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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605853N / <i>Management, Technical & Intl Supt</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	109.329	108.055	105.152	-	105.152	123.721	123.156	116.303	117.856	Continuing	Continuing
0149: <i>International Coop RDT&E</i>	0.000	3.376	3.001	3.198	-	3.198	3.280	3.347	3.418	3.473	Continuing	Continuing
1767: <i>Naval War Col Strategic Studies Supt</i>	0.000	5.543	5.785	6.110	-	6.110	6.256	6.367	6.483	6.591	Continuing	Continuing
2098: <i>Navy Postgraduate School (NPS) Studies Support</i>	0.000	11.055	11.553	11.993	-	11.993	12.302	12.539	12.802	13.063	Continuing	Continuing
2221: <i>JT Mission Assessment Studies</i>	0.000	21.532	21.972	24.658	-	24.658	31.367	29.064	28.239	28.729	Continuing	Continuing
3017: <i>Enterprise Information Systems</i>	0.000	0.913	0.969	1.088	-	1.088	1.103	1.123	1.143	1.164	Continuing	Continuing
3027: <i>Defense Critical Infrastructure Program</i>	0.000	5.710	7.450	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	13.160
3312: <i>MTMD-Maritime Theater Missile Defense Forum</i>	0.000	24.454	11.857	10.992	-	10.992	11.360	11.313	11.504	11.628	Continuing	Continuing
3330: <i>Naval Research Laboratory (NRL) Facilities Modernization</i>	0.000	15.877	17.144	16.729	-	16.729	21.189	19.651	17.318	15.562	Continuing	Continuing
3363: <i>PACOM Initiative</i>	0.000	11.215	13.324	30.384	-	30.384	36.864	39.752	35.396	37.646	Continuing	Continuing
9999: <i>Congressional Add</i>	0.000	9.654	15.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	24.654

A. Mission Description and Budget Item Justification

International Cooperative RDT&E: provide program management, execution, and support to implement a broad range of cooperative Naval Research and Development, Test and Evaluation initiatives to improve coalition interoperability, harmonize US Navy requirements with allied and friendly nations, and identify cooperative international opportunities, and improve coalition interoperability. In addition, it develops coherent approaches, coordinating with partner nations, to sea-based missile defense, command, control, communications, computers and intelligence (C4I), and cooperative acquisition programs while also identifying technology to support the Global Maritime Partnership initiative.

Naval War College Strategic Studies Support:

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<p>Provides research, analysis and gaming activities which serve as a focal point, stimulus, and major source of strategic and operational thought within the Navy, joint and interagency communities. These efforts generate strategic and operational alternatives, quantitative analysis, war gaming and political military assessments, and provide recommendations regarding the formulation and execution of maritime options . The War Gaming Department plans, designs, executes, analyzes and reports on the Navy's Title 10 war games. These war games provide analytical input to the Navy's Strategic Plan, assessments of future concepts, and recommendations to the Navy's Quadrennial Defense Review, force design, and strategy process. The War Gaming Department also designs, executes and analyzes war games for theater security cooperation plans and operational war fighting issues.</p> <p>Assessment Program:</p> <p>The Navy Assessment Program provides capability-based planning assessment for Joint Capabilities Integration and Development System (JCIDS), conducts analysis to affect war fighting capability trades and enterprise resources, identifies needs, gaps, and overlaps, and assesses alternative solutions to Joint needs. The program supports both the development and use of modeling, simulation and analytically-based warfare and provides business analyses and analytic tools that provide the basis for decision making with respect to concepts of operations (CONOPS), Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Systems (Information Dominance); warfare systems (Sea Strike, Sea Shield, and Sea Basing) and analytical underpinnings/basis for programmatic decisions of the Navy's top leadership regarding their architectures, force structure, and the Navy's core "organize, train, and equip mission" (the warfare and provider Enterprises). The program provides overarching Planning, Programming, Budgeting and Execution System (PPBES) analyses and guidance for PPBES which provides gap analysis and investment strategy and total obligation authority allocation. It provides independent capability analysis and assists in structuring follow-on Navy analyses. The program coordinates Navy's position for the enhanced planning process and conducts net assessments. It serves as the lead campaign analysis to approve Navy warfare and support requirements. The program supports "A Cooperative Strategy for 21st Century Seapower 21" as modified by the Maritime Strategy which charts a course for the Navy, Coast Guard and Marine Corps to work collectively with each other and international partners to prevent crises from occurring or reacting quickly should one occur to avoid negative impact to the United States. It serves as an independent assessor providing a broad-view perspective across the Navy staff apart from resource sponsors, with an integrated look at both war fighting and war fighting support programs. The program supports the world class modeling efforts to attain a level of Modeling and Simulation (M&S) capability that is world class and establishes the Navy as a leader in the Department of Defense (DoD) M&S community. It provides Navy alternatives in assessing the implications embedded within resource decisions in a quantified context of costs versus capability versus risk. The program provides independent analytic support to Navy leadership in conjunction with various executive level decision forums. It develops tools and analytical methodologies that assist in evaluating Navy programs and provides technical leadership for the analysis functional area of Naval Modeling and Simulation.</p> <p>Operations Integration Group: Classified</p> <p>Naval Research Laboratory (NRL)Facilities Modernization: This program has been established to provide a systematic and planned approach to improve vital in-house science and technology (S&T) laboratory facilities which are reaching or have reached critical stages of deterioration. The program includes restoration and modernization (R&M) initiatives for about 350,000 net square feet, where the average age of the buildings is 67 years old.</p>		

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<p>The Joint Information Environment (JIE) initiative provides the supporting IT capability framework comprised of shared information technology infrastructure, enterprise services, interoperability with coalition partners and a single security architecture that enables mission commanders to execute mission partnered operations. JIE provides the U.S. configuration controls necessary for enterprise capabilities. By utilizing a U.S enterprise-wide secure Identity and Access Management system, JIE ensures that authorized users at the right classification level gain access to only the data and services they are entitled. The continued development and refinement of a Joint Information Environment will provide for a significant improvement in data sharing within, and between, coalition maritime elements.</p> <p>MTMD - Maritime Theater Missile Defense Forum:</p> <p>This project funds participation in Maritime Integrated Air and Missile Defense projects with other nations through the Maritime Missile Defense Projects Framework Memorandum of Understanding of 2004 (as amended 2009, 2015, 2016 and 2020). Known as the Maritime Theater Missile Defense (MTMD) Forum, it promotes interoperability with the Navies of twelve participating nations (Australia, Belgium, Canada, Denmark, France, Germany, Italy, Netherlands, Norway, Spain, United Kingdom and the United States). This project provides interoperability assessment and opportunities to Allies that directly contributes to increasing the number of countries capable of supporting NATO Ballistic Missile Defense (BMD). Engineering analysis and data analytics from MTMD activities are provided to European and Pacific Combatant Commands in direct support of theater Integrated Air and Missile Defense (IAMD) priorities. The MTMD Forum addresses challenges associated with integrating maritime Allied Air Defense in Support of Ballistic Missile Defense Operations into joint IAMD command and control. MTMD Forum nations leverage At-Sea Demonstration (ASD) test events, coupled with operational Fleet Exercises (Formidable Shield and Pacific Dragon), to integrate technology and validate national capabilities in operational constructs, supportive of operational force employment.</p> <p>The MTMD Forum encourages national development of systems and practices that enhance protection and defense against the proliferation of short, medium and long-range Ballistic Missile (BM) and Advanced Anti-Ship Cruise Missile (ASCM) threats through the development of interoperable sea-based Integrated Air and Missile Defense (IAMD) capability among MTMD Forum nations. The MTMD Forum enhances utilization of existing sea-based IAMD systems to protect against current threats, while measuring progressive improvement and development of compatible systems to better counter evolving threats.</p> <p>This project supports USN participation in a Maritime IAMD Project Arrangement focused on:</p> <ol style="list-style-type: none">(1) Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I) to define and develop architectures and perform engineering to address coalition capability gaps.(2) Modeling & Simulation (M&S) to establish and maintain a maritime coalition M&S testbed and to perform legacy and future systems simulation testing.(3) Hardware-in-the-Loop Testing of Coalition combat systems to assess interoperability within the Coalition Distributed Engineering Plant (CDEP).(4) Open Architecture (OA) work to develop Interface Standards and Data Models.(5) Test Planning and Execution (TPEX) to develop Test Plans, oversee exercise participation and conduct post event data analysis and reporting.(6) Operational Requirements (OR) to identify operational constraints and tactical constructs surrounding coalition maritime integrated air and missile defense activities, and their integration into joint operations.(7) Reciprocal Use of Test Facilities agreements with other nations to support Maritime IAMD and MTMD Forum-related demonstrations.		

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JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RESEARCH, DEVELOPMENT, TEST and EVALUATION MANAGEMENT SUPPORT because it supports efforts directed toward sustaining or modernizing installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	103.987	93.966	0.000	-	0.000
Current President's Budget	109.329	108.055	105.152	-	105.152
Total Adjustments	5.342	14.089	105.152	-	105.152
• Congressional General Reductions	-	-0.911			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	15.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	8.598	0.000			
• SBIR/STTR Transfer	-3.256	0.000			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	105.152	-	105.152

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: *Congressional Add*

Congressional Add: *Printed Circuit Board Executive Agent*

Congressional Add: *Consortium for additive manufacturing research and development*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2021	FY 2022
	9.654	0.000
	0.000	15.000
	9.654	15.000
	9.654	15.000

Change Summary Explanation

FY 2023 funding request was reduced by \$6.851 million to account for the availability of prior year execution balances.

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt	Project (Number/Name) 0149 / International Coop RDT&E
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
0149: <i>International Coop RDT&E</i>	0.000	3.376	3.001	3.198	-	3.198	3.280	3.347	3.418	3.473	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Provides funding for program management, execution, and support activities to implement a broad range of cooperative naval Research and Development, Test and Evaluation (RDT&E) initiatives to improve coalition interoperability, harmonize US Navy requirements with allied and friendly nations, and identify cooperative international opportunities. The funding is used to develop approaches to international cooperation consistent with combatant commanders (COCOMs), Chief of Naval Operations (CNO), and Secretary of the Navy (SECNAV) priorities in the maritime domain.

Various cooperative RDT&E programs, projects and exchanges are pursued to identify cooperative acquisition programs, enhance Overseas Contingency Operations (OCO) efforts, fill capability gaps, improve US/coalition interoperability, and standardize defense capabilities with international partners. Such efforts have resulted in:

1. Negotiating and developing approximately 57 international RDT&E Agreements annually with allied and friendly nations;
2. Executing Information Exchange Annexes (IEAs) with foreign partners;
3. Improving IEA information dissemination with allied and friendly countries and within Department of the Navy (DON);
4. Coordinating Navy inputs to the Office of the Under Secretary of Defense (OUSD) Acquisition and Sustainment (A&S) Foreign Comparative Test (FCT) Program, and Coalition Warfare Program (CWP) as well as the DON Technology Transfer Security Assistance Review Boards (TTSARB).
5. Representing the U.S. Navy in Office of the Secretary of Defense (OSD) directed Armaments Cooperation Forums, including the Conference of North Atlantic Treaty Organization (NATO) Armaments Directors' groups (NATO Naval Armaments Group (NNAG)), and Senior National Representative (SNR);
6. Funding of various international RDT&E support databases including Technical Project Officer (TPO), International Agreement Generators, Information/Data Exchange Agreements, and Project Agreements/Memorandums of Understanding;
7. Funding for Engineering and Scientist Exchange Program (ESEP).

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: International Coop RDT&E	3.376	3.001	3.198	0.000	3.198
Articles:	-	-	-	-	-
FY 2022 Plans:					
-Continue all efforts from prior Fiscal Years (FYs).					
-Continue and increase support for an international Theater Advanced Submarine Warfare (ASW) and unmanned maritime systems forums with foreign partners, including expansion of international participation in technical discussions.					

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>-Continue execution and support in placement of U.S. Navy and partner nation engineers and scientists under OSD's Engineer and Scientist Exchange Program (ESEP), with a focused increase (~4-5 additional/year) on ESEP placements.</p> <p>-Continue execution of approximately 150 Information Exchange Agreements/Data Exchange Agreements (IEA/DEA) with more than 30 countries.</p> <p>-Continue to coordinate U.S. Navy participation in Office of the Undersecretary of Defense for Acquisition and Sustainment (OUSD (A&S)) Coalition Warfare Program (CWP) selection processes to meet emerging military capability requirements.</p> <p>-Support U.S.-India Defense Technology and Trade Initiative Working Groups, including the Joint Working Group on Aircraft Carrier Technology Cooperation (JWGACTC), the Jet Engine Technology Joint Working Group (JETJWG), and the Joint Working Group on Naval Systems (JWGNS).</p> <p>-Support U.S.-India Defense Technology and Trade Initiative Information Exchange and Terms of Reference (TOR) exchanges to promote cooperative opportunity development.</p> <p>-Continue to support North Atlantic Treaty Organization (NATO) Naval Armaments Group (NNAG) and Five Power Groups on cooperative programs.</p> <p>-Provide contract support for Senior National Representative (SNR) and Navy International Programs Office for international outreach, development, and administrative activities.</p> <p>-Provide travel support for SNR participation in Senior Naval National Representative (SNNR) meetings with key foreign partners, and for select NATO meetings in support of Chief of Naval Operations (CNO) priorities.</p> <p>FY 2023 Base Plans:</p> <p>-Continue all efforts from prior FYs.</p> <p>-Continue support for an unmanned maritime systems forums with foreign partners, including expansion of international participation in technical discussions.</p> <p>-Establish support for a new multi-nation Arctic research and development cooperation forum</p> <p>-Continue execution and support in placement of U.S. Navy and partner nation engineers and scientists under OSD's Engineer and Scientist Exchange Program (ESEP), with a focused increase (~4-5 additional/year) on ESEP placements.</p> <p>-Continue to support U.S. Navy execution of approximately 150 Information Exchange Agreements/Data Exchange Agreements (IEA/DEA) with more than 30 countries.</p> <p>-Continue to coordinate U.S. Navy participation in OUSD (A&S) Coalition Warfare Program (CWP) selection processes to meet emerging military capability requirements.</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>-Support meeting logistics to facilitate bilateral engagements for the U.S.-India Defense Technology and Trade Initiative (DTTI) Working Groups, including the Joint Working Group on Aircraft Carrier Technology Cooperation (JWGACTC), the Jet Engine Technology Joint Working Group (JETJWG), and the Joint Working Group on Naval Systems (JWGNS).</p> <p>-Support U.S.-India Joint Technical Group (JTG) Information Exchange and the U.S. Navy's Maritime Technical Working Group meetings and exchanges to promote cooperative opportunity development.</p> <p>-Continue to support NATO Naval Armaments Group (NNAG) and Five Power Groups on cooperative programs.</p> <p>-Provide contract support for Senior National Representative (SNR) and Navy International Programs Office for international outreach, development, and administrative activities.</p> <p>-Provide travel support for SNR participation in Senior Naval National Representative (SNNR) meetings with key foreign partners, and for select NATO meetings in support of CNO priorities.</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: The FY 2023 increase of \$0.197M will be used to support expansion of Arctic research and development initiatives with multiple foreign partners.</p>					
Accomplishments/Planned Programs Subtotals	3.376	3.001	3.198	0.000	3.198

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Appropriation/Budget Activity 1319 / 6					R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt				Project (Number/Name) 1767 / Naval War Col Strategic Studies Supt			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
1767: Naval War Col Strategic Studies Supt	0.000	5.543	5.785	6.110	-	6.110	6.256	6.367	6.483	6.591	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Naval War College (NWC) research, analysis and gaming activities serve as a focal point, stimulus, and major source of strategic and operational thought within the Navy, Joint and Interagency communities. These efforts generate strategic and operational alternatives, tactical imperatives, quantitative analysis, war gaming, political-military assessments, and provide recommendations to the Chief of Naval Operations (CNO), Fleet Commanders and numbered Fleet Commanders regarding the formulation and execution of maritime options for the President of the United States.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Strategic Studies	0.700	0.731	0.771	0.000	0.771
Articles:	-	-	-	-	-
Description: Naval War College (NWC) conducts research in strategic studies in response to tasking from the Secretary of the Navy (SECNAV), Chief of Naval Operation (CNO), Fleet Commanders, numbered Fleet Commanders, and Combatant Commanders. NWC research includes strategic documents produced by its Chinese Maritime Studies Institute (CMSI), Russia Maritime Studies Institute (RMSI), Center for Cyber Conflict Studies (C3S), and Institute for Future Warfare Studies (IFWS).					
FY 2022 Plans:					
- Conduct research and analysis projects and provide supporting events for OPNAV, the numbered Fleets, Navy Component Commanders, and Combatant Commanders.					
- Continue to support OPNAV Staff on tasked research projects.					
- Conduct research into Cyber, Chinese, Russian, and Future maritime capabilities and affairs to enhance understanding of global developments and provide studies and advice for CNO and Fleet.					
- Continue research on cyber capabilities, focusing on deterrence.					
- Continue Mahan Program research on deterrence capabilities with increased focus on Navy contribution to national nuclear deterrence missions and future Navy capabilities.					
FY 2023 Base Plans:					
- Conduct research and analysis projects and provide supporting events for OPNAV; Naval Component, Type, and Fleet - Commanders; Combatant Commanders.					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>- Continue to support OPNAV tasked research projects.</p> <p>- Conduct research into Cyber, Chinese, Russian, Iranian, and Future maritime capabilities and affairs to enhance understanding of global developments and provide studies and advice for CNO and Fleet.</p> <p>-Conduct deterrence research on deterrence capabilities with focus on Naval contribution to national nuclear deterrence missions by Naval capabilities.</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: There is no significant increase from FY 2022 to FY2023.</p>					
<p>Title: Naval War Gaming Support</p> <p align="right">Articles:</p> <p>Description: Naval War College (NWC) conducts strategic and operational war gaming and research for Office of the Chief of Naval Operations (OPNAV), the numbered Fleets, Fleet Commanders, and the Combatant Commanders. Each year, 45-60 major war games and associated events provide support to efforts that explore and analyze military, political, informational and economic aspects of differing strategic and operational scenarios and tactical imperatives. NWC continues to expand its capability and capacity to execute war games of increased scope, magnitude and complexity.</p> <p>FY 2022 Plans:</p> <ul style="list-style-type: none"> - Conduct 30-40 major war games and related events in support of OPNAV, the numbered Fleets, and the Combatant Commands. - Conduct approximately 35 events supporting 6-8 Executive Committee and CNO approved war games and Navy Title X war games, directed research, and analysis. - Continue to foster cooperative relationships with international partners through use of war gaming, research, analysis and education. - Refine capstone war gaming exercises that support the International Maritime Staff Operators Course. - Execute Fleet Synchronization Conferences. 	4.216	4.400	4.649	0.000	4.649
	-	-	-	-	-

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<ul style="list-style-type: none"> - Execute capstone war game exercise for the Joint Force Maritime Component Commander (JFMCC) Course. Fleet Synchronization Conferences. - Resource and provision life cycle maintenance requirements for networks, communications, and modeling and simulation capacity. - Resource and provision required manpower and equipment for the High Security Research and Wargaming Facility. <p>FY 2023 Base Plans: Conduct 55-60 major war games and related events in support of OPNAV, the Naval Fleet, and the Combatant Commands.</p> <ul style="list-style-type: none"> - Conduct 35 events supporting 10 Executive Committee and CNO approved war games and Navy Title X war games, directed research, and analysis. - Continue to foster cooperative relationships with international partners through use of war gaming, research, analysis and education. - Refine capstone war gaming exercises that support the International Maritime Staff Operators Course. - Execute Fleet Synchronization Conferences. - Execute capstone war game exercise for the Joint Force Maritime Component Commander (JFMCC) Course. - Resource and provision life cycle maintenance requirements for networks, communications, and modeling and simulation capacity. - Resource and provision required manpower and equipment for the High Security Research and Wargaming Facility. <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: There are planned increases for 2 additional CNO approved war games from FY 2022 to FY2023.</p>					
<p>Title: Warfare Analysis and Research</p> <p align="right">Articles:</p>	0.544	0.568	0.599	0.000	0.599
<p>Description: Naval War College (NWC) supports senior decision-makers from the Department of Defense, Department of the Navy, the numbered Fleets, Fleet Commanders and Combatant Commanders in reaching well-informed, objective decisions on strategic, operational and programmatic issues through collaborative research which integrates traditional research and analysis with advanced decision support tools.</p>	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>FY 2022 Plans:</p> <ul style="list-style-type: none"> - Continue conducting major decision events in support of OPNAV, the numbered Fleets, Fleet Commanders, and the Combatant Commanders. - Continue warfighting analysis requirements for numbered Fleet commanders. - Continue analytical research on key strategic and operational challenges such as maritime ballistic missile defense, proliferation security initiative, global maritime security, maritime situational awareness, maritime operations headquarters, interconnectivity, and multi-service force deployment. - Continue evaluation of concepts and decision events in conjunction with war gaming center. - Continue research targeted at the strategic and policy level decision making within China and Russia. - Continue providing direct support to NWC student research groups and war gaming. - Execute approximately 20 major decision events in support of these efforts. <p>FY 2023 Base Plans:</p> <ul style="list-style-type: none"> - Conduct major decision events in support of OPNAV; Naval Component, Type, and numbered Fleet Commanders; and the Combatant Commanders. - Conduct warfighting analysis requirements for numbered Fleet commanders. - Conduct analytical research on key strategic and operational challenges such as maritime ballistic missile defense, proliferation security initiative, global maritime security, maritime situational awareness, maritime operations headquarters, interconnectivity, and multi-service force deployment. - Support evaluation of concepts and decision events in conjunction with war gaming center. - Conduct research targeted at the strategic and policy level decision making within China, Russia, and Iran. - Provide direct support to NWC student research groups and war gaming. - Execute approximately 20 major decision events in support of these efforts. <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: There is a planned increase from FY 2022 to FY 2023, to add an additional gaming capability/team to address Known Operational Problems (KOP) as identified by the CNO.</p>					
<p>Title: NWC Student Research Projects</p> <p align="right">Articles:</p>	0.083 -	0.086 -	0.091 -	0.000 -	0.091 -

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Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt	Project (Number/Name) 1767 / Naval War Col Strategic Studies Supt

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>Description: Selected top performing Naval War College (NWC) students to conduct focused research and analysis of current and future strategic and operational challenges and tactical imperatives. These students are organized under the supervision of the Mahan Scholars Program and the Halsey Group Program.</p> <p>FY 2022 Plans:</p> <ul style="list-style-type: none"> - Conduct focused research, analysis and war gaming of current and future strategic/operational challenges and tactical imperatives by the Halsey, Holloway, and Gravely Group Programs. - - Research groups conduct focused research, analysis and free-play war gaming of current and future operational challenges and tactical imperatives arising from regional threats, homeland defense and access denial efforts at the high end of the conflict spectrum in the Indo-Pacific Command (INDOPACOM), European Command (EUCOM), Central Command (CENTCOM) and Northern Command (NORTHCOM) area of responsibility (AOR). Research and analysis efforts continue in those areas and will expand bringing a detailed focus on counter-targeting, operational deception, and countering information denial and missile defense at the theater joint operational level. <p>FY 2023 Base Plans:</p> <p>Conduct focused research, analysis and war gaming of current and future strategic/operational challenges and tactical imperatives by the Halsey, Holloway, and Gravely Group Programs.</p> <ul style="list-style-type: none"> - Research groups conduct focused research, analysis and free-play war gaming of current and future operational challenges and tactical imperatives arising from regional threats, homeland defense and access denial efforts at the high end of the conflict spectrum in the Indo-Pacific Command (INDOPACOM), European Command (EUCOM), Central Command (CENTCOM) and Northern Command (NORTHCOM) area of responsibility (AOR). Research and analysis efforts continue in those areas and will expand bringing a detailed focus on counter-targeting, operational deception, and countering information denial and missile defense at the theater joint operational level. <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: There is no significant increase from FY 2022 to FY 2023</p>					
Accomplishments/Planned Programs Subtotals	5.543	5.785	6.110	0.000	6.110

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / <i>Management, Technical & Intl Supt</i>	Project (Number/Name) 1767 / <i>Naval War Col Strategic Studies Supt</i>

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy										Date: April 2022		
Appropriation/Budget Activity 1319 / 6					R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt				Project (Number/Name) 2098 / Navy Postgraduate School (NPS) Studies Support			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
2098: Navy Postgraduate School (NPS) Studies Support	0.000	11.055	11.553	11.993	-	11.993	12.302	12.539	12.802	13.063	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Navy Postgraduate School (NPS) research and analysis activities serve as a focal point, stimulus, and major source of strategic, tactical and operational thought within the Navy communities. These efforts generate strategic and operational alternatives, tactical imperatives, quantitative analyses, technical developments and assessments, and political-military assessments. Also, provide recommendations to the Chief of Naval Operations (CNO), Fleet Commanders and numbered Fleet Commanders regarding the formulation and execution of maritime options for the President of the United States. Research will be conducted that will enhance graduate education for Naval Officers and potentially provide students with areas of studies for theses and faculty projects. These research activities also serve as a means for OPNAV Resource Sponsors and Major Commands to have analysis and decision support research conducted in the uses of the applied, soft, and hard sciences in solving diverse and complex resource allocation and strategic issues facing the Navy today and envisioned in the future.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Faculty and Student Studies, Analysis and Research	11.055	11.553	11.993	0.000	11.993
Articles:	-	-	-	-	-
Description: Navy Postgraduate School (NPS) research and analysis activities serve as a focal point, stimulus, and major source of strategic, tactical and operational alternatives, tactical imperatives, quantitative analyses, technical developments and assessments, and political-military assessments. Also, provide recommendations to the Chief of Naval Operations (CNO), Fleet Commanders and numbered Fleet Commanders regarding the formulation and execution of maritime options for the President of the United States. Research will be conducted to support graduate students theses determination and completion as part of Faculty projects. These research activities also serve as a means for OPNAV Resource Sponsors and Major Commands to have analysis and decision support research conducted in the uses of the applied, soft, and hard sciences in solving diverse and complex resource allocation and strategic issues facing the Navy today and envisioned in the future.					
FY 2022 Plans: Continue Studies planned in the following areas: - Conduct studies in support of OPNAV N1 - Conduct studies in support of OPNAV N2/N6					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022			
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt	Project (Number/Name) 2098 / Navy Postgraduate School (NPS) Studies Support				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<ul style="list-style-type: none"> - Conduct studies in support of OPNAV N3/N5 - Conduct studies in support of OPNAV N4 - Conduct studies in support of OPNAV N8 - Conduct studies in support of OPNAV N9 - Conduct studies in support of US Fleet Forces Command - Conduct studies in support of the Secretary of the Navy <p>FY 2023 Base Plans: Continue Studies planned in the following areas:</p> <ul style="list-style-type: none"> - 1 in the area of Applied Mathematics - 15 in the area of Executive Education - 24 in the area of Computer Science - 97 in the area of Defense Analysis - 7 in the area of Electrical and Computer Engineering - 14 in the area of Energy Academic Group - 76 in the area of Business & Public Policy - 112 in the area of Information Sciences - 31 in the area of Information Sciences and Modeling, Virtual Environments and Simulation (MOVES) - 25 in the area of Mechanical and Aerospace Engineering - 10 in the area of Meteorology - 20 in the area of National Security Affairs - 12 in the area of Oceanography - 278 in the area of Operations Research - 32 in the area of Physics - 3 in the area of Space Systems - 138 in the area of Systems Engineering <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: Funding has increased from FY2022 to FY2023 due to inflationary factors and continuation of analytical studies.</p>						
Accomplishments/Planned Programs Subtotals		11.055	11.553	11.993	0.000	11.993

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & In tl Supt	Project (Number/Name) 2098 / Navy Postgraduate School (NPS) Studies Support

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy										Date: April 2022		
Appropriation/Budget Activity 1319 / 6					R-1 Program Element (Number/Name) PE 0605853N / <i>Management, Technical & Intl Supt</i>				Project (Number/Name) 2221 / <i>JT Mission Assessment Studies</i>			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
2221: <i>JT Mission Assessment Studies</i>	0.000	21.532	21.972	24.658	-	24.658	31.367	29.064	28.239	28.729	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This exhibit has been updated to reflect the establishment of the Navy Analytic Office (NAO), which is responsible for the executive oversight of Navy studies and analysis. The NAO was stood up to better align the annual Analytic Agenda to Chief Naval Operation's (CNO) strategic priorities while also providing for study of the more tactical requirements of the Fleet and Navy writ large. The outcome will be synchronized modeling, simulation, assessments, wargames, experiments and exercises providing rich, shared data to support and refine warfighting concepts and to inform budget decisions.

The Navy Annual Studies Program supports the Analytic Agenda by providing both the development and use of modeling, simulation and analytically-based warfare, business analyses and analytic tools that provide the basis for decision making with respect to concepts of operations (CONOPS), Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Systems; warfare systems, and analytical underpinnings/basis for programmatic decisions of the Navy's top leadership regarding their architectures, force structure, and the Navy's core "organize, train, and equip mission" (the warfare and provider Enterprises). The program provides capability-based planning assessment for Joint Capabilities Integration and Development System (JCIDS), conducts analysis to affect warfighting capability trades and enterprise resources, identifies needs, gaps and overlaps, and assesses alternative solutions to Joint needs. The program provides overarching Planning, Programming, Budgeting and Execution System (PPBES) analyses and guidance for PPBES which provides gap analysis and investment strategy and total obligation authority allocation. It provides independent capability analysis and assists in structuring follow-on Navy analyses. The program coordinates Navy's position for the enhanced planning process and conducts net assessments. It serves as the lead campaign analysis to approve Navy warfare and support requirements. The program supports the Maritime Strategy which charts a course for the Navy, Coast Guard and Marine Corps to work collectively with each other and international partners to prevent crises from occurring, or reacting quickly should one occur to avoid negative impact to the United States. The Studies Program provides a broad-view perspective across the Fleet and Navy staff, with an integrated look at both warfighting and warfighting-support programs. It provides Navy alternatives in assessing the implications embedded within resource decisions in a quantified context of costs versus capability versus risk. The program provides independent analytic support to Navy leadership in conjunction with various executive level decision forums.

This project funds concept development engineering, mission effectiveness analysis, and other analyses for formulation of future surface ship and associated platform force structure along with development of the tools to accomplish these efforts. Advanced platform concept studies and systems technology assessments will be conducted as will the development and upgrade of concept design and engineering tools, methods, and criteria. Concept Formulation (CONFORM)/Concept Development and Experimentation (CDE) for ships, boats and unmanned maritime vehicles must be continuously exercised to remain viable. It takes years to train competent practitioners, and knowledge currency is quickly lost without practice. Evolving threats and technologies drive concepts (and the tools, processes, and skills needed to produce them) towards obsolescence without constant attention. Capability Based Assessments and Analysis of Alternatives (AoA) timelines are insufficient for establishing potential material solution cost versus capability relationships without significant concept formulation work beforehand. Active collaboration between the Office of the Chief of Naval Operations requirement sponsors, Program Offices, and the various System Commands (Naval Sea Systems Command, Naval Air

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Systems Command and Space and Naval Warfare Systems Command) engineers is critical for fully exploring the trade space by conducting analysis for affordability, effectiveness and risk. The majority of Total Ownership Cost (TOC) is locked into a design before it is even a program. In the later stages of a program it becomes much more costly to make changes that will significantly impact TOC. Investment up front in concept design can have a high payoff in TOC reduction over the life of a platform class. Outputs include concept costing and performance parameterization for comparative assessment against capability objectives and synthesis to quantify overall (Fleet) capabilities. These products (expressions of cost vs. capability) will serve as the basis of requirements and Joint Capabilities Integration and Development System analysis, define the trade space for AoA efforts, and underpin discussion of force architecture/structure during Quadrennial Defense Review, Long Range Shipbuilding Strategy builds, and Joint Requirements Oversight Council reviews. Perform-2-Plan(P2P) analytical Studies will continue to create a shared understanding of organizational metrics that includes understanding the effort needed to achieve a more complex readiness success, elevating barriers and matters requiring Echelon I leadership action to resolve, fostering a data-driven decision culture and simplifying and standardizing metrics reporting to spotlight issues and improve problem-solving. Utilize the LCS driver tree framework to assess the significance of different variables that may impact the number of LCSs to support operational requirements, develop advanced analytic models using machine learning techniques and Monte Carlo simulation based on the LCS P2P driver tree. The analytical model will forecast the numbers of mission ready LCS, parts shortages, unplanned down days, and/or CASREPs/CANNABs. The analytical model will serve as the basis for prioritizing and assessing how resources can best be allocated to improve LCS readiness as well as identify key actionable drivers that result in a decrease in LCS mission readiness and increase unplanned down days.

Develop a prescriptive analytics model to determine the cost-minimizing driver levels to achieve a greatly increased number of mission ready LCS while reducing unplanned down days. Assess costs associated with various combinations of driver levels that would achieve target levels of performance.

Capabilities-Based Assessment (CBA) is the Joint Capabilities Integration and Development System (JCIDS) analysis process that includes three phases: Functional Area Analysis (FAA), Functional Needs Analysis (FNA), and Functional Solution Analysis (FSA). The results of the CBA are used to develop a joint capabilities document (based on the FAA and FNA) or initial capabilities document (based on the full analysis). CBA funding provides the resource sponsors the means to develop the analytic underpinning required by Chairman of the Joint Chiefs of Staff Instruction 3170.01G to support the determination of Naval warfighting capabilities and force structure needed to support the Joint Requirements Oversight Council (JROC)/JCIDS requirements validation process and to inform Program Objective Memorandum programming decisions. This analysis includes evaluation of integration and interoperability gaps of both current and future Navy platforms and systems capabilities.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Navy Studies & Analysis	17.870	18.476	20.939	0.000	20.939
Articles:	-	-	-	-	-
FY 2022 Plans:					
Continue to develop, update and maintain detailed level Navy Standard scenarios based on DPG (Defense Planning Guidance).					
-Continue to develop alternative scenarios in support of Defense Review guidance, Joint studies, and Navy resource analyses.					
-Continue to develop, update and maintain analytic baselines for the MCO (Major combat operation) based on DPG (Defense Planning Guidance).					

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Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / <i>Management, Technical & Intl Supt</i>	Project (Number/Name) 2221 / <i>JT Mission Assessment Studies</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>-Continue to develop details required to execute analysis of designated Defense Planning Scenarios and their respective Multi-Service Force Deployment Plans.</p> <p>-Continue to develop and maintain a framework and common set of processes to ensure that essential elements of warfare analyses, including scenarios, operational concepts, tactics, capabilities of platforms and systems (for Navy, Joint, coalition and threat forces), key assumptions and input data are defined and traceable to government approved/provided source material.</p> <p>-Continue to develop scenarios and operational concepts based on government inputs that are sufficiently detailed for use in naval and joint campaign analyses.</p> <p>-At the mission level, continue to script Operational Situations (OPSITS) or Tactical Situations (TACSITS) for use in effectiveness analyses in specific warfare mission areas.</p> <p>-Continue to provide analytically-based decision recommendations to CNO (Chief of Naval Operations) for both warfighting and support areas.</p> <p>-Continue to develop CNO (Chief of Naval Operations) investment strategy recommendations and assessments for Program Review and Program Objective Memorandum.</p> <p>-Continue to perform rigorous, time critical naval and joint campaign and mission-level analyses, usually based on modeling and simulation that illuminated complex warfare issues which support decision-making in the PPBE (Planning, Programming, Budgeting and Execution) process.</p> <p>-Continue to conduct ISR (Intelligence, Surveillance, Reconnaissance) and METOC (Meteorological and oceanographic systems) assessments to determine the optimal mix of Naval ISR ((Intelligence, Surveillance, Reconnaissance) and METOC ((Meteorological and oceanographic systems) sensors, platforms, and processing, analysis and fusion disposition to support MCOs (Major combat operation), the OCO(Overseas Contingency Operations), and intelligence preparation of the environment for both MCOs(Major combat operation) and OCO (Overseas Contingency Operations).</p> <p>-Continue to develop and maintain common baselines from which campaign excursions and mission-level analyses are executed.</p> <p>-Continue to identify, develop and improve data and modeling, and broker agreements upon assumptions, CONOPS (Concepts of Operation), scenarios, and data.</p> <p>-Continue to lead campaign analysis for OPNAV (Office of the Chief of Naval Operations) and lead Navy's participation in OSD/Joint Staff analytic agenda, baseline development, and collection of data.</p> <p>-Continue to conduct modeling and simulation support for ongoing OPNAV missile defense analysis requirements.</p> <p>-Continue to provide analytically-based decision recommendations to OPNAV for joint warfighting and support areas.</p>					

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>-Continue to develop new analytic models and techniques for informing resource allocation decisions; conduct all campaign and warfare mission-level analyses and develop investment strategies.</p> <p>-Continue to develop and improve the Navy's analysis capabilities which support Joint and Navy analytic agendas and resource-allocation decision making by refining the linkages between cost and performance in performance-modeled programs in support of Navy analysis and assessment. Areas of tool development and improvement included mission and campaign-level warfighting models, active and reserve manpower, afloat and ashore readiness, and medical capabilities.</p> <p>-Continue to focus on integrated analysis capabilities that cut across business and program accounts. Specific efforts address cyber warfare and security, optimizing the training pipeline, integrating ship maintenance and operations price performance models, and improving mission- and campaign-level C5ISR (Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance) models and representations.</p> <p>-Continue to develop medical analysis that links to campaign analysis including movement of injured between care facilities, life-saving treatment of injured and recuperation support of injured to support Navy Medical Program decisions.</p> <p>-Continue to update the high-level readiness model that fully integrates all aspects of warfighting support (operational utilization, training cycles, training centers, depots, etc.) and personnel (recruitment, training, development, deployment, retention, etc.) across the Navy's warfighting platforms (aircraft, ships, submarines, etc.), facilities and personnel development centers.</p> <p>-Continue to conduct ship, boat, and unmanned marine vehicle concept studies in preparation for Capabilities Based Assessments (CBAs) and Analysis of Alternatives (AoAs). Studies will be performed in a continuous manner to support future recapitalization of Surface Combatants, Amphibious Ships, Carriers, Auxiliary Ships and other emerging program requirements.</p> <p>-Continue to collaborate with Warfare Systems design experts to perform continuous Warfare Systems analysis at the ship and fleet level. Warfare Systems effectiveness assessment tools are being continually developed and enhanced as required to address future concepts and to incorporate improvements in information technology systems. Additionally, collaborate with aircraft, C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance), and networks by continuing dialog and collaboration between NAVSEA (Naval Sea Systems Command), NAVAIR (Naval Air Systems Command), and NAVWAR (Naval Warfare Systems Command) systems commands which refines fleet level requirements.</p> <p>-Continue to conduct future force structure concept formulation. Fleet synthesis and analysis will be conducted, which includes capabilities requirements, platform design and cost and quantitative tracking of the long-term</p>					

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>evolution of the fleet as new platforms are introduced and old ones are retired. Areas to be examined include interoperability concepts, force architecture impact studies, and operational employment concept studies.</p> <p><i>FY 2023 Base Plans:</i> Continue to develop, update and maintain detailed level Navy Standard scenarios based on DPG (Defense Planning Guidance). -Continue to develop alternative scenarios in support of Defense Review guidance, Joint studies, and Navy resource analyses. -Continue to develop, update and maintain analytic baselines for the MCO (Major combat operation) based on DPG (Defense Planning Guidance). -Continue to develop details required to execute analysis of designated Defense Planning Scenarios and their respective Multi-Service Force Deployment Plans. -Continue to develop and maintain a framework and common set of processes to ensure that essential elements of warfare analyses, including scenarios, operational concepts, tactics, capabilities of platforms and systems (for Navy, Joint, coalition and threat forces), key assumptions and input data are defined and traceable to government approved/provided source material. -Continue to develop scenarios and operational concepts based on government inputs that are sufficiently detailed for use in naval and joint campaign analyses. -At the mission level, continue to script Operational Situations (OPSITS) or Tactical Situations (TACSITS) for use in effectiveness analyses in specific warfare mission areas. -Continue to provide analytically-based decision recommendations to CNO (Chief of Naval Operations) for both warfighting and support areas. -Continue to develop CNO (Chief of Naval Operations) investment strategy recommendations and assessments for Program Review and Program Objective Memorandum. -Continue to perform rigorous, time critical naval and joint campaign and mission-level analyses, usually based on modeling and simulation that illuminated complex warfare issues which support decision-making in the PPBE (Planning, Programming, Budgeting and Execution) process. -Continue to conduct ISR (Intelligence, Surveillance, Reconnaissance) and METOC (Meteorological and oceanographic systems) assessments to determine the optimal mix of Naval ISR ((Intelligence, Surveillance, Reconnaissance) and METOC ((Meteorological and oceanographic systems) sensors, platforms, and processing, analysis and fusion disposition to support MCOs (Major combat operation), the OCO(Overseas Contingency Operations), and intelligence preparation of the environment for both MCOs(Major combat operation) and OCO (Overseas Contingency Operations).</p>					

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>-Continue to develop and maintain common baselines from which campaign excursions and mission-level analyses are executed.</p> <p>-Continue to identify, develop and improve data and modeling, and broker agreements upon assumptions, CONOPS (Concepts of Operation), scenarios, and data.</p> <p>-Continue to lead campaign analysis for OPNAV (Office of the Chief of Naval Operations) and lead Navy's participation in OSD/Joint Staff analytic agenda, baseline development, and collection of data.</p> <p>-Continue to conduct modeling and simulation support for ongoing OPNAV missile defense analysis requirements.</p> <p>-Continue to provide analytically-based decision recommendations to OPNAV for joint warfighting and support areas.</p> <p>-Continue to develop new analytic models and techniques for informing resource allocation decisions; conduct all campaign and warfare mission-level analyses and develop investment strategies.</p> <p>-Continue to develop and improve the Navy's analysis capabilities which support Joint and Navy analytic agendas and resource-allocation decision making by refining the linkages between cost and performance in performance-modeled programs in support of Navy analysis and assessment. Areas of tool development and improvement included mission and campaign-level warfighting models, active and reserve manpower, afloat and ashore readiness, and medical capabilities.</p> <p>-Continue to focus on integrated analysis capabilities that cut across business and program accounts. Specific efforts address cyber warfare and security, optimizing the training pipeline, integrating ship maintenance and operations price performance models, and improving mission- and campaign-level C5ISR (Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance) models and representations.</p> <p>-Continue to develop medical analysis that links to campaign analysis including movement of injured between care facilities, life-saving treatment of injured and recuperation support of injured to support Navy Medical Program decisions.</p> <p>-Continue to update the high-level readiness model that fully integrates all aspects of warfighting support (operational utilization, training cycles, training centers, depots, etc.) and personnel (recruitment, training, development, deployment, retention, etc.) across the Navy's warfighting platforms (aircraft, ships, submarines, etc.), facilities and personnel development centers.</p> <p>-Continue to conduct ship, boat, and unmanned marine vehicle concept studies in preparation for Capabilities Based Assessments (CBAs) and Analysis of Alternatives (AoAs). Studies will be performed in a continuous manner to support future recapitalization of Surface Combatants, Amphibious Ships, Carriers, Auxiliary Ships and other emerging program requirements.</p>					

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>-Continue to collaborate with Warfare Systems design experts to perform continuous Warfare Systems analysis at the ship and fleet level. Warfare Systems effectiveness assessment tools are being continually developed and enhanced as required to address future concepts and to incorporate improvements in information technology systems. Additionally, collaborate with aircraft, C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance), and networks by continuing dialog and collaboration between NAVSEA (Naval Sea Systems Command), NAVAIR (Naval Air Systems Command), and NAVWAR (Naval Warfare Systems Command) systems commands which refines fleet level requirements.</p> <p>-Continue to conduct future force structure concept formulation. Fleet synthesis and analysis will be conducted, which includes capabilities requirements, platform design and cost and quantitative tracking of the long-term evolution of the fleet as new platforms are introduced and old ones are retired. Areas to be examined include interoperability concepts, force architecture impact studies, and operational employment concept studies.</p> <p>-Utilize the LCS driver tree framework to assess the significance of different variables that may impact the number of LCSs to support operational requirements, develop advanced analytic models using machine learning techniques and Monte Carlo simulation based on the LCS Plan-2-Perform (P2P) driver tree. The analytical model will forecast the numbers of mission ready LCS, parts shortages, unplanned down days, and/or CASREPs/CANNABs. The analytical model will serve as the basis for prioritizing and assessing how resources can best be allocated to improve LCS readiness as well as identify key actionable drivers that result in a decrease in LCS mission readiness and increase unplanned down days.</p> <p>-Develop a prescriptive analytics model to determine the cost-minimizing driver levels to achieve a greatly increased number of mission ready LCS while reducing unplanned down days. Assess costs associated with various combinations of driver levels that would achieve target levels of performance.</p> <p>-Support early development stages of a Digital Program Objective Memorandum (POM) tool. The Digital POM is a holistic, end-to-end effort intended to maximize Naval Power by modernizing and optimizing the Navy's investment decision processes and technologies. To optimize investment decisions, the Navy must implement practices that go beyond traditional planning and performance monitoring to determine return on investment (ROI) and allow management of operational, investment and other enterprise risk- adjusted outcomes. The ideal solution(s) provide data management, traceability, ease of use, scalability, and an ability to find causal relationships, total operating costs, and alternatives to programs of record based on correlation to alignment to key problems, desired output, or ROI. The vision for the Digital POM is an integrated and automated decision management system that enables confident, objective, and transparent decisions that consistently maximize Naval Power in real time using accurate, relevant, and timely data/ information.</p> <p>FY 2023 OCO Plans:</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A					
<p>FY 2022 to FY 2023 Increase/Decrease Statement: The increase of \$2.463K from FY22 to FY23 will support the Perform-to-Plan (P2P) activities continuing within the analytic studies portfolio as well as support early development stages of a Digital Program Objective Memorandum (POM) tool. This increase will reflect that Digital POM is a holistic, end-to-end effort intended to maximize Naval Power by modernizing and optimizing the Navy's investment decision processes and technologies. The vision for the Digital POM is an integrated and automated decision management system that enables confident, objective, and transparent decisions that consistently maximize Naval Power in real time using accurate, relevant, and timely data/ information. This increase will also reflect Navy's Perform-to-Plan (P2P) process as a Readiness Planning and Performance Analysis process to improve Navy Readiness by clearly articulating performance gaps, identifying barriers to execution, and developing potential solutions to achieve an integrated, enterprise approach to Readiness recovery as outlined in the National Defense Strategy (NDS). Due to the inherent complexities of the Navy Enterprise, a Readiness and Performance Analysis process will help leadership to focus on the most impactful performance drivers to achieve Readiness recovery, while highlighting key opportunities to achieve measurable outcomes in the most efficient manner.</p>					
<p>Title: Joint Mission Assessment Studies</p> <p align="right">Articles:</p>	3.662	3.496	3.719	0.000	3.719
<p>Description: Capabilities-Based Assessment (CBA) is the JCIDS analysis process that includes three phases: the Functional Area Analysis (FAA), the Functional Needs Analysis (FNA), and the Functional Solution Analysis (FSA). The results of the CBA are used to develop a joint capabilities document (based on the FAA and FNA) or initial capabilities document (based on the full analysis). CBA funding provides the resource sponsors the means to develop the analytic underpinning required by Chairman of the Joint Chiefs of Staff Instruction 3170.01G to support the determination of Naval war fighting capabilities and force structure needed to support the JROC/ JCIDS requirements validation process and to inform Program Objective Memorandum programming decisions.</p> <p>FY 2022 Plans: CBA such as advanced Naval Warfare fires and Naval aviation integrated analysis to identify future capability requirements. Develop metrics to describe the effectiveness of solutions, and evaluate current and programmed systems ability to meet capability requirements to determine capability gaps. Expand warfighting gap</p>	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt	Project (Number/Name) 2221 / JT Mission Assessment Studies

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
assessments addressing interaction of mission area kill chain platforms, sensors, and weapons in a system-of-system construct. FY 2023 Base Plans: CBA such as advanced Naval Warfare fires and Naval aviation integrated analysis to identify future capability requirements. Develop metrics to describe the effectiveness of solutions, and evaluate current and programmed systems ability to meet capability requirements to determine capability gaps. Expand warfighting gap assessments addressing interaction of mission area kill chain platforms, sensors, and weapons in a system-of-system construct. FY 2023 OCO Plans: N/A FY 2022 to FY 2023 Increase/Decrease Statement: The increase from FY22 to FY23 reflects inflation and the continuation of fleet analytical studies.					
Accomplishments/Planned Programs Subtotals	21.532	21.972	24.658	0.000	24.658

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

Remarks

D. Acquisition Strategy
N/A.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt	Project (Number/Name) 3017 / Enterprise Information Systems
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
3017: Enterprise Information Systems	0.000	0.913	0.969	1.088	-	1.088	1.103	1.123	1.143	1.164	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds the Office of Naval Research (ONR) Next Generation Enterprise Network (NGEN) Information Technology corporate costs.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Next Generation Enterprise Network (NGEN)	0.913	0.969	1.088	0.000	1.088
Articles:	-	-	-	-	-
Description: This project funds the Office of Naval Research (ONR) Next Generation Enterprise Network (NGEN) Information Technology corporate costs.					
FY 2022 Plans: Continue to support NGEN Corporate requirements, such as (tech refresh, etc.).					
FY 2023 Base Plans: Continue to support NGEN Corporate requirements, such as (tech refresh, etc.).					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: There is no significant funding change from FY 2022 to FY 2023.					
Accomplishments/Planned Programs Subtotals	0.913	0.969	1.088	0.000	1.088

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy										Date: April 2022		
Appropriation/Budget Activity 1319 / 6					R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt			Project (Number/Name) 3027 / Defense Critical Infrastructure Program				
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
3027: Defense Critical Infrastructure Program	0.000	5.710	7.450	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	13.160
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funds received pursuant to the transfer of budget authority from Office of the Secretary of Defense (Policy) Homeland Defense Mission Assurance Directorate will be used for infrastructure analysis, assessment, and research required to support execution of the Defense Critical Infrastructure and Mission Assurance Program (DCIP / MA). Additionally, the transferred budget authority will be used to provide in-depth/cross-cutting analysis to the Mission Assurance (MA)/DCIP programs at the Office of the Secretary of Defense (OSD), Joint Staff, Military Departments/Services, Defense Agencies, and Combatant Commands. NSWCDD-A40 will also perform cyber mission assurance research and provide expertise in infrastructure mitigation techniques and solutions.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Mission Assurance Risk Management System (MARMS) Technical Support	0.530	0.530	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Provide capabilities to meet the technical requirements in support of the developmental efforts for the current and future common operating picture for Mission Assurance supporting Joint Staff MARMS development team, program office and A40 mission assurance database organization.					
The Office of the Undersecretary of Defense for Policy (OUSD-P) Mission Assurance Directorate and the Joint Staff provide oversight for funding that will be used for infrastructure analysis, assessment, and research required in support of Mission Assurance and Defense Critical Infrastructure(DCI)programs at the Joint Staff and Office of the Secretary of Defense Policy (OSD)(P).					
FY 2022 Plans:					
1 Participate in MARMS configuration control board (CCB) and conduct data sharing collaboration groups. Provide assistance with the development of requirements across all capability areas of the MARMS and data sharing efforts.					
2 Analyze and map data elements between existing databases for information sharing and eventual transfer to an existing or future MARMS database per guidance from Joint Staff, CCB, and Configuration Management Board (CMB)					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022		
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt	Project (Number/Name) 3027 / Defense Critical Infrastructure Program			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
3 Provide technical support and input to improve interim capability with existing Mission Assurance information technology (IT) systems. This task could include adjustments to SMADS asset data, review of classified hosting services and facilities from various defense agencies, or systems engineering analysis and code updates to enhance integration capabilities of existing MA IT systems within A40 and across the MA community.					
FY 2023 Base Plans: N/A					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: The FY2022 to FY2023 decrease reflects the Program Decision Memorandum realigning efforts from DON to DTRA.					
Title: Mission Assurance Assessments (MAA) Support					
Articles:					
	0.697	1.333	0.000	0.000	0.000
	-	-	-	-	-
Description: Provide analysis and characterization of Defense Critical Infrastructure through research and study of existing assessment data and incoming assessment data to analyze trends, provide feedback, and significant impacts to defense missions and assets during events, exercises, and planning efforts.					
The Office of the Undersecretary of Defense for Policy (OUSD-P) Mission Assurance Directorate and the Joint Staff will provide oversight to A40 for funding that will be used for infrastructure analysis, assessment, and research required in support of Mission Assurance and Defense Critical Infrastructure (DCI) programs at the Joint Staff and OuSD (P).					
FY 2022 Plans:					
1 Conduct commercial asset analysis on mission or system specific assessments in support of the National Defense Strategy (NDS), defense critical missions and/or Defense Planning Guidance (DPG) work.					
2 Research, review and analyze existing Joint doctrine and/or Strategic documents (i.e. directives, instructions, manuals and Joint Publications) -- provide recommendations on how and where the Joint Staff can insert or improve Mission Assurance Construct language. (mathematical formulas, weighting factors, and assessment processes using A40 analytical resources).					
3 Provide real-time reach back support during events and exercises to CCMDs and MA services and agencies in the form of deep-dive infrastructure analysis and mission assurance related impacts.					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt	Project (Number/Name) 3027 / Defense Critical Infrastructure Program
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>4 Conduct annual analysis on Joint MAA reports for trends and/or common issues. Analyze mission assurance assessment findings to determine most common trends and make recommendations to support risk management plans and mitigation options.</p> <p>FY 2023 Base Plans: N/A</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: The FY2022 to FY2023 decrease reflects the Program Decision Memorandum realigning efforts from DON to DTRA.</p>					
<p>Title: Cyber Mission Assurance (MA)</p> <p align="right">Articles:</p> <p>Description: Analysts will investigate cyber impacts to missions and infrastructure associated with DoD assets. This information will be conveyed in assessments, memorandums, and white papers to inform senior leaders and teams about the significance of cyber infrastructure and the interdependencies with physical infrastructure.</p> <p>The Office of the Undersecretary of Defense for Policy (OUSD-P) Mission Assurance Directorate and the Joint Staff will provide oversight to A40 for funding that will be used for infrastructure analysis, assessment, and research required in support of Mission Assurance and Defense Critical Infrastructure (DCI) programs at the Joint Staff and OUSD (P).</p> <p>FY 2022 Plans:</p> <p>1 When directed, provide support for analysis that will facilitate the identification of mission relevant terrain for cyber and industrial control systems (ICS). The work will include identifying cyber dependencies of DCI and related supporting missions and infrastructure.</p> <p>2 Enhance best practices to reduce risks to Platform IT control systems (PIT-CS) supporting select DCI. This task will build on the ICS cyber security best practices report, and apply to ongoing legislative inquiries associated with weapon systems and critical infrastructure cybersecurity.</p> <p>3 Investigate and research emerging ICS threats for DCI and supported missions to enhance awareness on specific cyber infrastructure that supports mission assurance capabilities across the DoD enterprise. This task</p>	0.849	1.227	0.000	0.000	0.000
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
includes investigation, research, and potential development of out-of-band and / or analog solutions to cyber critical infrastructure vulnerabilities.					
FY 2023 Base Plans: N/A					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: The FY2022 to FY2023 decrease reflects the Program Decision Memorandum realigning efforts from DON to DTRA.					
Title: Defense Critical Electric Infrastructure (DCEI)					
Articles:					
	0.494	0.494	0.000	0.000	0.000
	-	-	-	-	-
Description: Provide electric power analysis and characterization of defense installations at the request of senior leaders engaged with energy security and resilience efforts for national security with interagency representatives from industry utilities, DHS, and DoE.					
The Office of the Undersecretary of Defense for Policy (OUSD-P) Mission Assurance Directorate and the Joint Staff will provide oversight to A40 for funding that will be used for infrastructure analysis, assessment, and research required in support of Mission Assurance and Defense Critical Infrastructure (DCI) programs at the Joint Staff and OUSD (P).					
FY 2022 Plans:					
1 Update installation peak power methodology and primary EP infrastructure pathways in support of interagency DCEI collaboration.					
2 Update DCEI analysis as requested per ongoing interagency collaborations in DoD areas of operation.					
3 Analyze exercise and assessment feedback (Constrained / Shattered Eagle, Grid Ex etc.) to enhance leadership understanding of commercial electric power grid dependencies for DoD Missions.					
4 Provide recommendations on what DoD processes may be appropriate to use to engage with services and utilities to discuss energy resilience analysis and requirements.					
5 Provide recommendations on organizations and points of contact (POCs) for OUSD (P) personnel to engage with to deepen understanding of utility operations and grid operations.					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>Assurance (IA) processes, IT maintenance and infrastructure data licenses (e.g., Telecordia, PowerWorld, and ESRI ArcGIS).</p> <p>FY 2023 Base Plans: N/A</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: The FY2022 to FY2023 decrease reflects the Program Decision Memorandum realigning efforts from DON to DTRA.</p>					
<p>Title: Defense Critical Infrastructure</p> <p align="right">Articles:</p> <p>Description: Provide mission assurance assessment and support for characterization of defense critical infrastructure and supporting links to commercial industry and equipment. Analysis and research will provide details on critical links to defense missions and assets and support risk management decision planning for installations, services, and Combatant Commands (CCMDs).</p> <p>The Office of the Undersecretary of Defense for Policy (OUSD-P) Mission Assurance Directorate and the Joint Staff will provide oversight to A40 for funding that will be used for infrastructure analysis, assessment, and research required in support of Mission Assurance and Defense Critical Infrastructure (DCI) programs at the Joint Staff and OUSD (P).</p> <p>FY 2022 Plans:</p> <ol style="list-style-type: none"> Maintain Global Mission Assurance Portal (GMAP) portal documentation requirements and continue development of database solution and provide best practices / option in support and coordination with MARMS effort DCI criticality assessments and nominations will continue to flow in and be reviewed / analyzed for completeness and prioritized for review Mission Mitigation and Risk Reduction Plan coordination and review of new or existing nominated assets and need for budget prioritization of vulnerability solutions 	0.396	0.600	0.000	0.000	0.000
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
<p>4 Risk Management Plan draft summaries will be coordinated, edited, and reviewed for correctness, completeness and identified appropriate vulnerabilities and threats to justify risk management plan efforts cover the issues</p> <p>5 Continue nomination package preparation for biannual update and finalization of critical defense assets and infrastructure</p> <p>6 Revalidation packages for Defense Critical Assets (DCAs) will be reviewed and nominated based on previous mission plan inputs and current Joint Staff and OSD defense planning guidance updates</p> <p>FY 2023 Base Plans: N/A</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: The FY2022 to FY2023 decrease reflects the Program Decision Memorandum realigning efforts from DON to DTRA.</p>					
Title: Defense Critical Mission (DCM)					
Articles:					
	0.326	0.503	0.000	0.000	0.000
	-	-	-	-	-
Description: Conduct research and provide expertise on the defense critical missions nominated by the Joint Staff and Mission Assurance community for development of mitigations and solutions to vulnerabilities discovered as part of mission assurance assessment processes. Analysts will provide expertise and knowledge in multiple areas of engineering and infrastructure to provide robust and resilient plans and projects to enhance installation infrastructure and planning to increase successful support of critical missions.					
The Office of the Undersecretary of Defense for Policy (OUSD-P) Mission Assurance Directorate and the Joint Staff will provide oversight to A40 for funding that will be used for infrastructure analysis, assessment, and research required in support of Mission Assurance and Defense Critical Infrastructure (DCI) programs at the Joint Staff and OUSD (P).					
FY 2022 Plans:					
1 Continue update of Mission Maps to maintain awareness of existing and new DCMs and the assets supporting multiple AORs and across mission owners (and de-conflict)					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy	Date: April 2022
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: The FY2022 to FY2023 decrease reflects the Program Decision Memorandum realigning efforts from DON to DTRA.					
Title: MA Advanced Homeland Analysis & Assessment Integration	1.148	1.243	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Provide technical assessment support and improve mission assurance implementation to enterprise systems, and provide leadership in support of OSD and NAVSEA efforts between mission assurance, threat intelligence, big data analysis and cybersecurity network programs. This includes identifying and categorizing Mission Relevant Terrain-Cyber (MRT-C) data via Red Team capabilities.					
FY 2022 Plans: Grow team from FY2021 to 3-4 assessments per year on a steady periodic basis through FY2022. Provide cyber and mission assurance analysis and expertise to assets, infrastructure, and networks and provide reporting to senior leadership to mitigate found vulnerabilities; grow local expertise and persistent cyber awareness based on initial assessment team survey					
FY 2023 Base Plans: N/A					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: The FY2022 to FY2023 decrease reflects the Program Decision Memorandum realigning efforts from DON to DTRA.					
Accomplishments/Planned Programs Subtotals	5.710	7.450	0.000	0.000	0.000

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

Remarks

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D. Acquisition Strategy
N/A

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Appropriation/Budget Activity 1319 / 6					R-1 Program Element (Number/Name) PE 0605853N / <i>Management, Technical & Intl Supt</i>				Project (Number/Name) 3312 / <i>MTMD-Maritime Theater Missile Defense Forum</i>			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
3312: <i>MTMD-Maritime Theater Missile Defense Forum</i>	0.000	24.454	11.857	10.992	-	10.992	11.360	11.313	11.504	11.628	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds participation in Maritime Integrated Air and Missile Defense projects with other nations through the Maritime Missile Defense Projects Framework Memorandum of Understanding of 2004 (as amended 2009, 2015, 2016 and 2020). Known as the Maritime Theater Missile Defense (MTMD) Forum, it promotes interoperability with the Navies of twelve participating nations (Australia, Belgium, Canada, Denmark, France, Germany, Italy, Netherlands, Norway, Spain, United Kingdom and the United States). This project provides interoperability assessment and opportunities to Allies that directly contributes to increasing the number of countries capable of supporting NATO Ballistic Missile Defense (BMD). Engineering analysis and data analytics from MTMD activities are provided to European and Pacific Combatant Commands in direct support of theater Integrated Air and Missile Defense (IAMD) priorities. The MTMD Forum addresses challenges associated with integrating maritime Allied Air Defense in Support of Ballistic Missile Defense Operations into joint IAMD command and control. MTMD Forum nations leverage At-Sea Demonstration (ASD) test events, coupled with operational Fleet Exercises (Formidable Shield and Pacific Dragon), to integrate technology and validate national capabilities in operational constructs, supportive of operational force employment.

The MTMD Forum encourages national development of systems and practices that enhance protection and defense against the proliferation of short, medium and long-range Ballistic Missile (BM) and Advanced Anti-Ship Cruise Missile (ASCM) threats through the development of interoperable sea-based Integrated Air and Missile Defense (IAMD) capability among MTMD Forum nations. The MTMD Forum enhances utilization of existing sea-based IAMD systems to protect against current threats, while measuring progressive improvement and development of compatible systems to better counter evolving threats.

This project supports USN participation in a Maritime IAMD Project Arrangement focused on:

- (1) Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I) to define and develop architectures and perform engineering to address coalition capability gaps.
- (2) Modeling & Simulation (M&S) to establish and maintain a maritime coalition M&S testbed and to perform legacy and future systems simulation testing.
- (3) Hardware-in-the-Loop Testing of Coalition combat systems to assess interoperability within the Coalition Distributed Engineering Plant (CDEP).
- (4) Open Architecture (OA) work to develop Interface Standards and Data Models.
- (5) Test Planning and Execution (TPEX) to develop Test Plans, oversee exercise participation and conduct post event data analysis and reporting.
- (6) Operational Requirements (OR) to identify operational constraints and tactical constructs surrounding coalition maritime integrated air and missile defense activities, and their integration into joint operations.
- (7) Reciprocal Use of Test Facilities agreements with other nations to support Maritime IAMD and MTMD Forum-related demonstrations.

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>Title: MTMD-Martime Theater Missile Defense Forum</p> <p align="right">Articles:</p> <p>FY 2022 Plans:</p> <p>(1) BMC4I will continue in its mission of engineering analysis of multi-national interoperability gap assessment for the Target Architecture utilizing test results from project events and complete development of the Target Architecture based on additional request for information inputs from member nations. BMC4I will evaluate emergent Possible Point Solutions and provide recommendations for implementation in correcting coalition interoperability gaps. BMC4I examination of allied capabilities and limitations, and follow-on production of a capabilities / limitations database, is critical to the success of future Modeling and Simulation work, Coalition Distributed Engineering Plant experiments, and At-Sea Demonstrations. BMC4I will develop updates to MTMD Coalition Capabilities and Interoperability (CCI) publications that contribute to alignment of requirements among the participating nations of the MTMD-F as well as to future versions of the MTMD Capabilities and Limitations (Caps & Lims) documents.</p> <p>(2) M&S will continue in their constant, cyclical work providing analysis of Target Architectures and conduct further assessments in support of creating data and analysis to support recommendations to improve information exchange requirements identified by BMC4I and the System Engineering Team (SET). M&S will continue to ensure all associated authorities to operate are in place for continued coalition modeling and simulation. M&S will ensure all coalition partners in the MTMD Forum who participate in the M&S working group will have online access as required to M&S modeling and simulation equipment to continue to run simulations in support of these MTMD efforts. M&S will model future Target Architectures and provide analysis in support of future at-sea demonstrations. The M&S team will continue development of the test bed and add additional computing power to the test environment to provide faster and more powerful analytical capability to the Forum System Engineering Team in order to provide more timely responses to requests for model/simulation data to support recommendations. The M&S Working Group will continue development of Mission Models in support of capability development to illustrate operational impact of proposed solutions to complex Integrated Air and Missile Defense (IAMD) problems.</p> <p>(3) CDEP will continue to assess interoperability of joint air and land assets in Annual Test Event (ATE) consistent with the MTMD Forum Project Management Framework. CDEP will provide technical expertise to the BMD Integration, FTE2C and IAMD Interoperability/ Common Tactical Picture (CTP) projects within the MTMD Forum. CDEP will continue to assess interoperability of joint air and land assets in Annual Test Event</p>	24.454	11.857	10.992	0.000	10.992
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>(ATE) 2022. Three additional nations have fielded their national Hardware in the Loop (HWIL) capabilities in the last two years, bringing the total capable nations in the MTMD Forum to five, requiring more frequent connection testing by the U.S. CDEP Team.. CDEP will work with BMC4I to test various Coalition Capabilities and Interoperability (CCI) gaps. CDEP will prepare for and conduct hardware-in-the-loop tests with enabled allied partners, and will provide assessments and recommendations to improve information exchanges required to conduct at-sea demos.</p> <p>(4) Open Architecture will model and extend the component software interfaces for additional Force Level Functions (FLFs): Network Management and Planning and Tasking. The Force Data Model will be extended to support the information exchange of additional FLFs. The Force Level Open Architecture Technical Standard (FLOATS) will be implemented in national Force Threat Evaluation and Weapons Assignment (FTEWA) prototype efforts such as ONR's The Technical Cooperation Program (TTCP). It will also be finalized and exercised via scenarios within an M&S and CDEP environment. In addition to identifying errors and deficiencies in the standard, these exercises and FLOATS implementations will demonstrate various operational methodologies for distributing data within the Force as well as identifying performance parameters. Comments submitted against the standard will be adjudicated and the standard will be updated as required. The OAWG will continue to collaborate with BMC4I, OR, CDEP and the System Experts Meeting (SEM) to ensure these interfaces align with the Target and Reference Architectures as well as selected Possible Point Solutions (PPSs). The OAWG will collaborate with the FTEWA Workshops and Subject Matter Experts (SMEs) to ensure the FLF component interfaces align with FTEWA and operational requirements. The OAWG will monitor the OARIS Industry Group and relevant commercial standards as required.</p> <p>(5) TPEX will continue preparations for MTMD participation and support for ongoing at-sea test event series. The TPEX group will support the COMPACFLT Pacific Dragon (PD) 2022 exercise, which will execute in Q4 of FY22. During PD, live-fire Integrated Air and Missile Defense (IAMD) events are planned to be conducted with MTMD Forum nations bringing ships, aircraft, and ground based sensors. These at-sea demonstrations will include live tracking events and a combination of live and simulated engagements within a fleet exercise, focused on interoperability assessment. Planning for At-Sea Demonstrations and follow-on at-sea testing will continue into future years. The data analysis effort contained within the TPEX line of effort provides the linkage and measures of success between the various MTMD Forum supported at-sea demonstrations that enable key policy makers and leaders to understand capability gaps / possible solutions with quantified metrics. Future planning in FY22 will include Formidable Shield (FS) -23 in May 2023, Pacific Dragon 24 in August 2024, and At-Sea Demo/</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022				
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / <i>Management, Technical & Intl Supt</i>	Project (Number/Name) 3312 / <i>MTMD-Maritime Theater Missile Defense Forum</i>				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>FS-25 in May 2025. Formidable Shield exercises are the premier maritime IAMD exercises in Europe, run by Commander U.S. Naval Forces Europe (NAVEUR).</p> <p>(6) Operational Requirements group will continue to provide operational requirements and perspectives for o the engineering and test activity conducted in the other working groups within the MTMD Forum. This critical cooperation with Naval Surface & Mine Warfare Development Command (SMWDC) enables the allied linkage into the established relationship between the Naval Surface and Mine Warfighting Development Center (SMWDC) and the Naval Sea Systems Command (NAVSEA).</p> <p>FY 2023 Base Plans:</p> <p>(1) BMC4I will continues to coordinate, collaborate, synchronize, and be aligned with the System Engineering Team (SET) and across MTMD Projects and Working Groups (WG) to improve relationships, achieve mutual goals and objectives, and enhance Integrated Air and Missile Defense (IAMD) interoperability and capabilities in a Coalition Maritime Force integrated into the Joint Battle. Identify interoperability and capability gaps based on post-Test event data analysis, responses to Request for Information (RFI), Special Experts Meetings (SEM) analysis, and System Tactical Data Link (TDL) Interoperability Report (STIR) and documented Coalition Capability and Interoperability (CCI) Report and the Capabilities and Limitations (C&L) database. Establish "C&L Fleet Modifiable Tool (FMT)" availability to Forum Nations via CFBLNet/MTMD-SEE. Provide Information Exchange Requirements (IER) supporting Modeling and Simulation (M&S) Working Group synthetic test efforts, Coalition Distributed Engineering Plant (CDEP) Working Group exercises (e.g., Annual Test Events (ATEs)), and Test Planning and Execution (TPEX) Working Group At-Sea test events and/or Hardware-in-the-Loop (HWIL) activities to validate and demonstrate IAMD objectives. Engage with Open Architecture (OA) Working Group, Force Level Open Architecture Technical Standard (FLOATS) Project, and Force Threat Evaluation and Effects Coordination (FTE2C) Project supporting Force-Level Function (FLF) development and testing facilitated from System Architects models and Object-Oriented designs. Collaborate with Operational Requirements (OR) Working Group by incorporating warfighter Tactics, Techniques and Procedures (TTP). Develop Target Architectures (TA) supporting MTMD Forum's IAMD vision. Work with Interoperability and Common Tactical Picture (IaCTP) Project in developing a "CTP Assessment Means" assessing the CTP quantitatively and qualitatively; evolving an "IAMD Maturity Model" by tracking and measuring continued IAMD capability progression/maturity; and outline roles, capabilities, and C2 structure for integration into Joint coalition operations.</p>						

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Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / <i>Management, Technical & Intl Supt</i>	Project (Number/Name) 3312 / <i>MTMD-Maritime Theater Missile Defense Forum</i>

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>(2) M&S will continue in their constant, cyclical work providing analysis of Target Architectures and conduct further assessments in support of creating data and analysis to support recommendations to improve information exchange requirements identified by BMC4I and the System Engineering Team (SET). M&S will continue to ensure all associated authorities to operate are in place for continued coalition modeling and simulation. M&S will ensure all coalition partners in the MTMD Forum who participate in the M&S working group will have online access as required to M&S modeling and simulation equipment to continue to run simulations in support of these MTMD efforts. M&S will model future Target Architectures and provide analysis in support of future at-sea demonstrations. The M&S team will continue development of the test bed and the test environment to provide analytical capability to the Forum System Engineering Team in order to provide timely responses to requests for model/simulation data to support recommendations. The M&S Working Group will continue development of Mission Models in support of capability development to illustrate operational impact of proposed solutions to complex Integrated Air and Missile Defense (IAMD) problems.</p>					
<p>(3) CDEP will continue to assess interoperability of joint air and land assets in Annual Test Event (ATE) consistent with the MTMD Forum Project Management Framework. CDEP will provide technical expertise to the BMD Integration, FTE2C and IAMD Interoperability/ Common Tactical Picture (CTP) projects within the MTMD Forum. CDEP will continue to assess interoperability of joint air and land assets in Annual Test Event (ATE) 2023. Three additional nations have fielded their national Hardware in the Loop (HWIL) capabilities in the last two years, bringing the total capable nations in the MTMD Forum to five, requiring more frequent connection testing by the U.S. CDEP Team.. CDEP will work with BMC4I to test various Coalition Capabilities and Interoperability (CCI) gaps. CDEP will prepare for and conduct hardware-in-the-loop tests with enabled allied partners, and will provide assessments and recommendations to improve information exchanges required to conduct at-sea demos.</p>					
<p>(4) Open Architecture will model and extend the component software interfaces for additional Force Level Functions (FLFs) such as Sensor and Track Management. The Force Data Model will be extended, after generating the required use cases, to support the information exchange of additional FLFs. The Force Level Open Architecture Technical Standard (FLOATS) messaging interfaces will be implemented in national Force Threat Evaluation and Weapons Assignment (FTEWA) prototype efforts such as ONR's The Technical Cooperation Program (TTCP). It will also be finalized and exercised via scenarios within the M&S and CDEP environments. In addition to identifying errors and deficiencies in the standard, these exercises and implementations will demonstrate various operational methodologies for distributing data within the Force, as well as identifying performance parameters. Comments submitted against the standard will be adjudicated and</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy	Date: April 2022
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Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / <i>Management, Technical & Intl Supt</i>	Project (Number/Name) 3312 / <i>MTMD-Maritime Theater Missile Defense Forum</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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<p>the standard will be updated as required. The OAWG will continue to collaborate with BMC4I, M&S, and the System Experts Meeting (SEM) to ensure the interfaces and data exchange align with the Target and Reference Architectures as well as selected Possible Point Solutions (PPSs). The OAWG will also collaborate with the OR, CDEP, and the FTEWA Subject Matter Experts (SMEs) to ensure the FLF component interfaces align with FTEWA and operational requirements. The OAWG will monitor the OARIS Industry Group and commercial standards as required to determine if there are relevant industry developed standards and artifacts (e.g. data models, software interfaces) that can be reused to accelerate the FLOATS project.</p> <p>(5) TPEX will continue preparations for MTMD participation and support for ongoing at-sea test event series. The data analysis effort contained within the TPEX line of effort provides the linkage and measures of success between the various MTMD Forum supported at-sea demonstrations that enable key policy makers and leaders to understand capability gaps / possible solutions with quantified metrics. TPEX will be evaluating the results from Pacific Dragon 2022 (PD 22), a COMPACFLT exercise that will involve Australian, Canadian, and United States surface units alongside Japanese and Republic of Korea maritime units. The TPEX group will also support execution of the NAVEUR-run Formidable Shield (FS) -23 in May 2023. Future planning in FY23 will include Pacific Dragon 24 in August 2024 and At-Sea Demo/FS-25 in May 2025. Formidable Shield exercises are the premier maritime IAMD exercises in Europe, run by Commander U.S. Naval Forces Europe (NAVEUR).</p> <p>(6) Operational Requirements group will continue to provide operational requirements and perspectives for the engineering and test activity conducted in the other working groups within the MTMD Forum. This critical cooperation with Naval Surface & Mine Warfare Development Command (SMWDC) enables the allied linkage into the established relationship between the Naval Surface and Mine Warfighting Development Center (SMWDC) and the Naval Sea Systems Command (NAVSEA).</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: Decrease of \$865k from FY 2022 to FY 2023. Prior year's budget profile funded modifications to target launch pads and equipment that remain suitable for future iterations of Exercise Formidable Shield Integrated Air & Missile Defense demonstrations.</p>					
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Accomplishments/Planned Programs Subtotals	24.454	11.857	10.992	0.000	10.992
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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / <i>Management, Technical & Intl Supt</i>	Project (Number/Name) 3312 / <i>MTMD-Maritime Theater Missile Defense Forum</i>
C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy N/A		

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy										Date: April 2022		
Appropriation/Budget Activity 1319 / 6					R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt				Project (Number/Name) 3330 / Naval Research Laboratory (NRL) Facilities Modernization			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
3330: Naval Research Laboratory (NRL) Facilities Modernization	0.000	15.877	17.144	16.729	-	16.729	21.189	19.651	17.318	15.562	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program has been established to provide a systematic and planned approach to improve vital in-house science and technology (S&T) laboratory facilities at the Naval Research Laboratory (NRL) which are reaching or have reached critical stages of deterioration. The program includes restoration and modernization (R&M) initiatives for about 531 facilities, where the average age of the infrastructure is 67 years old.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: NRL Facilities Modernization	15.877	17.144	16.729	0.000	16.729
Articles:	-	-	-	-	-
Description: Critical Science and Technology research cannot be sustained or succeed in deteriorated facilities. World class research can only be accomplished in facilities that are at a minimum "adequate", but preferably "state-of-the-art." Due to their advanced age and deterioration, funds are planned to restore/modernize various laboratory facilities at the Naval Research Laboratory.					
FY 2022 Plans: The Naval Research Laboratory plan to undertake numerous planned and emergent studies, evaluations, and modernization projects of laboratory facilities and infrastructure modernization of laboratories to meet future technological threats. Plans in FY 2022 include providing upgrades to current facilities to increase effectiveness as well as critical facilities and equipment repairs.					
Upgrades to facilities planned for in FY 2022 include: - Remodeling of numerous spaces to accommodate changing laboratory and administrative workload. These projects are planned to be funded fully in FY 2022.					
Facility repair projects planned for in FY 2022 include: - Replacement of numerous transformers and switchgears to ensure NRL main-site is able to meet the electrical power needs to conduct S&T work. These projects are planned to be funded fully in FY 2022.					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt	Project (Number/Name) 3330 / Naval Research Laboratory (NRL) Facilities Modernization

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>- Replacement and repair of chilled water piping and hot water piping to ensure that proper regulation of laboratory space temperatures. This project is planned to be funded fully in FY 2022.</p> <p>- Replacement and repair of numerous air handling units to ensure that proper regulation and circulation of air in the Heating, Ventilating, and Air-Conditioning (HVAC). These projects are planned to be funded fully in FY 2022.</p> <p>- Repair of numerous roofs to ensure laboratory space is not impacted by weather. These projects are planned to be funded fully in FY 2022.</p> <p>FY 2023 Base Plans: The Naval Research Laboratory continues efforts to undertake numerous planned and emergent studies, evaluations, and modernization projects of laboratory facilities and infrastructure modernization of laboratories to meet future technological threats. Facility upgrade and repair projects planned for in FY 2023 include:</p> <p>- Replacement of aging transformers and switchgear to ensure that NRL's laboratories are ready to support the electrical power requirements of modern, state-of-the-art S&T research. These projects are planned to be funded fully in FY 2023.</p> <p>- Replacement of aging building chillers and upgrades to Heating, Ventilating, and Air-Conditioning (HVAC) systems to ensure that NRL's laboratories are ready to support the temperature and humidity requirements of modern, state-of-the-art S&T research. These projects are planned to be funded fully in FY 2023.</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: There is no significant funding change from FY 2022 to FY 2023.</p>					
Accomplishments/Planned Programs Subtotals	15.877	17.144	16.729	0.000	16.729

C. Other Program Funding Summary (\$ in Millions) N/A
Remarks
D. Acquisition Strategy None

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt	Project (Number/Name) 3363 / PACOM Initiative
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
3363: PACOM Initiative	0.000	11.215	13.324	30.384	-	30.384	36.864	39.752	35.396	37.646	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

China Strategic Initiative (CSI) (LI 0605853N). The CSI became a DoD RDTE program in FY 2014. The CSI program is U.S. Indo-Pacific Command's(INDOPACOM)first Asia Rebalance initiative and provides critical support to planning efforts across the Command addressing Secretary of Defense's # 1 priority. CSI is a command-directed program that provides the Commander, INDOPACOM, and his staff vital support at all levels of planning and decision-making within the INDOPACOM Area Of Responsibility. The CSI program provides: cutting-edge research on adversary approaches to warfare, monitoring and analysis of adversary social media and censorship, unique understanding of effects of U.S. actions at the strategic and operational levels, sponsorship of Track 1.5/2 Strategic Nuclear Dialogue with China, etc. This funding is for a classified effort and details can be provided at a higher classification level.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: INDOPACOM Initiative	11.215	13.324	30.384	0.000	30.384
Articles:	-	-	-	-	-
<p>Description: China Strategic Initiative (CSI) (LI 0605853N). RDTE funding supports critical classified research that directly advances the core mission and functionality of INDOPACOM's China Strategic Initiative (CSI - a DoD program of record). CSI informs senior U.S. Gov't / DoD policymakers with long-term & strategic insights into the People's Republic of China (PRC) actions/ policies across the spectrum, including domestic/foreign policymaking, political thinking, military policies, economic policies, and many other areas. Part of CSI consists of a series of integrated analytical working groups comprised of experts from the U.S. Gov't (policy, planning, and intelligence), Federally Funded Research and Development Corporations (FFRDCs), academia, and private industry. All PACOM CSI efforts are overseen by a 25-member PACOM Review Board (PRB) to ensure all CSI programs are integrated and not redundant. All program efforts are done under direction of OSD and the China Strategic Roundtable, supporting Great-power competition with China, DoD's top priority for defense planning. CSI program is DoD/PACOM's first Rebalance to Asia initiative issue nomination priority.</p> <p>FY 2022 Plans: CSI requires continued/sustained support for expanded studies & analysis of operational/intelligence planning against regional adversaries; deepen understanding of PRC crisis management and strategic decision-making; and core analysis and expertise for strategic and operational level emulation efforts across the entire DIMEFIL.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy	Date: April 2022
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Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / <i>Management, Technical & Intl Supt</i>	Project (Number/Name) 3363 / <i>PACOM Initiative</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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The CSI program office and its Community of Interest (COI) comprise a broad range of subject matter expertise which includes supporting Modeling & Simulation services to assist CSI in researching, developing, testing, and demonstrating a theater-level campaign model based on a range of inputs. Developing a modeling plan which details the method to research, develop, test, and demonstrate a theater level campaign model. Developing a campaign model which details a method of scenario creation that supports a broad range of strategic and operational planning efforts, including C4ISR planning and collection at the national and operational levels. Providing gap analysis to identify shortfalls in the baseline model and suggest alternatives for resolution. The outputs and lessons learned from campaign-level modeling and scenarios will be used to inform CSI COI partners including DoD, the Joint Staff, the COCOMs, the Intelligence Community (IC), and the Interagency to enable key stakeholder decision-making processes across a broad range of topics that include strategic and operational planning, national defense systems acquisition research & development, intelligence collection tasking and target prioritization, strategic messaging, and other critical areas of interest.

FY 2023 Base Plans:
 CSI requires continued/sustained support for expanded studies & analysis of operational/intelligence planning against regional adversaries; deepen understanding of PRC crisis management and strategic decision-making; and core analysis and expertise for strategic and operational level emulation efforts across the entire DIMEFIL. The CSI program office and its Community of Interest (COI) comprise a broad range of subject matter expertise which includes supporting Modeling & Simulation services to assist CSI in researching, developing, testing, and demonstrating a theater-level campaign model based on a range of inputs. Developing a modeling plan which details the method to research, develop, test, and demonstrate a theater level campaign model. Developing a campaign model which details a method of scenario creation that supports a broad range of strategic and operational planning efforts, including C4ISR planning and collection at the national and operational levels. Providing gap analysis to identify shortfalls in the baseline model and suggest alternatives for resolution. The outputs and lessons learned from campaign-level modeling and scenarios will be used to inform CSI COI partners including DoD, the Joint Staff, the COCOMs, the Intelligence Community (IC), and the Interagency to enable key stakeholder decision-making processes across a broad range of topics that include strategic and operational planning, national defense systems acquisition research & development, intelligence collection tasking and target prioritization, strategic messaging, and other critical areas of interest.

Support of Pacific Multi-Domain Training and Experimentation Capability (PMTEC), a joint initiative to integrate and improve elements of existing ranges, training areas and test facilities in the Pacific to provide a multi-domain test, training and experimentation capability. This capability will enable USINDOPACOM to strengthen the

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / <i>Management, Technical & Intl Supt</i>	Project (Number/Name) 3363 / <i>PACOM Initiative</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
overall readiness and interoperability of U.S. forces across all domains and to test new warfighting concepts to improve joint force lethality. FY 2023 OCO Plans: N/A FY 2022 to FY 2023 Increase/Decrease Statement: The \$17.06M increase to USINDOPACOM Line Item (LI) 0605853N, Project Code (PC) 3363 is in support of Pacific Multi-Domain Training and Experimentation Capability (PMTEC), a joint initiative to integrate and improve elements of existing ranges, training areas and test facilities in the Pacific to provide a multi-domain test, training and experimentation capability. This capability will enable USINDOPACOM to strengthen the overall readiness and interoperability of U.S. forces across all domains and to test new warfighting concepts to improve joint force lethality.					
Accomplishments/Planned Programs Subtotals	11.215	13.324	30.384	0.000	30.384

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / Management, Technical & Intl Supt	Project (Number/Name) 9999 / Congressional Add
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
9999: <i>Congressional Add</i>	0.000	9.654	15.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	24.654
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funds execution of DoD's Executive Agent (EA) for Printed Circuit Board (PrCB) Technologies as established by the 2009 National Defense Authorization Act (Section 256, PL 110-417). The primary deliverable from this effort will be a PrCB and Interconnect Technology Roadmap, or strategic plan, identifying domestic technology gaps, future research and development needs, and any policy changes required to ensure that the DoD has access to PrCB manufacturing capabilities and technical expertise necessary to meet future military requirements. As mandated, the EA will also address DoD PrCB supply chain issues, including diversity and vulnerabilities, and develop trustworthiness requirements for PrCBs used in defense systems.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2021	FY 2022
Congressional Add: Printed Circuit Board Executive Agent	9.654	0.000
FY 2021 Accomplishments: - Continue to coordinate executive agent activities, receive and assess Service Component PCB R&D activities, and establish DoD Cross-Service Advisory Panel - Continue to conduct Organic Substrate Risk & Gap Analysis - Continue to implement and maintain PCB Trust Specification (IPC-1791) - Continue to Monitor/Assess/Evaluate Technology Development Issues & Topics - Continue to conduct DoD PCB manufacturing capability projects - Continue to develop processes for Embedded Devices, Additive Manufacturing, and Printed Electronics - Continue coordinate with Department of Commerce and Industry Organizations to resolve Industrial Base Supply Chain Issues - Continue to develop & implement SCRM Solutions & Tools - Continue to conduct Research, Development, and Assessment in support of PCB Roadmap creation - Continue to coordinate Knowledge and Capability efforts across DoD to avoid duplication and ensure appropriate technology focus - Continue to develop PCB-related Training Modules		
FY 2022 Plans: N/A		
Congressional Add: Consortium for additive manufacturing research and development	0.000	15.000

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy	Date: April 2022
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022
<i>FY 2021 Accomplishments:</i> N/A		
<i>FY 2022 Plans:</i> Navy's consortium for Additive Manufacturing R&D will partner with Xerox to help the Navy advancing additive manufacturing research, specifically 3D printing. The project will focus on Xerox's cutting-edge 3-D printers called ElemX Liquid Metal Printer.		
Congressional Adds Subtotals	9.654	15.000

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

N/A

Remarks

D. Acquisition Strategy

N/A