| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy | | | | | | | | | | | Date: March 2023 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support* | | | | | R-1 Program Element (Number/Name)<br>PE 0605853N *I Management, Technical & Intl Supt* | | | | | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2022** | **FY 2023** | **FY 2024 Base** | **FY 2024 OCO** | **FY 2024 Total** | **FY 2025** | **FY 2026** | **FY 2027** | **FY 2028** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 0.000 | 104.950 | 109.565 | 124.328 | - | 124.328 | 142.899 | 120.984 | 119.670 | 121.456 | Continuing | Continuing |
| 0149: *International Coop RDT&E* | 0.000 | 2.521 | 3.198 | 2.552 | - | 2.552 | 3.785 | 3.710 | 3.473 | 3.542 | Continuing | Continuing |
| 1767: *Naval War Col Strategic Studies Supt* | 0.000 | 5.591 | 6.110 | 6.276 | - | 6.276 | 6.367 | 6.483 | 6.591 | 6.722 | Continuing | Continuing |
| 2098: *Navy Postgraduate School (NPS) Studies Support* | 0.000 | 11.484 | 11.993 | 12.486 | - | 12.486 | 12.866 | 13.137 | 13.399 | 13.685 | Continuing | Continuing |
| 2221: *JT Mission Assessment Studies* | 0.000 | 21.293 | 24.535 | 28.270 | - | 28.270 | 29.918 | 28.862 | 28.883 | 29.463 | Continuing | Continuing |
| 3017: *Enterprise Information Systems* | 0.000 | 0.940 | 1.088 | 1.111 | - | 1.111 | 1.142 | 1.163 | 1.185 | 1.209 | Continuing | Continuing |
| 3027: *Defense Critical Infrastructure Program* | 0.000 | 7.421 | 0.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 7.421 |
| 3312: *MTMD-Maritime Theater Missile Defense Forum* | 0.000 | 11.722 | 10.992 | 11.792 | - | 11.792 | 11.951 | 12.230 | 12.425 | 12.037 | Continuing | Continuing |
| 3330: *Naval Research Laboratory (NRL) Facilities Modernization* | 0.000 | 16.629 | 16.729 | 26.380 | - | 26.380 | 37.116 | 20.003 | 16.067 | 16.399 | Continuing | Continuing |
| 3363: *PACOM Initiative* | 0.000 | 12.811 | 29.920 | 35.461 | - | 35.461 | 39.754 | 35.396 | 37.647 | 38.399 | Continuing | Continuing |
| 9999: *Congressional Add* | 0.000 | 14.538 | 5.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 19.538 |

**A. Mission Description and Budget Item Justification**

PU 0149 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.

PU 1767 Naval War College Strategic Studies Support:

| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy | Date: March 2023 |
|---|---|
| **Appropriation/Budget Activity**<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support* | **R-1 Program Element (Number/Name)**<br>PE 0605853N *I Management, Technical & Intl Supt* |

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.

PU 2098 Naval Postgraduate School (NPS) Studies Support:

Navy Postgraduate School (NPS) Naval Research Program (NRP) supports senior decision-makers from the Department of the Navy, the Office of the Chief of Naval Operations, Budget Submission Offices and Fleet Commanders in reaching well-informed, objective decisions on strategic, operational, and programmatic issues through collaborative and interdisciplinary research which integrates traditional research and analysis with advanced decision support tools. Faculty conducted research, student theses and capstone projects are an integral part of this program in support of the critical research and analysis requirements across the Naval enterprise.

PU 2221 Assessment Program:

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.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy | Date: March 2023 |
|---|---|
| **Appropriation/Budget Activity**<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support* | **R-1 Program Element (Number/Name)**<br>PE 0605853N *I Management, Technical & Intl Supt* |

PU 3017 Enterprise Information Systems:

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

PU 3312 MTMD - Maritime Theater Missile Defense Forum:

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.

PU 3330 Naval Research Laboratory (NRL)Facilities Modernization:

| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy | Date: March 2023 |
|---|---|
| **Appropriation/Budget Activity**<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support* | **R-1 Program Element (Number/Name)**<br>PE 0605853N *I Management, Technical & Intl Supt* |

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.

PU 3363 PACOM Initiative:

This project supports the China Strategic Initiative (CSI) and Pacific Multi-Domain Training and Experimentation Capability (PMTEC) efforts. The CSI program is U.S. Indo-Pacific Command's(INDOPACOM) first Asia Rebalance initiative and 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.

Pacific Multi-Domain Training and Experimentation Capability (PMTEC) is foundational to meeting Commander, USINDOPACOM's high-end warfighting capability, theater force posture, and Ally & Partner (A&P) objectives through the execution of joint experimentation in the Indo-Pacific. PMTEC is the joint synchronizer and integrator by bringing together OSD, Service RDT&E, other government agencies, industry, and academia with Combatant Commands, Service Components, warfighting units, and A&Ps to expedite experimentations of R&D projects/prototypes and to facilitate more rapid modernization and interoperability.

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 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 108.055 | 105.152 | 123.721 | - | 123.721 |
| Current President's Budget | 104.950 | 109.565 | 124.328 | - | 124.328 |
| Total Adjustments | -3.105 | 4.413 | 0.607 | - | 0.607 |
| • Congressional General Reductions | - | -0.587 | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | 5.000 | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.454 | 0.000 | | | |
| • SBIR/STTR Transfer | -2.651 | 0.000 | | | |
| • Program Adjustments | 0.000 | 0.000 | -0.521 | - | -0.521 |
| • Rate/Misc Adjustments | 0.000 | 0.000 | 1.128 | - | 1.128 |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2022 | FY 2023 |
|---|---|---|
| **Project:** 9999: *Congressional Add* | | |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy | Date: March 2023 |
|---|---|
| **Appropriation/Budget Activity**<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support* | **R-1 Program Element (Number/Name)**<br>PE 0605853N *I Management, Technical & Intl Supt* |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2022 | FY 2023 |
|---|---|---|
| Congressional Add: *Proj C783: Consortium for Additive Manufacturing Research and Development* | 14.538 | 5.000 |
| Congressional Add Subtotals for Project: 9999 | 14.538 | 5.000 |
| Congressional Add Totals for all Projects | 14.538 | 5.000 |

**Change Summary Explanation**

$5M increase to support NRL Facilities upgrades to accelerate work and increase funds for the Naval Research Laboratory's facilities modernization. The additional funding will assist that laboratory with modernizing temperature and humidity controls for the Materials Science and Technology Division.

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | | Date: March 2023 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 6 | R-1 Program Element (Number/Name)<br>PE 0605853N / *Management, Technical & Intl Supt* | Project (Number/Name)<br>0149 / *International Coop RDT&E* | |

| COST ($ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0149: *International Coop RDT&E* | 0.000 | 2.521 | 3.198 | 2.552 | - | 2.552 | 3.785 | 3.710 | 3.473 | 3.542 | 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 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| ***Title:*** International Coop RDT&E | 2.521 | 3.198 | 2.552 | 0.000 | 2.552 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2023 Plans:***<br>-Continue all efforts from prior FYs.<br>-Continue support for an unmanned maritime systems forums with foreign partners, including expansion of international participation in technical discussions.<br>-Establish support for a new multi-nation Arctic research and development cooperation forum | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>0149 / *International Coop RDT&E* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| -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.<br>-Continue to support U.S. Navy execution of approximately 150 Information Exchange Agreements/Data Exchange Agreements (IEA/DEA) with more than 30 countries.<br>-Continue to coordinate U.S. Navy participation in OUSD (A&S) Coalition Warfare Program (CWP) selection processes to meet emerging military capability requirements.<br>-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).<br>-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.<br>-Continue to support NATO Naval Armaments Group (NNAG) and Five Power Groups on cooperative programs.<br>-Provide contract support for Senior National Representative (SNR) and Navy International Programs Office for international outreach, development, and administrative activities.<br>-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. | | | | | |
| ***FY 2024 Base Plans:***<br>-Continue all efforts from prior FYs.<br>-Continue support for an unmanned maritime systems forums with foreign partners, including expansion of international participation in technical discussions.<br>-Continue support for multi-nation Arctic research and development cooperation forum<br>-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.<br>-Continue to support U.S. Navy execution of approximately 150 Information Exchange Agreements/Data Exchange Agreements (IEA/DEA) with more than 30 countries.<br>-Continue to coordinate U.S. Navy participation in OUSD (A&S) Coalition Warfare Program (CWP) selection processes to meet emerging military capability requirements.<br>-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 | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>0149 / *International Coop RDT&E* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| (JWGACTC), the Jet Engine Technology Joint Working Group (JETJWG), and the Joint Working Group on Naval Systems (JWGNS).<br>-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.<br>-Continue to support NATO Naval Armaments Group (NNAG) and Five Power Groups on cooperative programs.<br>-Provide contract support for Senior National Representative (SNR) and Navy International Programs Office for international outreach, development, and administrative activities.<br>-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.<br>***FY 2024 OCO Plans:***<br>N/A<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>The FY 2024 decrease of $0.646M due to reduced capability to conduct and participate in major Cooperative R&D leadership level events, technical forums, meetings, and supported workshops. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 2.521 | 3.198 | 2.552 | 0.000 | 2.552 |

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

N/A

**Remarks**

**D. Acquisition Strategy**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | | Date: March 2023 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 6 | R-1 Program Element (Number/Name)<br>PE 0605853N / *Management, Technical & Intl Supt* | Project (Number/Name)<br>1767 / *Naval War Col Strategic Studies Supt* | |

| COST ($ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1767: *Naval War Col Strategic Studies Supt* | 0.000 | 5.591 | 6.110 | 6.276 | - | 6.276 | 6.367 | 6.483 | 6.591 | 6.722 | 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 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| ***Title:*** Strategic Studies | 0.728 | 0.769 | 0.793 | 0.000 | 0.793 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** 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 Force, and Interagency. These efforts generate timely and relevant strategic and operational alternatives; tactical imperatives; qualitative analysis; war gaming; quantitative and qualitative political-military assessments; and provide informed recommendations to the Chief of Naval Operations (CNO); Naval Fleet, Component, and Type Commanders; Combatant Commanders; the US Intelligence Community; and other US Government Departments and Agencies regarding the formulation and execution of maritime options for the President of the United States.<br><br>Naval War College (NWC) conducts research in strategic studies in response to tasking from the Secretary of the Navy (SECNAV); Chief of Naval Operations (CNO); Naval Fleet, Component, and Type Commanders; and Combatant Commanders. NWC research includes strategic documents produced by its Chinese Maritime Studies Institute (CMSI), Russia Maritime Studies Institute (RMSI), Cyber Innovation Policy Institute (CIPI), and the Brodie Group.<br><br>***FY 2023 Plans:***<br>- Conduct research and analysis projects and provide supporting events for OPNAV; Naval Component, Type, and Fleet Commanders; and Combatant Commanders.<br>- Continue to support OPNAV tasked research projects. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>1767 / *Naval War Col Strategic Studies Supt* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| - 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.<br>- Conduct deterrence research on deterrence capabilities with focus on Naval contribution to national nuclear deterrence missions by Naval capabilities.<br>***FY 2024 Base Plans:***<br>- Conduct research and analysis projects and provide supporting events for OPNAV; Naval Component, Type, and Fleet Commanders; and Combatant Commanders.<br>- Support OPNAV tasked research projects.<br>- 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. - Conduct deterrence research on deterrence capabilities with focus on Naval contribution to national nuclear deterrence missions by Naval capabilities<br>***FY 2024 OCO Plans:***<br>N/A<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>There is no significant increase from FY2023 to FY2024. | | | | | |
| ***Title:*** Naval War Gaming Support | 4.209 | 4.650 | 4.771 | 0.000 | 4.771 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** Naval War College (NWC) conducts strategic and operational war gaming and directed research for Office of the Chief of Naval Operations (OPNAV); Naval Fleet, Component, and Type 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.<br>***FY 2023 Plans:***<br>- Conduct 42 events supporting the design development and data collection and analysis planning events to refine war game scope, research questions, deliverables to sponsor, execution strategy and subject matter expert coordination.in support of 8 highly classified, complex and large war games supporting the requirements | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>1767 / *Naval War Col Strategic Studies Supt* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| from OPNAV, Numbered Fleet Commanders, and Combatant Commands. Additionally support and execute CNO Fleet Sync conferences.<br>- Continue to foster cooperative relationships with international partners through use of war gaming, research, analysis and education.<br>- Refined and technically supported active learning capstone war gaming exercises that supported the Joint Military Operations curriculum, Maritime Staff Operators Course and International Maritime Staff Operators Course. (34 events)<br>- Execute capstone war game exercise for the Joint Force Maritime Component Commander (JFMCC) Course.<br>- Resource and provision life cycle maintenance requirements for networks, communications, and modeling and simulation capacity.<br>- Resource and provision required manpower and equipment for the High Security Research and Wargaming Facility. | | | | | |
| ***FY 2024 Base Plans:***<br>- Conduct 42 events supporting the design development and data collection and analysis planning events to refine war game scope, research questions, deliverables to sponsor, execution strategy and subject matter expert coordination.in support of 8 highly classified, complex and large war games supporting the requirements from OPNAV, Numbered Fleet Commanders, and Combatant Commands. Additionally support and execute CNO Fleet Sync conferences.<br>- Continue to foster cooperative relationships with international partners through use of war gaming, research, analysis and education.<br>- Conduct 35 events supporting 8 Executive Committee and CNO approved war games and Navy Title X war games, directed research, and analysis.<br>- Continue to foster cooperative relationships with international partners through use of war gaming, research, analysis and education.<br>- Refine capstone war gaming exercises that supported the International Maritime Staff Operators Course.<br>- Execute Fleet Synchronization Conferences.<br>- Execute capstone war game exercise for the Joint Force Maritime Component Commander (JFMCC) Course.<br>- Resource and provision life cycle maintenance requirements for networks, communications, and modeling and simulation capacity.<br>- Resource and provision required manpower and equipment for the High Security Research and Wargaming Facility. | | | | | |
| ***FY 2024 OCO Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>1767 / *Naval War Col Strategic Studies Supt* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| N/A<br><br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>FY24 increase supports layered classification in the CNO approved war games. | | | | | |
| ***Title:*** Warfare Analysis and Research | 0.568 | 0.600 | 0.618 | 0.000 | 0.618 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** Naval War College (NWC) supports senior decision-makers from the Department of Defense; Department of the Navy; Naval Fleet, Component, and Type Commanders; and Combatant Commanders in reaching well-informed, objective decisions on strategic, operational and programmatic issues through collaborative research that integrates traditional research and analysis with advanced decision support tools.<br><br>***FY 2023 Plans:***<br>- Conduct major decision events in support of OPNAV; Naval Fleet, Component, and Type Commanders; and Combatant Commanders.<br>- Conduct warfighting analysis requirements for numbered Fleet commanders.<br>- 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.<br>- Support evaluation of concepts and decision events in conjunction with war gaming center.<br>- Conduct research targeted at the strategic and policy level decision making within China, Russia, and Iran.<br>- Provide direct support to NWC student research groups and war gaming.<br>- Execute approximately 20 major decision events in support of these efforts.<br><br>***FY 2024 Base Plans:***<br>- Conduct major decision events in support of OPNAV; Naval Fleet, Component, and Type Commanders; and Combatant Commanders.<br>- Conduct warfighting analysis requirements for numbered Fleet commanders.<br>- 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.<br>- Support evaluation of concepts and decision events in conjunction with war gaming center.<br>- Conduct research targeted at the strategic and policy level decision making within China, Russia, and Iran.<br>- Provide direct support to NWC student research groups and war gaming. | | | | | |

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| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| - Execute approximately 20 major decision events in support of these efforts.<br>***FY 2024 OCO Plans:***<br>N/A<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>FY24 increase provides for additional gaming capacity to address and analyze Known Operational Problems (KOPs). | | | | | |
| ***Title:*** NWC Student Research Projects | 0.086 | 0.091 | 0.094 | 0.000 | 0.094 |
| ***Articles:*** | - | - | - | - | - |
| ***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. Students are organized under the supervision of the Halsey, Holloway, and Gravely Group Programs.<br>***FY 2023 Plans:***<br>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.<br>- 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.<br>***FY 2024 Base Plans:***<br>- 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.<br>- 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 | | | | | |

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

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| focus on counter-targeting, operational deception, and countering information denial and missile defense at the theater joint operational level.<br>***FY 2024 OCO Plans:***<br>N/A<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>There is no significant increase from FY 2023 to FY 2024. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 5.591 | 6.110 | 6.276 | 0.000 | 6.276 |

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

N/A

**Remarks**

**D. Acquisition Strategy**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | | Date: March 2023 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 6 | R-1 Program Element (Number/Name)<br>PE 0605853N / *Management, Technical & Intl Supt* | Project (Number/Name)<br>2098 / *Navy Postgraduate School (NPS) Studies Support* | |

| COST ($ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2098: *Navy Postgraduate School (NPS) Studies Support* | 0.000 | 11.484 | 11.993 | 12.486 | - | 12.486 | 12.866 | 13.137 | 13.399 | 13.685 | 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 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| ***Title:*** Faculty and Student Studies, Analysis and Research | 11.484 | 11.993 | 12.486 | 0.000 | 12.486 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** Navy Postgraduate School (NPS) Naval Research Program (NRP) supports senior decision-makers from the Department of the Navy, the Office of the Chief of Naval Operations, Budget Submission Offices and Fleet Commanders in reaching well-informed, objective decisions on strategic, operational, and programmatic issues through collaborative and interdisciplinary research which integrates traditional research and analysis with advanced decision support tools. Faculty conducted research, student theses and capstone projects are an integral part of this program in support of the critical research and analysis requirements across the Naval enterprise. | | | | | |
| ***FY 2023 Plans:***<br>Conduct studies in support of the following organizations:<br>- OPNAV N1<br>- OPNAV N2/N6<br>- OPNAV N3/N5<br>- OPNAV N4<br>- OPNAV N7 | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>2098 / *Navy Postgraduate School (NPS) Studies Support* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| - OPNAV N8<br>- OPNAV N9<br>- US Fleet Forces Command<br>- The Secretary of the Navy<br><br>Planned studies in the following areas:<br>- Applied Mathematics<br>- Computer Science<br>- Defense Analysis<br>- Defense Management<br>- Electrical and Computer Engineering<br>- Energy Academic Group<br>- Information Sciences<br>- Modeling, Virtual Environments and Simulation<br>- Mechanical and Aerospace Engineering<br>- Meteorology<br>- National Security Affairs<br>- Oceanography<br>- Operations Research<br>- Physics<br>- Space Systems<br>- Systems Engineering<br>- Wargaming and Warfare Analysis | | | | | |
| ***FY 2024 Base Plans:***<br>Conduct studies in support of the following organizations:<br>- OPNAV N1<br>- OPNAV N2/N6<br>- OPNAV N3/N5<br>- OPNAV N4<br>- OPNAV N7<br>- OPNAV N8<br>- OPNAV N9 | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>2098 / *Navy Postgraduate School (NPS) Studies Support* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| - US Fleet Forces Command<br>- The Secretary of the Navy<br><br>Planned studies in the following areas:<br>- Applied Mathematics<br>- Computer Science<br>- Defense Analysis<br>- Defense Management<br>- Electrical and Computer Engineering<br>- Energy Academic Group<br>- Information Sciences<br>- Modeling, Virtual Environments and Simulation<br>- Mechanical and Aerospace Engineering<br>- Meteorology<br>- National Security Affairs<br>- Oceanography<br>- Operations Research<br>- Physics<br>- Space Systems<br>- Systems Engineering<br>- Wargaming and Warfare Analysis<br>***FY 2024 OCO Plans:***<br>N/A<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>Funding has increased from FY2023 to FY2024 due to inflationary factors and continuation of analytical studies. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 11.484 | 11.993 | 12.486 | 0.000 | 12.486 |

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

N/A

**Remarks**

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|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>2098 / *Navy Postgraduate School (NPS) Studies Support* |

**D. Acquisition Strategy**

N/A

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

| COST ($ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2221: *JT Mission Assessment Studies* | 0.000 | 21.293 | 24.535 | 28.270 | - | 28.270 | 29.918 | 28.862 | 28.883 | 29.463 | 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 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| ***Title:*** Navy Studies & Analysis | 17.906 | 20.816 | 22.477 | 0.000 | 22.477 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2023 Plans:***<br>Continue to develop, update and maintain detailed level Navy Standard scenarios based on DPG (Defense Planning Guidance).<br>-Continue to develop alternative scenarios in support of Defense Review guidance, Joint studies, and Navy resource analyses.<br>-Continue to develop, update and maintain analytic baselines for the MCO (Major combat operation) based on DPG (Defense Planning Guidance). | | | | | |

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| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| -Continue to develop details required to execute analysis of designated Defense Planning Scenarios and their respective Multi-Service Force Deployment Plans.<br>-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.<br>-Continue to develop scenarios and operational concepts based on government inputs that are sufficiently detailed for use in naval and joint campaign analyses.<br>-At the mission level, continue to script Operational Situations (OPSITS) or Tactical Situations (TACSITS) for use in effectiveness analyses in specific warfare mission areas.<br>-Continue to provide analytically-based decision recommendations to CNO (Chief of Naval Operations) for both warfighting and support areas.<br>-Continue to develop CNO (Chief of Naval Operations) investment strategy recommendations and assessments for Program Review and Program Objective Memorandum.<br>-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.<br>-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).<br>-Continue to develop and maintain common baselines from which campaign excursions and mission-level analyses are executed.<br>-Continue to identify, develop and improve data and modeling, and broker agreements upon assumptions, CONOPS (Concepts of Operation), scenarios, and data.<br>-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.<br>-Continue to conduct modeling and simulation support for ongoing OPNAV missile defense analysis requirements.<br>-Continue to provide analytically-based decision recommendations to OPNAV for joint warfighting and support areas. | | | | | |

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| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| -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.<br>-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.<br>-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.<br>-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.<br>-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.<br>-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.<br>-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.<br>-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 | | | | | |

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| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| 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.<br>-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.<br>-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.<br>-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. | | | | | |
| ***FY 2024 Base Plans:***<br>Continue to develop, update and maintain detailed level Navy Standard scenarios based on DPG (Defense Planning Guidance).<br>-Continue to develop alternative scenarios in support of Defense Review guidance, Joint studies, and Navy resource analyses.<br>-Continue to develop, update and maintain analytic baselines for the MCO (Major combat operation) based on DPG (Defense Planning Guidance).<br>-Continue to develop details required to execute analysis of designated Defense Planning Scenarios and their respective Multi-Service Force Deployment Plans. | | | | | |

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

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| -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.<br>-Continue to develop scenarios and operational concepts based on government inputs that are sufficiently detailed for use in naval and joint campaign analyses.<br>-At the mission level, continue to script Operational Situations (OPSITS) or Tactical Situations (TACSITS) for use in effectiveness analyses in specific warfare mission areas.<br>-Continue to provide analytically-based decision recommendations to CNO (Chief of Naval Operations) for both warfighting and support areas.<br>-Continue to develop CNO (Chief of Naval Operations) investment strategy recommendations and assessments for Program Review and Program Objective Memorandum.<br>-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.<br>-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).<br>-Continue to develop and maintain common baselines from which campaign excursions and mission-level analyses are executed.<br>-Continue to identify, develop and improve data and modeling, and broker agreements upon assumptions, CONOPS (Concepts of Operation), scenarios, and data.<br>-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.<br>-Continue to conduct modeling and simulation support for ongoing OPNAV missile defense analysis requirements.<br>-Continue to provide analytically-based decision recommendations to OPNAV for joint warfighting and support areas.<br>-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. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>2221 / *JT Mission Assessment Studies* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| -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.<br>-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.<br>-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.<br>-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.<br>-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.<br>-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.<br>-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. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>2221 / *JT Mission Assessment Studies* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| -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.<br>-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.<br>-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<br>- Growth in Digital POM specifically focuses the transition to production in FY 24. Development and production of the Digital Program Objective Memorandum (POM) tool. This effort intended to maximize Naval Power by modernizing and optimizing the Navy's investment decision processes and technologies using nontraditional defense contractor's technology to perform AI backed decision tradeoffs. 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.<br>***FY 2024 OCO Plans:***<br>N/A<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>Program increase of $1.661K from FY23 to FY24 will support the growth within the Perform-to-Plan (P2P) activities continuing within the analytic studies portfolio as well as support early development stages of a Digital | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>2221 / *JT Mission Assessment Studies* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| Program Objective Memorandum (POM) tool. Growth in Digital POM specifically focuses the transition to production in FY 24 as development of the prototype will conclude in FY23. The prototyping effort in FY 23 focuses on one specific budget area while the production effort in FY24 will pull in all areas of the Navy budget in support decision making for POM 26.<br><br>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) in support of Get Real Get Better CNO initiatives. | | | | | |
| ***Title:*** Joint Mission Assessment Studies | 3.387 | 3.719 | 5.793 | 0.000 | 5.793 |
| ***Articles:*** | - | - | - | - | - |
| ***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. | | | | | |
| ***FY 2023 Plans:***<br>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 2024 Base Plans:***<br>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- | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>2221 / *JT Mission Assessment Studies* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| system construct. This also includes the off cycle wargame event to provide fleet operators with threat scenarios to determine future gap analysis.<br>***FY 2024 OCO Plans:***<br>N/A<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>The increase from FY23 to FY24 will provide for the Operator in the Loop Wargame for fleet operators to access fleet threat scenarios and provide gap analysis. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 21.293 | 24.535 | 28.270 | 0.000 | 28.270 |

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

N/A

**Remarks**

**D. Acquisition Strategy**

N/A.

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | | | | | | | | | | Date: March 2023 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 6 | | | | | R-1 Program Element (Number/Name)<br>PE 0605853N / *Management, Technical & Intl Supt* | | | | Project (Number/Name)<br>3017 / *Enterprise Information Systems* | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2022** | **FY 2023** | **FY 2024 Base** | **FY 2024 OCO** | **FY 2024 Total** | **FY 2025** | **FY 2026** | **FY 2027** | **FY 2028** | **Cost To Complete** | **Total Cost** |
| 3017: *Enterprise Information Systems* | 0.000 | 0.940 | 1.088 | 1.111 | - | 1.111 | 1.142 | 1.163 | 1.185 | 1.209 | 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 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| ***Title:*** Next Generation Enterprise Network (NGEN) | 0.940 | 1.088 | 1.111 | 0.000 | 1.111 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** This project funds the Office of Naval Research (ONR) Next Generation Enterprise Network (NGEN) Information Technology corporate costs.<br><br>***FY 2023 Plans:***<br>Continue to support NGEN Corporate requirements, such as (tech refresh, etc.).<br><br>***FY 2024 Base Plans:***<br>Continue to support NGEN Corporate requirements, such as (tech refresh, etc.)<br><br>***FY 2024 OCO Plans:***<br>N/A<br><br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>There is no significant funding change from FY 2023 to FY 2024. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 0.940 | 1.088 | 1.111 | 0.000 | 1.111 |

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

N/A

**Remarks**

**D. Acquisition Strategy**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | | Date: March 2023 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 6 | R-1 Program Element (Number/Name)<br>PE 0605853N / *Management, Technical & Intl Supt* | Project (Number/Name)<br>3027 / *Defense Critical Infrastructure Program* | |

| COST ($ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3027: *Defense Critical Infrastructure Program* | 0.000 | 7.421 | 0.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 7.421 |
| 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 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| ***Title:*** Mission Assurance Risk Management System (MARMS) Technical Support | 0.530 | 0.000 | 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.<br><br>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).<br><br>***FY 2023 Plans:***<br>N/A<br><br>***FY 2024 Base Plans:***<br>N/A<br><br>***FY 2024 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** Mission Assurance Assessments (MAA) Support | 1.333 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3027 / *Defense Critical Infrastructure Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| ***Articles:*** | - | - | - | - | - |
| ***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.<br><br>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).<br><br>***FY 2023 Plans:***<br>N/A<br><br>***FY 2024 Base Plans:***<br>N/A<br><br>***FY 2024 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** Cyber Mission Assurance (MA) | 1.227 | 0.000 | 0.000 | 0.000 | 0.000 |
| ***Articles:*** | - | - | - | - | - |
| ***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.<br><br>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).<br><br>***FY 2023 Plans:***<br>N/A<br><br>***FY 2024 Base Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3027 / *Defense Critical Infrastructure Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| N/A<br>***FY 2024 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** Defense Critical Electric Infrastructure (DCEI)<br>***Articles:***<br>***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.<br><br>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).<br>***FY 2023 Plans:***<br>N/A<br>***FY 2024 Base Plans:***<br>N/A<br>***FY 2024 OCO Plans:***<br>N/A | 0.494<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- |
| ***Title:*** Mission Assurance Program Management<br>***Articles:***<br>***Description:*** Monitor, track and report on all budget related inquiries and task planning and execution for the Mission Assurance / DCIP programs including data calls, weekly budget reports, and deliverables.<br><br>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). | 0.871<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3027 / *Defense Critical Infrastructure Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| ***FY 2023 Plans:***<br>N/A<br>***FY 2024 Base Plans:***<br>N/A<br>***FY 2024 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** Defense Critical Infrastructure<br>***Articles:***<br>***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).<br><br>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).<br>***FY 2023 Plans:***<br>N/A<br>***FY 2024 Base Plans:***<br>N/A<br>***FY 2024 OCO Plans:***<br>N/A | 0.600<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- |
| ***Title:*** Defense Critical Mission (DCM)<br>***Articles:***<br>***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 | 0.503<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3027 / *Defense Critical Infrastructure Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| 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.<br><br>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).<br><br>***FY 2023 Plans:***<br>N/A<br>***FY 2024 Base Plans:***<br>N/A<br>***FY 2024 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** Outside the Wire (OTW) Infrastructure Reports<br>***Articles:***<br><br>***Description:*** Provide infrastructure characterization reports on non-DoD owned supporting infrastructure at DoD installations on the same schedule as the Defense Threat Reduction Agency (DTRA) mission assurance assessments<br><br>***FY 2023 Plans:***<br>N/A<br>***FY 2024 Base Plans:***<br>N/A<br>***FY 2024 OCO Plans:***<br>N/A | 0.620<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- |
| ***Title:*** MA Advanced Homeland Analysis & Assessment Integration<br>***Articles:***<br><br>***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, | 1.243<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3027 / *Defense Critical Infrastructure Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| 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.<br><br>***FY 2023 Plans:***<br>N/A<br><br>***FY 2024 Base Plans:***<br>N/A<br><br>***FY 2024 OCO Plans:***<br>N/A | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 7.421 | 0.000 | 0.000 | 0.000 | 0.000 |

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

N/A

**Remarks**

**D. Acquisition Strategy**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | | | | | | | | | | Date: March 2023 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 6 | | | | | R-1 Program Element (Number/Name)<br>PE 0605853N / *Management, Technical & Intl Supt* | | | | Project (Number/Name)<br>3312 / *MTMD-Maritime Theater Missile Defense Forum* | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2022** | **FY 2023** | **FY 2024 Base** | **FY 2024 OCO** | **FY 2024 Total** | **FY 2025** | **FY 2026** | **FY 2027** | **FY 2028** | **Cost To Complete** | **Total Cost** |
| 3312: *MTMD-Maritime Theater Missile Defense Forum* | 0.000 | 11.722 | 10.992 | 11.792 | - | 11.792 | 11.951 | 12.230 | 12.425 | 12.037 | 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.

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3312 / *MTMD-Maritime Theater Missile Defense Forum* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| ***Title:*** MTMD-Martime Theater Missile Defense Forum | 11.722 | 10.992 | 11.792 | 0.000 | 11.792 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2023 Plans:***<br>(1) BMC4I is the foundation on which interoperability is built. The BMC4I Working Group will continue conducting engineering analysis to identify key attributes (e.g., National capability differences, information exchange discrepancies, interoperability challenges) affecting MTMD Forum Coalition Operations supporting Target Architectures (TA). MTMD Forum, National platform, Coalition Task Force, and Joint operation capability and interoperability assessments will be conducted from test event data analysis [laboratory and at-sea], responses from Requests for Information (RFI), and data link bit-level implementation evaluation via System Tactical Data Link (TDL) Interoperability Report (STIR), and associated Special Experts Meetings (SEM) analysis. BMC4I continues to assist the refinement of the "IAMD Maturity Model and Assessment Report" representing National performance and progress in four (4) main categories: 1) Interoperability, 2) Air Defense, 3) Ballistic Missile Defense (BMD), and 4) Human/Operational Aspects. BMC4I will support the development of a "Common Tactical Picture (CTP) Assessment Report" that measures and maps the MTMD Forum's shared track picture, in order to, provide proposals and priorities for mitigating CTP interoperability issues and shortfalls. The project will continue with Model-Based Systems Engineering (MBSE) efforts to formalize system requirements and design continuing throughout development and later life cycle phases supporting Department of Defense Architecture Framework (DoDAF). This includes creating architecture models [e.g., Capability Viewpoints (CV), Operational Viewpoints (OV), Services Viewpoints (SvcV), etc.] depicting the unit-level functional threads and force-level coordination threads interactions supporting the Force-Level Functions (FLF). Multi-national interoperability gap assessments [e.g., Maturity Model, CTP, Capability Gaps (CG) and Interoperability Gaps (IG)] will be documented and tracked in BMC4I's Coalition Capability and Interoperability (CCI) Report, and the Capabilities and Limitations (C&L) database. BMC4I collaborates with and supports, sibling Working Groups (OA, OR, M&S, CDEP, and TPEX) and Projects (IaCTP, BMDi, FLOATS, and FTE2C).<br><br>(2) M&S will continue their cyclical work providing analysis of Target Architectures and conduct assessments in support of 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 have online access as required to M&S modeling and simulation equipment to continue to run simulations in support of these 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 | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3312 / *MTMD-Maritime Theater Missile Defense Forum* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| test bed and the test environment that provides analytical capability to the Forum Systems 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.<br><br>(3) CDEP will continue to assess interoperability of joint air and land assets in Annual Test Events (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 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.<br><br>(4) Open Architecture will model and extend the component software interfaces for additional Force Level Functions (FLFs) Sensor Management 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 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 is committed to a two year surge with our partner nations to accelerate the delivery of FLOATS to enable operational implementation beginning in CY26, three (3) years ahead of schedule. The OAWG will monitor the Open Architecture Radar Interface Standard (OARIS) Industry | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
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| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3312 / *MTMD-Maritime Theater Missile Defense Forum* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| 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.<br><br>(5) TPEX will continue preparations for MTMD participation and support for the 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 results from Pacific Dragon 2022 (PD 22), a Commander, U.S. Pacific Fleet directed 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 Commander, U.S. Sixth Fleet directed Exercise 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).<br><br>(6) Operational Requirements group will continue to provide operational requirements and perspectives for the engineering and test activity conducted in the other working groups in the MTMD Forum. This critical cooperation with Naval Surface & Mine Warfare Development Command (SMWDC) enables allied linkage into the established relationship between the Naval Surface and Mine Warfighting Development Center (SMWDC) and the Naval Sea Systems Command (NAVSEA).<br>***FY 2024 Base Plans:***<br>(1) BMC4I will continue to coordinate, collaborate, synchronize, and align 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 crucial interoperability and capability gaps based on test event data analysis, responses to Request for Information (RFI), Special Experts Meetings (SEM) analysis, System Tactical Data Link (TDL) Interoperability Report (STIR), 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, | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
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| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3312 / *MTMD-Maritime Theater Missile Defense Forum* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| 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). Draft Target Architecture 4 (TA4) objectives and concepts 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.<br><br>(2) M&S will continue their cyclical work providing analysis of Target Architectures and conduct further assessments to support recommendations to improve information exchange requirements identified by BMC4I and the Systems 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 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. In these ways M&S will provide for further cost avoidance by performing simulations and analysis of these simulations realizing affordability initiatives as fewer costly 'real world' testing events are needed.<br><br>(3) CDEP will continue to assess interoperability of joint air and land assets in Annual Test Events (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 and ATE 2024. 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. France is joining the CDEP ATEs in 2023 and 2024. CDEP will work with BMC4I to test various Coalition Capabilities and Interoperability (CCI) gaps. CDEP will prepare | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3312 / *MTMD-Maritime Theater Missile Defense Forum* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| 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.<br><br>(4) Open Architecture group will conduct a series of M&S test series to prove FLOATS, and conduct NATO engagement advocating for the formal adoption of FLOATS as a NATO standard. The group will also deliver FLOATS v.7.0, v8.0 and v9.0 and continue engaging acquisition programs for the adoption of FLOATS into national programs to ensure interoperability with our partner nations. Development work of an operational test design to test FLOATS operationally is planned to determine its suitability for implementation and potential deployment.<br><br>(5) TPEX will continue preparations for MTMD participation and support for ongoing at-sea test event series. Pacific Dragon (PD) 2024 exercise will execute in Q4 of FY24. The exercise is specified and endorsed by COMPACFLT. Target development initiated in FY22 will continue to support the live-fire objectives for PD 24 and future PD exercises. During PD 24, 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. The MTMD Forum Project will sponsor the targets for these and will leverage 3rd Fleet Rim of the Pacific (RIMPAC) resources to conduct the PD exercise. Planning for At-Sea Demonstrations and follow-on at-sea testing will continue into future years and include further IAMD target procurement. 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 FY24 will include At-Sea Demo/FS-25 in May 2025 and PD26 in August 2026. Formidable Shield exercises are endorsed by Commander U.S. Naval Forces Europe (NAVEUR). Target developments to support PD 24 as well as ASD/FS-25 will also occur in FY24.<br><br>(6) Operational Requirements group will continue to provide operator's perspective and recommendations to the engineering and test activity conducted in the other working groups. This critical cooperation with Surface Mine Warfare Development Command (SMWDC) enables allied linkage into the established relationship between SMWDC and Naval Sea Systems Command (NAVSEA).<br><br>***FY 2024 OCO Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
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| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3312 / *MTMD-Maritime Theater Missile Defense Forum* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| N/A<br><br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>The FY24 increase of $0.8 million is needed to fund required levels of effort associated with conduct of Exercise Pacific Dragon 24, an international Integrated Air and Missile Defense exercise planned to develop interoperability with Pacific allies in Q4 of FY24. The exercise reinforces regional partnerships, supports experimentation with emerging technology, and develops readiness. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 11.722 | 10.992 | 11.792 | 0.000 | 11.792 |

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

N/A

**Remarks**

**D. Acquisition Strategy**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | | Date: March 2023 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 6 | R-1 Program Element (Number/Name)<br>PE 0605853N / *Management, Technical & Intl Supt* | Project (Number/Name)<br>3330 / *Naval Research Laboratory (NRL) Facilities Modernization* | |

| COST ($ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3330: *Naval Research Laboratory (NRL) Facilities Modernization* | 0.000 | 16.629 | 16.729 | 26.380 | - | 26.380 | 37.116 | 20.003 | 16.067 | 16.399 | 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 which are reaching or have reached critical stages of deterioration. The program includes restoration and modernization (R&M) initiatives for NRL's facilities, where the average age of the buildings is 67 years.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| ***Title:*** NRL Facilities Modernization | 16.629 | 16.729 | 26.380 | 0.000 | 26.380 |
| ***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 2023 Plans:***<br>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:<br><br>- 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.<br><br>- 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. | | | | | |
| ***FY 2024 Base Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3330 / *Naval Research Laboratory (NRL) Facilities Modernization* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| 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 2024 include:<br><br>-Evaluating and repairing the mechanical purge systems for the Tactical Electronic Warfare laboratory spaces. This project is planned to be fully funded in FY2024.<br><br>-Replacement of exhaust vents and motors on the roof of the Optical Sciences laboratory building. This project is planned to be fully funded in FY2024.<br><br>-Replacement of transformers and switchgear for the Ocean and Atmospheric Science & Technology and Business Operations Directorates laboratory and office spaces. This project is planned to be fully funded in FY2024.<br><br>-Roof replacement for the Central Chiller Plant. This project is planned to be fully funded in FY2024.<br><br>-Heating, Ventilation, and Air Conditioning (HVAC) system upgrades for the Materials Sciences and Ocean and Atmospheric Science & Technology Division laboratory spaces. Note that this project extends previous FY2023 plans and is intended to continue in various phases through FY2025 for multiple science and technology laboratory and research spaces.<br><br>-Lab-wide modernization of the communication infrastructure (VoIP). This project is planned to be partially funded in FY2024 with BA 6.<br><br>***FY 2024 OCO Plans:***<br>N/A<br><br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>FY 2024 funding increase supports acceleration of work and increase funds for the Naval Research Laboratory's facilities modernization. The additional funding will assist a laboratory with modernizing temperature and humidity controls for the Materials Science and Technology Division. The research mission for this division has | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3330 / *Naval Research Laboratory (NRL) Facilities Modernization* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| been severely impacted by major variances in temperature humidity; this project will be a phased, whole-building system modernization. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 16.629 | 16.729 | 26.380 | 0.000 | 26.380 |

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

N/A

**Remarks**

**D. Acquisition Strategy**

None

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | | Date: March 2023 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 6 | R-1 Program Element (Number/Name)<br>PE 0605853N / *Management, Technical & Intl Supt* | Project (Number/Name)<br>3363 / *PACOM Initiative* | |

| COST ($ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3363: *PACOM Initiative* | 0.000 | 12.811 | 29.920 | 35.461 | - | 35.461 | 39.754 | 35.396 | 37.647 | 38.399 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

**A. Mission Description and Budget Item Justification**

China Strategic Initiative (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.

Pacific Multi-Domain Training and Experimentation Capability (PMTEC) is foundational to meeting Commander, USINDOPACOM's high-end warfighting capability, theater force posture, and Ally & Partner (A&P) objectives through the execution of joint experimentation in the Indo-Pacific. The innovative combinations of new technology, capability, and CONOPS in Joint Exercises will enable integration, warfighting assessment, and rapid capability development. PMTEC is the joint synchronizer and integrator by bringing together OSD, Service RDT&E, other government agencies, industry, and academia with Combatant Commands, Service Components, warfighting units, and A&Ps to expedite experimentations of R&D projects/prototypes and to facilitate more rapid modernization and interoperability.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| ***Title:*** INDOPACOM Initiative | 12.811 | 14.746 | 15.345 | 0.000 | 15.345 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** China Strategic Initiative (CSI):<br>RDTEN 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 | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3363 / *PACOM Initiative* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| competition with China, DoD's top priority for defense planning. CSI program is DoD/PACOM's first Rebalance to Asia initiative issue nomination priority.<br><br>***FY 2023 Plans:***<br>- 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.<br>- Contract three additional emulation events to better understand Chinese decision-making processes.<br><br>***FY 2024 Base Plans:***<br>- 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 | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3363 / *PACOM Initiative* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| 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.<br>- Improve the China Strategic Initiative's capability to continuously assess how PRC will anticipate, perceive, and react to U.S. action in the INDOPACIFIC. USINDOPACOM China Strategic Focus Group would use the additional funding for eight additional contracted research studies to raise DoD warfighters, planners, and policy makers' awareness on PRC grand strategy, warfighting concepts, and indications/warning.<br>***FY 2024 OCO Plans:***<br>N/A<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>Funding increase from FY2023 to FY2024 supports improvement of the China Strategic Initiative's capability to continuously assess how PRC will anticipate, perceive, and react to U.S. action in the INDOPACIFIC. USINDOPACOM China Strategic Focus Group will fund up to eight additional contracted research studies to raise DoD warfighters, planners, and policy makers' knowledge on PRC grand strategy, warfighting concepts, and indications/warning. | | | | | |
| ***Title:*** Pacific Multi-Domain Training and Experimentation Capability (PMTEC) | 0.000 | 15.174 | 20.116 | 0.000 | 20.116 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** Pacific Multi-Domain Training and Experimentation Capability (PMTEC):<br><br>PMTEC is foundational to meeting Commander, USINDOPACOM's high-end warfighting capability, theater force posture, and Ally & Partner (A&P) objectives through the execution of joint experimentation in the Indo-Pacific. The innovative combinations of new technology, capability, and CONOPS in Joint Exercises will enable integration, warfighting assessment, and rapid capability development. PMTEC is the joint synchronizer and integrator by bringing together OSD, Service RDT&E, other government agencies, industry, and academia with Combatant Commands, Service Components, warfighting units, and A&Ps to expedite experimentations of R&D projects/prototypes and to facilitate more rapid modernization and interoperability.<br><br>PMTEC Support provide mission integration of Service capabilities into joint warfighting capabilities and concepts. This is accomplished through theater scale joint field experimentation focused on high-end warfighting, emphasizing a combination of Service exercises, Joint exercises, and stand-alone warfighting | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3363 / *PACOM Initiative* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| experiments. Theater scale joint experimentation will require the design and engineering of integrated Services' capabilities and the associated networking and peering of Services' live, virtual and constructive test and training range facilities. This will be extensible to allies and partners to create the required common joint environment.<br><br>***FY 2023 Plans:***<br>- Design, engineer and execute two joint experimentation venues that demonstrates an initial INDO-Pacific theater joint fires architecture and concept incorporating new Service capabilities supporting long range fires. This will be demonstrated under Large Scale Global Exercise (LSGE) 2023, under which the two experimentation venues being exercises BALIKATAN 23 (Western Pacific) and NORTHERN EDGE 23 (Alaska, Hawaii and Western Pacific).<br>- Network and peer Guam, Alaska and Hawaii range complexes for LSGE 2023 to support increased fidelity for incorporating live representative threats and increased availability of forces to demonstrate at large scale the theater joint fires architecture and concept.<br><br>***FY 2024 Base Plans:***<br>- Design, engineer and execute three joint experimentation venues that matures the FY2023 INDO-Pacific theater joint fires architecture. This will be demonstrated during VALIANT SHIELD 2024 that will be a large scale joint exercise that will span from the Western Pacific to CONUS, a Western Pacific partner nation exercise, and a high end distributed CONUS complex experiment for advanced capabilities.<br>- Incorporate expanded networking and peering of additional CONUS and mid-Pacific ranges to add space, other advanced capabilities such as hypersonics, and combined/ joint/live/virtual/constructive (CJLVC), and high end range instrumentation that provides feedback measurement and analysis to support design of experiments for employment of new warfighting concepts, training, and joint theater battle management.<br><br>***FY 2024 OCO Plans:***<br>N/A<br><br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>Funding increases from FY2023 to FY2024 due to the initial start of an FY24 investment providing an advanced Joint Simulation and Technology Command and Control capability that links sites within the AOR to deliver Joint/ Live/Virtual/Constructive (JLVC) enablers to execute multiple event requirements simultaneously. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 12.811 | 29.920 | 35.461 | 0.000 | 35.461 |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>3363 / *PACOM Initiative* |

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

N/A

**Remarks**

**D. Acquisition Strategy**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | | Date: March 2023 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 6 | R-1 Program Element (Number/Name)<br>PE 0605853N / *Management, Technical & Intl Supt* | Project (Number/Name)<br>9999 / *Congressional Add* | |

| COST ($ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9999: *Congressional Add* | 0.000 | 14.538 | 5.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 19.538 |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

**A. Mission Description and Budget Item Justification**

Naval Postgraduate School (NPS) is tasked to establish a consortium for additive manufacturing research and education that will accelerate widespread adoption of additive manufacturing across the Department of Defense. The Consortium will drive the adoption of 3D rapid prototyping method in support of the Tri-Service Maritime Strategy, NPS will serve as a focal point for advancing technology capabilities and education of Naval and Coast Guard forces in support of advancing the adoption of Additive Manufacturing (AM) in support of national naval security. NPS will lead a multi-year, interdisciplinary, umbrella research and education initiative with consortium partners, including USN (NAVSEA, NAVFAC, NAVAIR, NAVWAR), USMC, USA, USAF, USCG commands, Warfighting Labs and active-duty units, as well as Academia, Industry, and Government Laboratory partners. The goals of the effort include conducting a continuous study of user needs; coordinating a diverse portfolio of interdisciplinary research projects that advance basic and applied research domains in concert with education and training; addressing both technical issues and human/personnel issues, i.e., support a full human-technology integration; testing and validation of metal-based AM technologies aboard deployed platforms; and whenever possible, look for sustainability of the efforts, i.e., make sure the foundation is set for long(er)-term self-sustainability.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 |
|---|---|---|
| ***Congressional Add:*** Proj C783: Consortium for Additive Manufacturing Research and Development | 14.538 | 5.000 |
| ***FY 2022 Accomplishments:*** - Organized two workshops to identify the elements of CAMRE Framework, and major research areas that CAMRE members will be engaged on<br>- Engaged with DASN/RDT&E AM Lead for alignment with NR&DE activities<br>- Coordinated digital twin testing of Xerox ElemX liquid metal 3D printing systems with SURFPAC<br>- Engaged with Defense Innovation Unit for utilization of their OTA for establishing contracts<br>- Established SOW with NSWC-Corona for Program Management functions<br>- Designed approaches for study of user needs and initiated discussions with Naval commands (NAVSEA, Marine Corps Systems Command, NSWC-Corona)<br>- Evaluated a range of low cost commercial off the shelf 3D scanners in support of 3D data acquisition and rapid prototyping.<br>- Initiated research on a stand-alone AM-themed platform that supports adopters' training, collaboration, and storage of 3D models. Connected with NETC and discussed the integration of the effort with USNs Ready Relevant Learning (RRL) initiative.<br>- Examined the use of a single-user and multiuser AR systems to support training and maintenance of 3D printers. | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>9999 / *Congressional Add* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 |
|---|---|---|
| - Established collaboration with SWRMC Additive Manufacturing Lab, San Diego Naval Base<br><br>***FY 2023 Plans:*** - Organized stakeholder and executive steering committee workshops to identify the elements of CAMRE Framework, and major research areas that CAMRE members will be engaged on<br>- Engaged with DASN/RDT&E AM Lead for alignment with NR&DE activities<br>- Engage with SIB and SSBN tied to large scale metal AM efforts (WAAM, DED, FSAM, Cold Spray)<br>- Engage with NAVAIR tied to F357 Materials R&D<br>- Engage with NAVSEA tied to At Sea data collection using Hybrid Metal AM<br>- Engage with NAVSEA, USMC, and US Army tied to "Ashore" materials study of Hybrid Metal AM<br>- Engage with ORNL ISO SIB and SSBN tied to large scale metal AM efforts<br>- Engage with NAVAIR, AC FFRDC and USAF/USSF on 10Ni Materials R&D and Hypersoncis<br>- Engage with USMC, US Navy and UK MoD on Model Based Definitions of 2D/3D TDPs<br>- Engaged USCG on all USMC & US Navy related efforts.<br>- Coordinated digital twin testing of Xerox ElemX liquid metal 3D printing systems with SURFPAC<br>- Engaged with Defense Innovation Unit for utilization of their OTA for establishing contracts<br>- Established SOW with WFC for Research<br>- Designed approaches for study of user needs and initiated discussions with Naval commands (NAVSEA, Marine Corps Systems Command, NSWC-Corona)<br>- Evaluated a range of low cost commercial off the shelf 3D scanners in support of 3D data acquisition and rapid prototyping.<br>- Initiated research on a stand-alone AM-themed platform that supports adopters training, collaboration, and storage of 3D models. Connected with NETC and discussed the integration of the effort with USNs Ready Relevant Learning (RRL) initiative.<br>- Examined the use of a single-user and multiuser AR systems to support training and maintenance of 3D printers.<br>- Established collaboration with SWRMC Additive Manufacturing Lab, San Diego Naval Base<br>- Engaged with Defense Innovation Unit for utilization of their OTA for establishing contracts<br>- Established SOW with WFC for Research | | |
| **Congressional Adds Subtotals** | 14.538 | 5.000 |

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

N/A

**Remarks**

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 6 | **R-1 Program Element (Number/Name)**<br>PE 0605853N / *Management, Technical & Intl Supt* | **Project (Number/Name)**<br>9999 / *Congressional Add* |

**D. Acquisition Strategy**

N/A