Capital Fund (NWCF) rate adjustments and the application of service contracts savings.</p>					
Accomplishments/Planned Programs Subtotals	4.232	6.307	6.004	0.000	6.004

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Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>	Project (Number/Name) 3216 / <i>Tactical Support Center-Integration</i>

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN/2176: <i>Undersea Warfare Support Equipment (N98/CV-TSC only)</i>	0.343	0.150	2.643	-	2.643	-	-	-	-	-	-

Remarks

Funding profile represents the Department's CV-TSC portion of the Undersea Warfare (USW) Support Equipment budget (OPN BLI 2176, PE 0204112N).

D. Acquisition Strategy

- CV-TSC utilizes an incremental development approach that aims to deliver frequent capability updates via Fleet Capability Releases (FCRs). This approach allows required capability to be delivered to address emerging Fleet needs and provides frequent opportunities to ensure interoperability is synchronized with the Ship Self Defense System (SSDS) Advanced Capability Builds (ACBs). The acquisition strategy places heavy emphasis on the use of open architecture best practices to ensure ease of upgrades and to make developed products available to other platforms.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy **Date:** May 2021

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>	Project (Number/Name) 3216 / <i>Tactical Support Center-Integration</i>
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CV-TSC Development / Integration	C/CPFF	Adaptive Methods : VA	4.202	0.408	Dec 2019	0.712	Nov 2020	0.486	Dec 2021	-		0.486	-	-	-
CV-TSC Development / Integration	C/CPFF	JHU/APL : MD	0.250	0.000		0.000		0.660	Dec 2021	-		0.660	-	-	-
CV-TSC Development / Integration	WR	NAWC/Pax River : MD	1.250	0.138	Dec 2019	0.207	Jan 2021	0.175	Nov 2021	-		0.175	-	-	-
CV-TSC Development / Integration	WR	NRL : DC	0.325	0.000		0.000		0.000		-		0.000	-	-	-
CV-TSC Development / Integration	WR	NSWC/Carderock : MD	2.650	0.000		0.000		0.000		-		0.000	-	-	-
CV-TSC Development / Integration Text	WR	NSWC/Crane : IN	0.000	0.000		0.000		0.140	Nov 2021	-		0.140	-	-	-
CV-TSC Development / Integration	WR	NSWC/Dahlgren : VA	0.100	0.000		0.000		0.000		-		0.000	-	-	-
CV-TSC Development / Integration	WR	NUWC/Keyport : WA	28.477	2.599	Nov 2019	4.287	Nov 2020	3.423	Nov 2021	-		3.423	-	-	-
CV-TSC Development / Integration	WR	SPAWAR : CA	4.160	0.000		0.000		0.000		-		0.000	-	-	-
CV-TSC Development / Integration	C/CPFF	VAR* : VAR*	1.839	0.556	Jan 2020	0.560	Dec 2020	0.810	Dec 2021	-		0.810	-	-	-
Boundary Defense Capability Design/ Development	WR	NSWC/Philadelphia : PA	4.046	0.000		0.000		0.000		-		0.000	-	-	-
Boundary Defense Capability Design/ Development	C/CPFF	VAR* : VAR*	4.495	0.000		0.000		0.000		-		0.000	-	-	-
Subtotal			51.794	3.701		5.766		5.694		-		5.694	-	-	N/A

Remarks
* Consists of multiple performing activities with funding for each not greater than \$1M per year.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 4				PE 0603512N / Carrier Systems Development				3216 / Tactical Support Center-Integration							
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CV-TSC Test / Certification	WR	NUWC//Keyport : WA	2.644	0.324	Nov 2019	0.330	Nov 2020	0.100	Nov 2021	-		0.100	-	-	-
CV-TSC Test / Certification	WR	NUWC/Newport : RI	0.125	0.000		0.000		0.000		-		0.000	-	-	-
Subtotal			2.769	0.324		0.330		0.100		-		0.100	-	-	N/A
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support - Acquisition, Business & Finance	C/CPAF	BAE Systems : MD	0.411	0.000		0.000		0.000		-		0.000	-	-	-
Program Management Support - Acquisition, Business & Finance	C/CPFF	CACI : VA	0.094	0.040	Jan 2020	0.000		0.000		-		0.000	-	-	-
Program Management Support - Acquisition, Business & Finance	C/CPFF	Booz Allen Hamilton : VA	0.000	0.000		0.041	Mar 2021	0.040	Dec 2021	-		0.040	-	-	-
Program Management Support - Systems Engineering and Technical Assistance (SETA)	C/CPFF	CGI Federal : VA	0.411	0.147	Jan 2020	0.000		0.000		-		0.000	-	-	-
Program Management Support - Systems Engineering and Technical Assistance (SETA)	C/CPFF	KMS Solutions : VA	0.000	0.000		0.150	Feb 2021	0.150	Dec 2021	-		0.150	-	-	-
Program Office Travel	Allot	NAVSEA PEO IWS5 : DC	0.044	0.020	Nov 2019	0.020	Dec 2020	0.020	Oct 2021	-		0.020	-	-	-
Subtotal			0.960	0.207		0.211		0.210		-		0.210	-	-	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy								Date: May 2021					
Appropriation/Budget Activity 1319 / 4				R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>				Project (Number/Name) 3216 / <i>Tactical Support Center-Integration</i>					
	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	55.523	4.232		6.307		6.004		-		6.004	-	-	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy **Date:** May 2021

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>	Project (Number/Name) 3216 / <i>Tactical Support Center-Integration</i>
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Project 3216	FY 2020				FY 2021				FY 2022				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
CV-TSC Fleet Capability Release (FCR-3)	IV&V												
			△ △ △										
CV-TSC Fleet Capability Release (FCR-4)	IV&V												
			△ △ △										
CV-TSC Fleet Capability Release (FCR-5) Technical Insertion (TI)-16									IV&V				
										△ △ △			
CV-TSC Fleet Capability Release (FCR-5A) Minotaur Integration										IV&V			
											△ △ △		

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>	Project (Number/Name) 3216 / <i>Tactical Support Center-Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CV-TSC FCR-3				
CV-TSC FCR-3 IV&V	1	2020	1	2020
CV-TSC FCR-3 ISNS / CANES Certification	3	2020	3	2020
CV-TSC FCR-3 PIT/ATO	3	2020	3	2020
CV-TSC FCR-3 Element Certification	3	2020	3	2020
CV-TSC FCR-3 CST	3	2020	3	2020
CV-TSC FCR-4				
CV-TSC FCR-4 IV&V	1	2020	1	2020
CV-TSC FCR-4 ISNS / CANES Certification	3	2020	3	2020
CV-TSC FCR-4 PIT/ATO	3	2020	3	2020
CV-TSC FCR-4 Element Certification	3	2020	3	2020
CV-TSC FCR-4 CST	3	2020	3	2020
CV-TSC FCR-5 (TI-16 for CVN-79)				
CV-TSC FCR-5 Development	1	2020	4	2021
CV-TSC FCR-5 IV&V	4	2021	2	2022
CV-TSC FCR-5 ISNS / CANES Certification	2	2022	2	2022
CV-TSC FCR-5 PIT/ATO	2	2022	2	2022
CV-TSC FCR-5 Element Certification	2	2022	2	2022
CV-TSC FCR-5 CST	2	2022	2	2022
CV-TSC FCR-5A (Minotaur Integration)				
CV-TSC FCR-5A Development	1	2021	3	2022
CV-TSC FCR-5A IV&V	2	2022	4	2022

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>	Project (Number/Name) 3216 / <i>Tactical Support Center-Integration</i>

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CV-TSC FCR-5A ISNS / CANES Certification	4	2022	4	2022
CV-TSC FCR-5A PIT/ATO	4	2022	4	2022
CV-TSC FCR-5A Element Certification	4	2022	4	2022
CV-TSC FCR-5A CST	4	2022	4	2022

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Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>				Project (Number/Name) 4005 / <i>In-Service Carrier Systems Development</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
4005: <i>In-Service Carrier Systems Development</i>	28.209	0.674	1.219	1.178	-	1.178	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The In-Service Carrier Systems Demonstration and Validation Program develops new technology and enhancements for 11 nuclear powered Aircraft Carriers with nearly 300 systems onboard each vessel. These systems are a combination of historical and new initiatives that deliver an affordable, robust, operator-friendly automated control environment. In order to deter threats and properly integrate all of the systems, the Demonstration and Validation Program segments the testing and upgrades into four areas: system architecture, requirements/specification development, technology selection, and software development. The Demonstration and Validation Program also focuses on the Total Ownership Costs of each system and any equipment obsolescence issues. Initial technologies include the Uninterruptible Power Supply (UPS) Replacements, the Integrated Condition Assessment System (ICAS), the On-Machine I/O development for Low Pressure Air Plants (LPAP) and LPAP air end redesign. Demonstration technologies include Advanced Damage Control System (ADCS) software improvements, Input / Output Controller (IOC) Replacement, Fleet wireless Personal Digital Assistant (PDA), Weapons Elevator Laser Positioning System (WELPS), Legacy Steering Interface (LSI) upgrades, Passive Countermeasures System (PCMS) alternate measurement capability, additive manufacturing efforts, and Weapons Elevators Programmable Logic Controller (PLC) redesign.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: In-Service Carrier Systems Development	0.674	1.219	1.178	0.000	1.178
Articles:	-	-	-	-	-
FY 2021 Plans: Fiscal Year 2021 plans include continued support to Aircraft Carrier technologies. Modifications, upgrades and development of systems and software will be ongoing in support of In-Service Aircraft Carrier Modernization initiatives and Total Ownership Cost reduction initiatives as well as addressing equipment obsolescence issues.					
FY 2022 Base Plans: Fiscal Year 2022 plans will continue to support Aircraft Carrier technologies to include the Structural Assessment Tool and Weapons Elevator Tech Refresh for CVN 71-75 hulls currently in availability. Modifications, upgrades and development of systems and software will be ongoing in support of In-Service Aircraft Carrier Modernization initiatives and Total Ownership Cost reduction initiatives as well as addressing equipment obsolescence issues.					
FY 2022 OCO Plans:					

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Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>	Project (Number/Name) 4005 / <i>In-Service Carrier Systems Development</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
N/A					
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> The 3 percent or .041M decrease between Fiscal Year 2021 and Fiscal Year 2022 reflects the scheduled completion of the C4I Network performance modeling and analysis requirement and the NWCF Rate Adjustment.					
Accomplishments/Planned Programs Subtotals	0.674	1.219	1.178	0.000	1.178

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Investigate, demonstrate, and implement available technologies to deliver a robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment to reduce workload, manpower requirements, and Total Ownership Costs (TOC). Deliver affordable operational upgrades onboard each platform through comparative initiatives and analysis without sacrificing schedule, performance, or requirements.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
1319 / 4				PE 0603512N / Carrier Systems Development					4005 / In-Service Carrier Systems Development						
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Ship Integration	WR	NAVSEA : Phil	4.127	0.200	Nov 2019	0.482	Nov 2020	0.456	Nov 2021	-		0.456	-	-	-
Ship Integration	WR	NAVSEA : Dahlgren	0.197	0.000		0.000		0.000		-		0.000	-	-	-
Ship Integration	WR	NAVSEA : Carderock	0.425	0.050	Nov 2019	0.000		0.000		-		0.000	-	-	-
Subtotal			4.749	0.250		0.482		0.456		-		0.456	-	-	N/A
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development	WR	NAVSEA : Phil	8.436	0.050	Nov 2019	0.100	Nov 2020	0.100	Nov 2021	-		0.100	-	-	-
Program Management Support	WR	NAVSEA : Phil	3.527	0.050	Nov 2019	0.100	Nov 2020	0.100	Nov 2021	-		0.100	-	-	-
Training Development	WR	NAVSEA : Phil	1.465	0.050	Nov 2019	0.100	Nov 2020	0.100	Nov 2021	-		0.100	-	-	-
Integrated Logistics Support	WR	NAVSEA : Phil	1.839	0.050	Nov 2019	0.100	Nov 2020	0.100	Nov 2021	-		0.100	-	-	-
Software Development	WR	NAVSEA : Dahlgren	0.308	0.000		0.000		0.000		-		0.000	-	-	-
Program Management Support	WR	NAVSEA : Dahlgren	0.317	0.000		0.000		0.000		-		0.000	-	-	-
Program Management Support	WR	NAVSEA : Carderock	0.200	0.050	Nov 2019	0.037	Nov 2020	0.026	Nov 2021	-		0.026	-	-	-
Subtotal			16.092	0.250		0.437		0.426		-		0.426	-	-	N/A
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	WR	SPAWAR : Atlantic	0.214	0.000		0.000		0.000		-		0.000	-	-	-
Developmental Test & Evaluation	WR	NAVSEA : Carderock	0.225	0.000		0.000		0.000		-		0.000	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>	Project (Number/Name) 4005 / <i>In-Service Carrier Systems Development</i>

In-Service Carrier Systems Development

Project 4005	FY 2020				FY 2021				FY 2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Network Data Logger Device	█	█	█									
Integrated Condition Assessment System SE Improvements	█	█	█	█								
Chlorinator/Dechlorinator Reliability Improvements	█	█	█	█	█	█						
Portable Navigator/Ship Control Data Analyzer	█	█	█	█	█	█	█	█				
CVN78 CL Platform support for Joint Strike fighter	█	█	█	█	█	█	█	█	█			
LPAP Air End Redesign	█	█	█	█	█	█	█	█	█			
Additive Manufacturing	█	█	█	█	█	█	█	█	█	█	█	█
Weapons Elevator PLC Re-design	█	█	█	█	█	█	█	█	█	█	█	█

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603512N / <i>Carrier Systems Development</i>	Project (Number/Name) 4005 / <i>In-Service Carrier Systems Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 4005				
Network Data Logger Device: Network Data Logger Device	1	2020	3	2020
Integrated Condition Assessment System SE Improvements: Integrated Condition Assessment System SE Improvements	1	2020	1	2021
Chlorinator/Dechlorinator Reliability Improvements: Chlorinator/Dechlorinator Reliability Improvements	1	2020	2	2021
Portable Navigation/Ship Control Data Analyzer: Portable Navigation/Ship Control Data Analyzer	1	2020	4	2021
CVN78 CL Platform support for Joint Strike Fighter: CVN78 CL Platform support for Joint Strike fighter	1	2020	1	2022
LPAP Air End Redesign: LPAP Air End Redesign	1	2020	4	2021
Additive Manufacturing: Additive Manufacturing	1	2020	4	2022
Weapons Elevator PLC Redesign: Weapons Elevator PLC Redesign	1	2020	4	2022