| Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy | | | | | | | | | | | Date: May 2021 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | | | | | R-1 Program Element (Number/Name)<br>PE 0603654N *I JNT Service EOD Development* | | | | | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2020** | **FY 2021** | **FY 2022 Base** | **FY 2022 OCO** | **FY 2022 Total** | **FY 2023** | **FY 2024** | **FY 2025** | **FY 2026** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 723.706 | 45.789 | 57.288 | 34.785 | - | 34.785 | - | - | - | - | - | - |
| 0377: *JT Service Expl Ord Disp System* | 358.971 | 9.397 | 11.189 | 8.960 | - | 8.960 | - | - | - | - | - | - |
| 1317: *Expeditionary Diving Systems* | 123.331 | 2.434 | 2.742 | 1.965 | - | 1.965 | - | - | - | - | - | - |
| 3177: *Joint Counter Radio-Controlled IED Elec Warfare* | 83.714 | 18.469 | 19.597 | 15.034 | - | 15.034 | - | - | - | - | - | - |
| 3447: *Mine Expeditionary Response Vehicle (MESR)* | 0.000 | 0.000 | 0.000 | 8.826 | - | 8.826 | - | - | - | - | - | - |
| 4023: *Expeditionary Underwater Systems* | 157.690 | 15.489 | 23.760 | 0.000 | - | 0.000 | - | - | - | - | - | - |

**Note**

Maritime Expeditionary Standoff Response (MESR) is realigned from Project 4023 into new Project 3447 beginning in FY22. Project 4023 Expeditionary Underwater Systems is relocated from PE 0603654N to PE 0604028N beginning in FY22.

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

This is a Joint Service Program.

This program provides for the development of Explosive Ordnance Disposal tools and equipment aimed at meeting National Defense Strategy guidance to build a more lethal force. The responsibility is assigned to the Navy as single service manager, per Department of Defense Directive 5160.62 of 15 May, 2017, for management of the Joint Service Explosive Ordnance Disposal Research and Development Program.

Proliferation of sophisticated types of foreign and domestic ordnance and Improvised Explosive Devices necessitate a continuing development program to provide Explosive Ordnance Disposal personnel of all military services with the tools and equipment designed for modularity, scalability, and flexibility, while maintaining readiness to respond to contingencies and ensure long-term warfighting readiness.

This program also provides life support related equipment necessary to support the performance of Navy Explosive Ordnance Disposal tasks underwater. This equipment must have inherently low acoustic and magnetic signatures in order to allow the Explosive Ordnance Disposal technician to safely approach, render-safe and dispose of sea mines and other underwater ordnance.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy | Date: May 2021 |
|---|---|
| **Appropriation/Budget Activity**<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 0603654N *I JNT Service EOD Development* |

This program also supports the National Defense Strategy's objective of preventing terrorist and near peer operations against the US, allies, and partners by providing for the research and development of Electronic Warfare (EW) systems, equipment, procedures, and tactical aids for all military services against the threat posed by Radio-Controlled Improvised Explosive Devices (RCIEDs) and to prevent initiation of RCIEDs across the spectrum of Joint military operations. It utilizes Joint requirements to provide a system of systems approach for a suite
of equipment for mounted, dismounted, and fixed site operations; provides a Joint Counter RCIED EW (CREW) development of equipment, procedures, and tactical aids to make rapid improvements to performance, supportability and affordability, while maintaining pace with the evolving RCIED global threat.

A. Mission Description and Budget Item Justification
These resources support the development of equipment for the Navy's only comprehensive expeditionary detect to engage and exploitation MCM capability. Specifically, it provides for development of Diver Safety/Life Support Equipment, Advanced Diver Integrated Sensors and Command Detonation Systems to support Navy Explosive Ordnance Disposal (EOD) underwater operations, expeditionary salvage, and Expeditionary MCM Company operations by US Fleet Forces Command. The equipment must have inherently low acoustic and magnetic signatures in order to allow the EOD divers to safely detect, reaquire, approach, render-safe, recover, exploit, and dispose of underwater explosive threats to include sea mines, limpet mines, underwater improvised explosive devices, and unexploded ordnance.

| B. Program Change Summary ($ in Millions) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 47.656 | 43.084 | 52.033 | - | 52.033 |
| Current President's Budget | 45.789 | 57.288 | 34.785 | - | 34.785 |
| Total Adjustments | -1.867 | 14.204 | -17.248 | - | -17.248 |
| • Congressional General Reductions | - | -0.257 | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | -1.867 | 0.000 | | | |
| • Program Adjustments | 0.000 | 14.461 | -2.041 | - | -2.041 |
| • Rate/Misc Adjustments | 0.000 | 0.000 | -15.207 | - | -15.207 |

**Change Summary Explanation**
FY2020: SBIR/STTR/FTT Assessment (SBIR) -$1.867M
FY2021: Other Program Adjustments + $14.461M (OCO)
FY2022: Other Program Adjustments -$3.131M, Other Rate/Misc Adjustments (MISC) -$1.537M

The FY2022 funding request was reduced by $1.090 million to account for the availability of prior year execution balances.

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | | Date: May 2021 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 4 | R-1 Program Element (Number/Name)<br>PE 0603654N / *JNT Service EOD Development* | Project (Number/Name)<br>0377 / *JT Service Expl Ord Disp System* | |

| COST ($ in Millions) | Prior Years | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0377: *JT Service Expl Ord Disp System* | 358.971 | 9.397 | 11.189 | 8.960 | - | 8.960 | - | - | - | - | - | - |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

**Note**

The FY 2022 funding request was reduced by $0.550M to account for the availability of prior year execution balances.

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

This Program Element (PE) Project (0377) provides funding for the detailed design, development, risk mitigation, issue resolution, integrations, test, test equipment, simulations and technology insertion of specialized equipment, tools and assessment of accessories that expand range of military operations required to support DoD's only Joint Explosive Ordnance Disposal (EOD) programs.

EOD exclusively executes world-wide missions for detection/location, identification, render-safe, recovery, field and laboratory evaluation, and disposal of hazards and unexploded ordnance (UXO) that is a threat to military operations, installations, personnel, or material. UXO includes foreign and domestic, both conventional and non-conventional, including Improvised Explosive Devices (IEDs) and devices using radiological and biological means with or without explosives.

As defined in DOD Directive 5160.62, assigns the Secretary of the Navy (SECNAV) the responsibility of Executive Agent for Explosive Ordnance Disposal (EOD) Technology and Training (T&T) to include the Joint Service Explosive Ordnance Disposal Research and Development Program. EOD programs are designed to reduce the EOD operator's exposure to explosive hazards or limit the risk to an acceptable level. EOD operations range from hand entry of explosive devices by EOD technicians to robotic actions and sensing capabilities that provide a safe distance of the explosive hazard at a greatly reduced cost to trained and experienced EOD operators.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| ***Title:*** JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS) | 4.900 | 1.450 | 0.000 | 0.000 | 0.000 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2021 Plans:***<br>Joint Explosive Ordnance Disposal Decision Support (JEOD DSS) will finish the development of EOD specific mobile applications in Android, iOS, and Windows Operating Systems providing the EOD Warfighter with real-time technical manuals to aid in the interrogation of explosive threat devices and decision-aid tools to counter | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>0377 / *JT Service Expl Ord Disp System* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| those threats. Planned integration and testing of transition mobile applications will occur for ordnance recognition and sensor compatibility for graphical user interface.<br>***FY 2022 Base Plans:***<br>N/A<br>***FY 2022 OCO Plans:***<br>N/A<br>***FY 2021 to FY 2022 Increase/Decrease Statement:***<br>Decrease in funding due to JEOD DSS achieving Milestone C Decision and full Deployment Decision Review. The JEOD DSS program will transition to sustainment in FY2022. | | | | | |
| ***Title:*** ANALYSIS OF ALTERNATIVES/ EOD MODERNIZATION | 3.747 | 8.939 | 8.387 | 0.000 | 8.387 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2021 Plans:***<br>EOD Modernization will support development of a suite of tools providing the capability for increased standoff distances for Explosives Ordnance Disposal (EOD) Render Safe of Unexploded Ordnance and disruptor of complex and sophisticated threats while reducing risk of injury to the EOD warfighter and enhancing mission success. This effort will be accomplished through evaluation of commercial non-developmental items, analysis of alternatives, and maximized transition of ongoing science and technology opportunities.<br>***FY 2022 Base Plans:***<br>EOD Modernization will continue the development of a suite of tools providing the capability for increased standoff distances for Explosives Ordnance Disposal (EOD) Render Safe of Unexploded Ordnance and disruptor of complex and sophisticated threats while reducing risk of injury to the EOD warfighter and enhancing mission success. This effort will be accomplished through evaluation of commercial non-developmental items, analysis of alternatives, and maximized transition of ongoing science and technology opportunities for increased standoff and accuracy of tools and equipment for more precise targeting and disrupt threats. Funds will also support development for Large Area Clearance of Ordnance items and evaluation of mature tools and equipment for mature threats. Transitioning efforts will begin for Silent Saber from Office of Naval Research (ONR) to determine a material solution for a Compact Laser for Explosive Ordnance Disposal (EOD) Neutralization. Silent Saber will be a major part of the Analysis of Alternatives for the Standoff Render Safe and Disrupt (SRSD) Capabilities Development Document (CDD).<br>***FY 2022 OCO Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>0377 / *JT Service Expl Ord Disp System* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| N/A<br>***FY 2021 to FY 2022 Increase/Decrease Statement:***<br>Decrease in funding due to reduction in the number of prototypes being acquired in FY2022 for testing and reduction in planned analysis of alternatives. | | | | | |
| ***Title:*** EOD ROBOTICS | 0.750 | 0.800 | 0.573 | 0.000 | 0.573 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2021 Plans:***<br>Explosive Ordnance Disposal (EOD) Robotics will support integration of sensors and Weapon Systems Explosive Safety Review Board (WSERB) safety approvals prior to fielding. Funding will also support planned testing for compatibility and integration for technology capability advancements.<br>***FY 2022 Base Plans:***<br>EOD Robotics will support development of the training curriculum, required safety analysis, and risk assessment for the robotics platform.<br>***FY 2022 OCO Plans:***<br>N/A<br>***FY 2021 to FY 2022 Increase/Decrease Statement:***<br>Decrease in funding due to planned conclusion of safety risk assessment and transition of the firing control system. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 9.397 | 11.189 | 8.960 | 0.000 | 8.960 |

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

N/A

**Remarks**

**D. Acquisition Strategy**

Joint Service acquisition strategies maximize, to the greatest extent, evolutionary open architecture and modular strategy for rapid acquisition of mature technology for the user. The evolutionary approach delivers baseline capability and subsequent increments, recognizing up front the need for future capability improvements. Each technology insertion is a militarily useful and supportable operational capability that can be developed, produced, deployed, and sustained. The evolutionary strategy allows for rapid block upgrades, pre-planned product improvements, new accessories that expand range of military operations that provide a significant increase in operational capability and improvements at the modular level and encourages competition and second sources to lower life cycle costs. Modeling and simulation can

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>0377 / *JT Service Expl Ord Disp System* |

verify system level compliance in a laboratory, greatly reducing the cost to conduct expensive range testing. EOD Modernization increases technology advances for more capable diagnostics and render-safe systems and EOD tools. Analysis of Alternatives (AOA) studies and evaluations commercial and non-development items are conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the life-cycle. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>0377 / *JT Service Expl Ord Disp System* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Primary Hardware Development | WR | NSWCIHEODTD : Indian Head, MD | 196.055 | 1.706 | Nov 2019 | 2.315 | Nov 2020 | 3.520 | Nov 2021 | - | | 3.520 | - | - | - |
| Primary Hardware Development | C/FFP | John Hopkins, MD : Laurel, MD | 10.283 | 1.617 | Nov 2019 | 0.500 | Nov 2020 | 1.550 | Nov 2021 | - | | 1.550 | - | - | - |
| ILS | WR | NSWCIHEODTD : Indian Head, MD | 49.790 | 0.400 | Nov 2019 | 0.000 | Nov 2020 | 0.000 | | - | | 0.000 | - | - | - |
| Primary Software Development | WR | ARL/Army : Aberdeen Proving Ground | 1.000 | 2.807 | Nov 2019 | 1.748 | Nov 2020 | 0.573 | Nov 2021 | - | | 0.573 | - | - | - |
| Primary Hardware Development | MIPR | Dept of Energy : Albuquerque, NM | 0.000 | 1.200 | Jan 2020 | 0.550 | Nov 2020 | 0.500 | Nov 2021 | - | | 0.500 | - | - | - |
| Primary Hardware Development | TBD | ONR : Washington, DC | 0.000 | 0.000 | | 2.500 | Nov 2020 | 1.000 | Nov 2021 | - | | 1.000 | - | - | - |
| Primary Hardware Development | WR | NRL : Washington, DC | 0.000 | 0.250 | Jan 2020 | 0.260 | Nov 2020 | 0.000 | | - | | 0.000 | - | - | - |
| | | **Subtotal** | 257.128 | 7.980 | | 7.873 | | 7.143 | | - | | 7.143 | - | - | N/A |

**Remarks**

Primary Hardware and Software Development increases to address EOD mission threats and implements technology advances and complete evaluation and test of new and transitioned technology for EOD tools, equipment modernization, and Technology insertion for increases system modularity in response to reconnaissance and execution of tactical unmanned robotics requirements. Increased funds to incorporate sensors and technology transition against multiple platforms.

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Developmental Test & Evaluation | WR | NSWCIHEODTD : Indian Head, MD | 79.119 | 0.900 | Nov 2019 | 2.932 | Nov 2020 | 1.417 | Nov 2021 | - | | 1.417 | - | - | - |
| Operation Test & Evaluation | WR | NSWCIHEODTD : Indian Head, MD | 11.558 | 0.025 | Nov 2019 | 0.025 | Nov 2020 | 0.200 | Nov 2021 | - | | 0.200 | - | - | - |
| Operation Test & Evaluation | WR | COMOPTEVFOR : Norfolk, VA | 0.000 | 0.125 | Nov 2019 | 0.000 | Nov 2020 | 0.000 | | - | | 0.000 | - | - | - |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy | | | Date: May 2021 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 4 | R-1 Program Element (Number/Name)<br>PE 0603654N / *JNT Service EOD Development* | Project (Number/Name)<br>0377 / *JT Service Expl Ord Disp System* | |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Developmental Test & Evaluation | C/FFP | NRL : Washington, DC | 0.000 | 0.100 | Jan 2020 | 0.295 | Nov 2020 | 0.200 | Nov 2021 | - | | 0.200 | - | - | - |
| | | **Subtotal** | 90.677 | 1.150 | | 3.252 | | 1.817 | | - | | 1.817 | - | - | N/A |

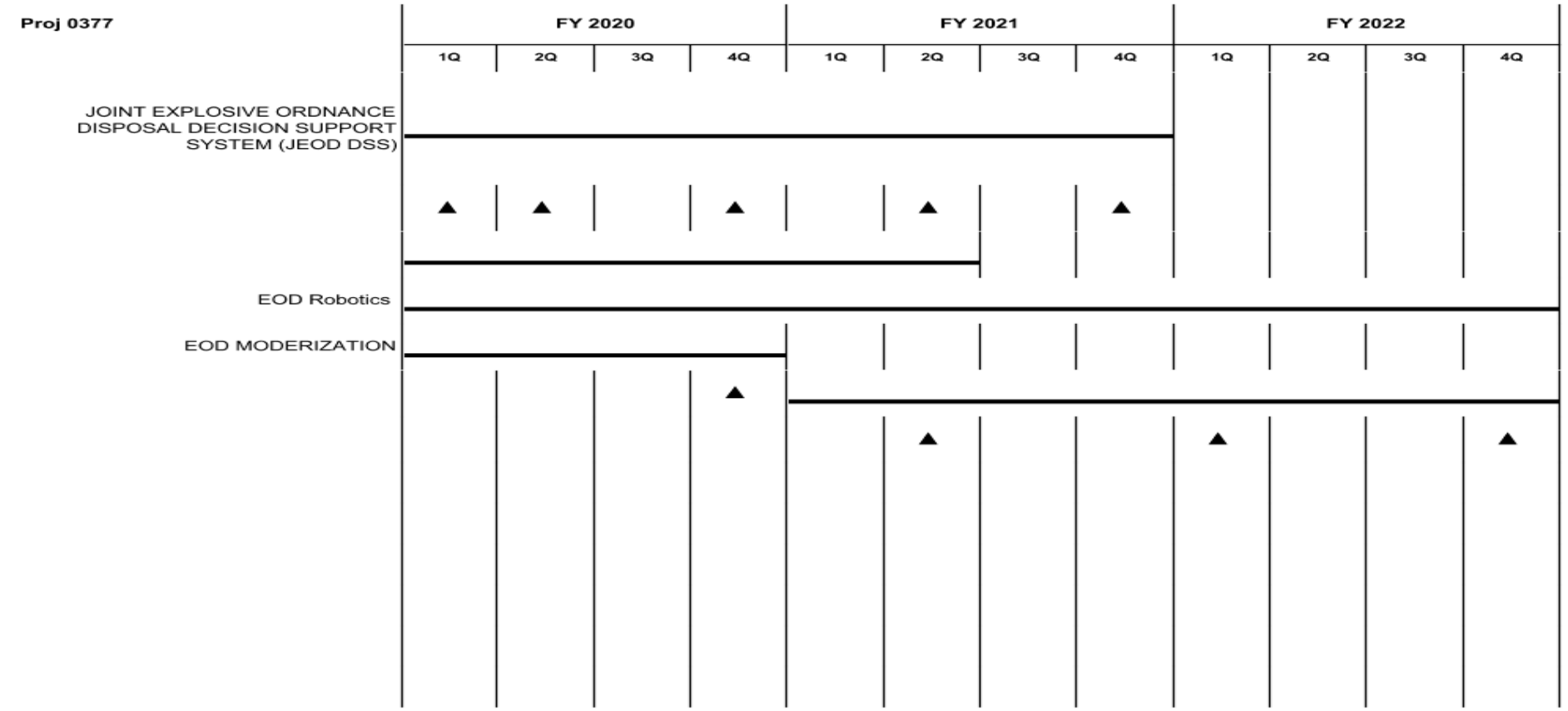
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Program Management Support | WR | NSWCIHEODTD : Indian Head, MD | 11.166 | 0.267 | Oct 2019 | 0.064 | Oct 2020 | 0.000 | | - | | 0.000 | - | - | - |
| | | **Subtotal** | 11.166 | 0.267 | | 0.064 | | 0.000 | | - | | 0.000 | - | - | N/A |

| | Prior Years | FY 2020 | | FY 2021 | | FY 2022 Base | | FY 2022 OCO | | FY 2022 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 358.971 | 9.397 | | 11.189 | | 8.960 | | - | | 8.960 | - | - | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>0377 / *JT Service Expl Ord Disp System* |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>0377 / *JT Service Expl Ord Disp System* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 0377*** | | | | |
| JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEODDSS): Continuous Improvement (Inc 1 & 2) | 1 | 2020 | 4 | 2021 |
| JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEODDSS): Engineering Change Proposal 1 (Inc 1 & 2 ) | 1 | 2020 | 1 | 2020 |
| JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEODDSS): Engineering Change Proposal 2 (Inc 1 & 2) | 2 | 2020 | 2 | 2020 |
| JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEODDSS): Engineering Change Proposal 3 (Inc 1 & 2) | 4 | 2020 | 4 | 2020 |
| JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEODDSS): Engineering Change Proposal 4 (Inc 1 & 2) | 2 | 2021 | 2 | 2021 |
| JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEODDSS): Engineering Change Proposal 5 (Inc 1 & 2) | 4 | 2021 | 4 | 2021 |
| JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEODDSS): Software Production & Development (Inc 2) | 1 | 2020 | 2 | 2021 |
| EOD Robotics: Continuous Improvement | 1 | 2020 | 4 | 2022 |
| EOD MODERIZATION: AoA - Sub-surface Ordnance Locators | 1 | 2020 | 4 | 2020 |
| EOD MODERIZATION: Material Solution Analysis PT # 1 | 4 | 2020 | 4 | 2020 |
| EOD MODERIZATION: AoA - Access, Disrupt, Rendersafe | 1 | 2021 | 4 | 2022 |
| EOD MODERIZATION: Material Solution Analysis Rendersafe PT # 1 | 2 | 2021 | 2 | 2021 |
| EOD MODERIZATION: Material Solution Analysis Rendersafe PT # 2 | 1 | 2022 | 1 | 2022 |
| EOD MODERIZATION: Material Solution Analysis Rendersafe PT # 3 | 4 | 2022 | 4 | 2022 |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | | Date: May 2021 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 4 | R-1 Program Element (Number/Name)<br>PE 0603654N / *JNT Service EOD Development* | Project (Number/Name)<br>1317 / *Expeditionary Diving Systems* | |

| COST ($ in Millions) | Prior Years | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1317: *Expeditionary Diving Systems* | 123.331 | 2.434 | 2.742 | 1.965 | - | 1.965 | - | - | - | - | - | - |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

**Note**

The FY 2022 funding request was reduced by $0.540M to account for the availability of prior year execution balances.

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

These resources support the development of equipment for the Navy's only comprehensive expeditionary detect to engage and exploitation MCM capability. Specifically, it provides for development of Diver Safety/Life Support Equipment, Advanced Diver Integrated Sensors and Command Detonation Systems to support Navy Explosive Ordnance Disposal (EOD) underwater operations, expeditionary salvage, and Expeditionary MCM Company operations by US Fleet Forces Command. The equipment must have inherently low acoustic and magnetic signatures in order to allow the EOD divers to safely detect, reacquire, approach, render-safe, recover, exploit, and dispose of underwater explosive threats to include sea mines, limpet mines, underwater improvised explosive devices, and unexploded ordnance.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| ***Title:*** DIVER SAFETY & LIFE SUPPORT SYSTEMS | 0.911 | 1.765 | 0.822 | 0.000 | 0.822 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** Diver Safety & Life Support Systems: Develop diving equipment and diver safety tools to include life support systems for Explosive Ordnance Disposal (EOD), Expeditionary Mine Countermeasures (ExMCM), and Mobile Diving & Salvage Units (MDSU) operations. Specific tools include but are not limited to Underwater Breathing Apparatus (UBA), specialized dive masks, emergency life support systems, and the capability to train divers and to evaluate ExMCM tools, tactics and procedures including control of signatures with regard to influence fired ordnance. | | | | | |
| ***FY 2021 Plans:***<br>FY21 efforts focused on initiating Phase 1 of the Multi Mission Underwater Breathing Apparatus (MMUBA) unmanned testing at Navy Experimental Dive Unit (NEDU) of production representative test and evaluation units prior to initiation of manned in-water testing. Commercial environmental test chambers were used to verify that applicable MIL-STD-810 environmental test conditions are met. FY21 efforts also included environmental, signature, and IT assessments concurrent with unmanned testing | | | | | |
| ***FY 2022 Base Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>1317 / *Expeditionary Diving Systems* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| FY22 efforts will focus on continuing MMUBA certification testing of the production representative test and evaluation units. The combined efforts of Phase 2 of unmanned testing and planned manned testing in FY23 are designed to ultimately support a NAVSEA 00C Certification in accordance with NAVSEA SS800-AG-MAN-010 of the selected UBA in early FY24. These evaluations will determine the operational effectiveness and suitability characteristics of the MMUBA. Preparations for certification and production will ensue leading to a fielding decision in FY24.<br>***FY 2022 OCO Plans:***<br>N/A<br>***FY 2021 to FY 2022 Increase/Decrease Statement:***<br>Decrease of $0.943M from FY2021 due to change in acquisition strategy to move to limited rate production in FY22 as part of the required life support safety certification program prior to fielding any life support systems. | | | | | |
| ***Title:*** ADVANCED DIVER INTEGRATED SENSORS | 1.391 | 0.864 | 1.024 | 0.000 | 1.024 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** Develop Advanced Diver Integrated Sensors equipment to enable EOD and MDSU ability to detect, access, neutralize and gather intelligence on underwater targets of interest in support of Expeditionary Mine Countermeasures (ExMCM) and Diving and Salvage missions. Requirements include the validated STRIDENT (Diver held integrated navigation/sonar capability) Top Level Requirement (TLR).<br>***FY 2021 Plans:***<br>Initial candidate prototype proposal evaluations conducted in FY20 resulted in the award of prototype OTAs through the Navy's UTIC OTA. FY21 efforts focused on developmental testing and evaluation of the prototypes to demonstrate performance in accordance with the TLR and system performance specification.<br>***FY 2022 Base Plans:***<br>FY22 efforts will focus on continued test and evaluation of candidate Engineering Development Models (EDM) in operationally realistic environments leading to a production decision in FY23. Environmental testing will also be conducted in FY22 as part of DT&E against system performance thresholds.<br>***FY 2022 OCO Plans:***<br>N/A<br>***FY 2021 to FY 2022 Increase/Decrease Statement:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>1317 / *Expeditionary Diving Systems* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| Increase of $160K from FY2021 due to slight increase in continued developmental Test & Evaluation necessary to demonstrate capability of the systems to meet system performance specification and TLR thresholds. | | | | | |
| ***Title:*** COMMAND DETONATION SYSTEMS | 0.132 | 0.113 | 0.119 | 0.000 | 0.119 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** Develops next generation of remote underwater firing device to enable EOD technicians to neutralize or otherwise mitigate underwater ordnance hazards from a safe standoff distance. This capability enables a command firing signal to travel from the surface to an in-water receiver to detonate explosive tools ISO ExMCM missions. Improvements from previous underwater firing systems include the ability to encrypt the firing signal.<br>***FY 2021 Plans:***<br>Development of a Capability Development Document to define mission requirements completed for the Remote Underwater Firing Initiation System (RUFIS). Continued market assessment of candidate technologies to determine whether commercially available command detonation systems will meet mission requirements.<br>***FY 2022 Base Plans:***<br>Finalize market research to identify candidate RUFIS prototypes. Preliminary Weapon System Explosive Safety Review Board (WSESRB) engagement will ensue to evaluate RUFIS concepts from a safety certification perspective. FY22 pursuit of a Foreign Comparative Test (FCT) initiative will result in candidate evaluations continuing in FY23.<br>***FY 2022 OCO Plans:***<br>N/A<br>***FY 2021 to FY 2022 Increase/Decrease Statement:***<br>No substantive change from FY21 to FY22. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 2.434 | 2.742 | 1.965 | 0.000 | 1.965 |

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

| Line Item | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • OPN/0977a: *Underwater EOD Program (Cost Code UQ034)* | 1.350 | 3.619 | 15.577 | - | 15.577 | - | - | - | - | - | - |
| • OPN/0977b: *UW EOD (UQ038)* | 2.450 | 0.000 | 0.000 | - | 0.000 | - | - | - | - | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>1317 / *Expeditionary Diving Systems* |

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

| Line Item | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|

**Remarks**

**D. Acquisition Strategy**

Analysis of Alternatives (AOA) studies and/or alternative system reviews (ASRs) are always conducted prior to the initiation of new sub-projects. The AOA/ASR processes address and emphasize acquisition strategies of the most cost-effective solution over the sub-projects life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modification), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included. Maximum use of innovative contracting mechanisms will be assessed and pursued where applicable and in the best interest of the Navy. For example, this program will execute two of its acquisition efforts through the middle-tier acquisition (MTA) authorities to accelerate fielding of effective and suitable materiel solutions to the fleet.

The full funding requirement for the MTA prototype effort as outlined in the Report to Congress is below:
FY20: $0.911M
FY21: $1.765M
FY22: $0.822M
FY23: $0.676M
FY24: $0.250M
FY25: $0.125M
The total cost of the MTA prototyping effort is $4.549M and is fully funded in RDT&E.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>1317 / *Expeditionary Diving Systems* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Primary Hardware Development | WR | Multiple Activities : Not Specified | 45.950 | 0.365 | Nov 2019 | 0.339 | Nov 2020 | 0.200 | Nov 2021 | - | | 0.200 | - | - | - |
| Software Development | WR | Multiple Activites : Not Specified | 6.911 | 0.065 | Nov 2019 | 0.180 | Nov 2020 | 0.100 | Nov 2021 | - | | 0.100 | - | - | - |
| Systems Engineering | WR | NSWCIHEODTD : Indian Head, MD | 8.228 | 0.000 | | 0.100 | Nov 2020 | 0.080 | Nov 2021 | - | | 0.080 | - | - | - |
| ILS | WR | Multiple Activities : Not Specified | 11.916 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | - | - | - |
| Systems Engineering | WR | NSWC : Panama City | 4.426 | 0.502 | Nov 2019 | 0.649 | Nov 2020 | 0.394 | Nov 2021 | - | | 0.394 | - | - | - |
| Systems Engineering | WR | NIWC : San Diego | 6.169 | 0.572 | Nov 2019 | 0.564 | Nov 2020 | 0.395 | Nov 2021 | - | | 0.395 | - | - | - |
| | | **Subtotal** | 83.600 | 1.504 | | 1.832 | | 1.169 | | - | | 1.169 | - | - | N/A |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Program Management Support2 | C/CPFF | PERATON : Herndon VA | 8.898 | 0.307 | Nov 2019 | 0.310 | Nov 2020 | 0.300 | Nov 2021 | - | | 0.300 | - | - | - |
| | | **Subtotal** | 8.898 | 0.307 | | 0.310 | | 0.300 | | - | | 0.300 | - | - | N/A |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Development Test & Evaluation | WR | Multiple Activities : Not Specified | 10.147 | 0.289 | Nov 2019 | 0.300 | Nov 2020 | 0.205 | Nov 2021 | - | | 0.205 | - | - | - |
| Operational Test & Evaluation | WR | Multiple Activities : Not Specified | 1.560 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | - | - | - |
| | | **Subtotal** | 11.707 | 0.289 | | 0.300 | | 0.205 | | - | | 0.205 | - | - | N/A |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>1317 / *Expeditionary Diving Systems* |

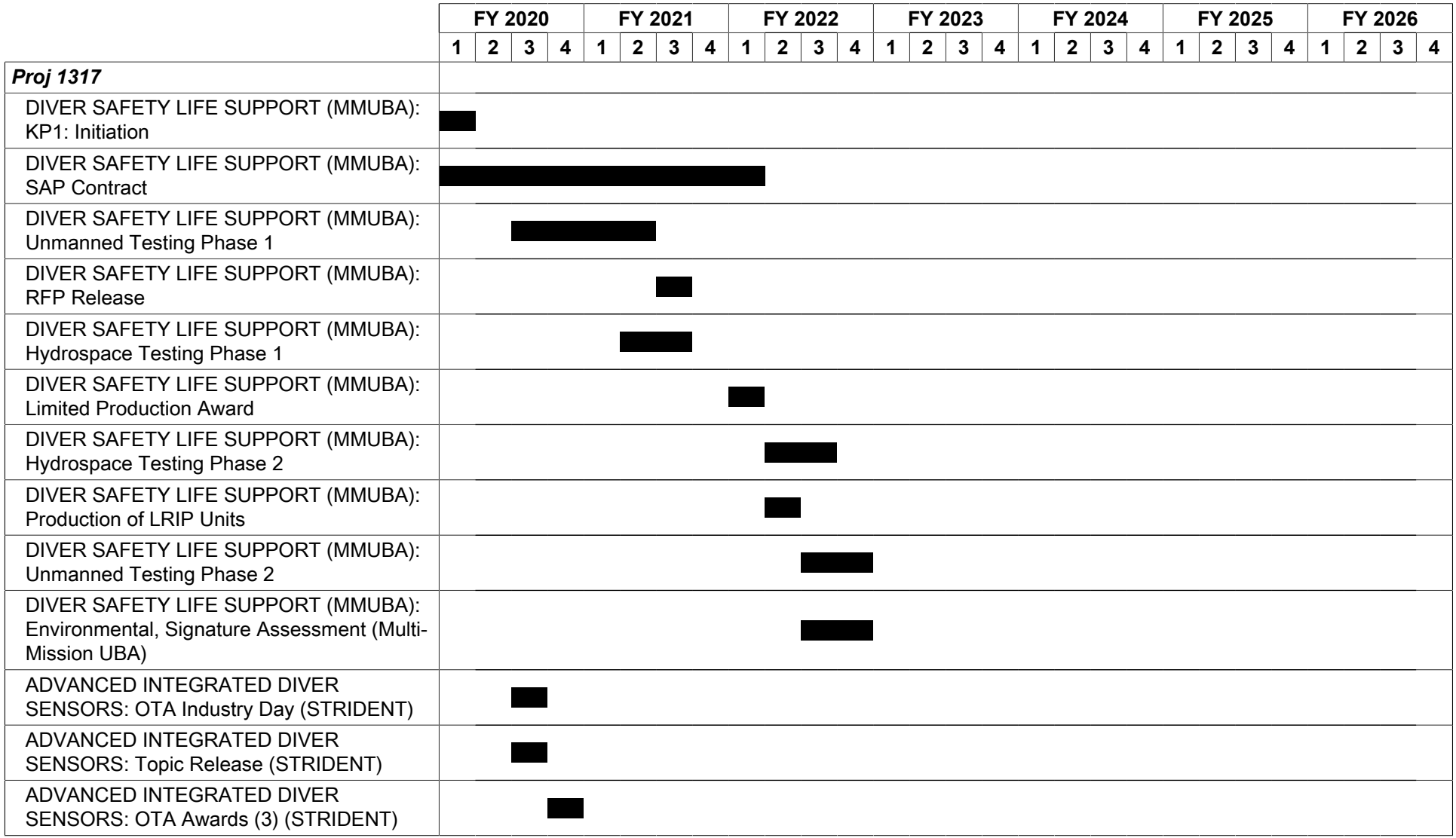
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Program Management Support | WR | NSWCIHEODTD : Indian Head, MD | 12.108 | 0.334 | Nov 2019 | 0.300 | Nov 2020 | 0.291 | Nov 2021 | - | | 0.291 | - | - | - |
| Miscellaneous | WR | NSWC, Activities : Not Specified | 7.005 | 0.000 | Nov 2019 | 0.000 | Nov 2020 | 0.000 | Nov 2021 | - | | 0.000 | - | - | - |
| Acquisition Workforce Fund | Various | Various : Various | 0.013 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | - | - | - |
| | | **Subtotal** | 19.126 | 0.334 | | 0.300 | | 0.291 | | - | | 0.291 | - | - | N/A |

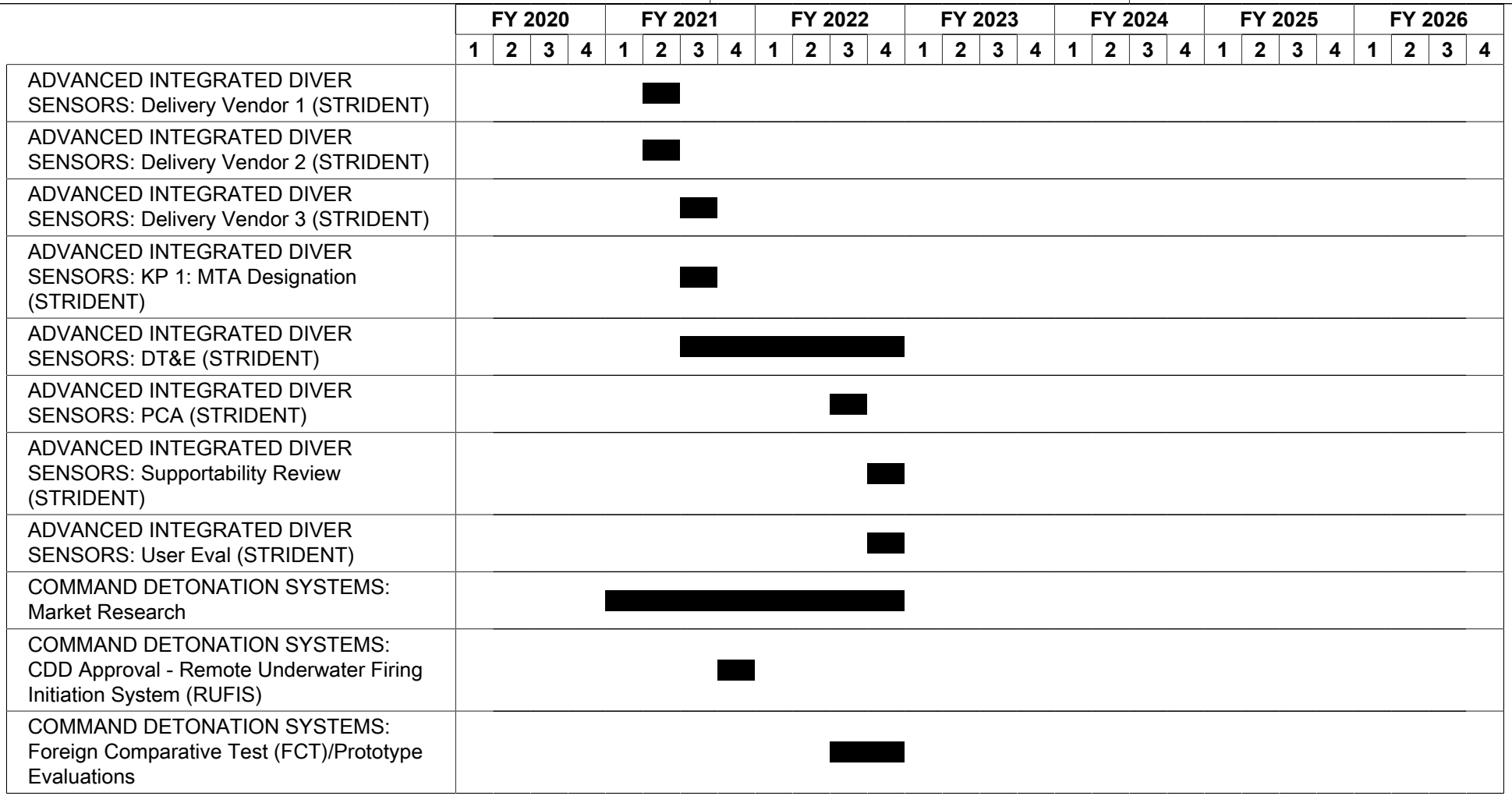
| | Prior Years | FY 2020 | | FY 2021 | | FY 2022 Base | | FY 2022 OCO | | FY 2022 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 123.331 | 2.434 | | 2.742 | | 1.965 | | - | | 1.965 | - | - | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>1317 / *Expeditionary Diving Systems* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>1317 / *Expeditionary Diving Systems* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>1317 / *Expeditionary Diving Systems* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 1317*** | | | | |
| DIVER SAFETY LIFE SUPPORT (MMUBA): KP1: Initiation | 1 | 2020 | 1 | 2020 |
| DIVER SAFETY LIFE SUPPORT (MMUBA): SAP Contract | 1 | 2020 | 1 | 2022 |
| DIVER SAFETY LIFE SUPPORT (MMUBA): Unmanned Testing Phase 1 | 3 | 2020 | 2 | 2021 |
| DIVER SAFETY LIFE SUPPORT (MMUBA): RFP Release | 3 | 2021 | 3 | 2021 |
| DIVER SAFETY LIFE SUPPORT (MMUBA): Hydrospace Testing Phase 1 | 2 | 2021 | 3 | 2021 |
| DIVER SAFETY LIFE SUPPORT (MMUBA): Limited Production Award | 1 | 2022 | 1 | 2022 |
| DIVER SAFETY LIFE SUPPORT (MMUBA): Hydrospace Testing Phase 2 | 2 | 2022 | 3 | 2022 |
| DIVER SAFETY LIFE SUPPORT (MMUBA): Production of LRIP Units | 2 | 2022 | 2 | 2022 |
| DIVER SAFETY LIFE SUPPORT (MMUBA): Unmanned Testing Phase 2 | 3 | 2022 | 4 | 2022 |
| DIVER SAFETY LIFE SUPPORT (MMUBA): Environmental, Signature Assessment (Multi-Mission UBA) | 3 | 2022 | 4 | 2022 |
| ADVANCED INTEGRATED DIVER SENSORS: OTA Industry Day (STRIDENT) | 3 | 2020 | 3 | 2020 |
| ADVANCED INTEGRATED DIVER SENSORS: Topic Release (STRIDENT) | 3 | 2020 | 3 | 2020 |
| ADVANCED INTEGRATED DIVER SENSORS: OTA Awards (3) (STRIDENT) | 4 | 2020 | 4 | 2020 |
| ADVANCED INTEGRATED DIVER SENSORS: Delivery Vendor 1 (STRIDENT) | 2 | 2021 | 2 | 2021 |
| ADVANCED INTEGRATED DIVER SENSORS: Delivery Vendor 2 (STRIDENT) | 2 | 2021 | 2 | 2021 |
| ADVANCED INTEGRATED DIVER SENSORS: Delivery Vendor 3 (STRIDENT) | 3 | 2021 | 3 | 2021 |
| ADVANCED INTEGRATED DIVER SENSORS: KP 1: MTA Designation (STRIDENT) | 3 | 2021 | 3 | 2021 |
| ADVANCED INTEGRATED DIVER SENSORS: DT&E (STRIDENT) | 3 | 2021 | 4 | 2022 |
| ADVANCED INTEGRATED DIVER SENSORS: PCA (STRIDENT) | 3 | 2022 | 3 | 2022 |
| ADVANCED INTEGRATED DIVER SENSORS: Supportability Review (STRIDENT) | 4 | 2022 | 4 | 2022 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>1317 / *Expeditionary Diving Systems* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ADVANCED INTEGRATED DIVER SENSORS: User Eval (STRIDENT) | 4 | 2022 | 4 | 2022 |
| COMMAND DETONATION SYSTEMS: Market Research | 1 | 2021 | 4 | 2022 |
| COMMAND DETONATION SYSTEMS: CDD Approval - Remote Underwater Firing Initiation System (RUFIS) | 4 | 2021 | 4 | 2021 |
| COMMAND DETONATION SYSTEMS: Foreign Comparative Test (FCT)/Prototype Evaluations | 3 | 2022 | 4 | 2022 |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | | Date: May 2021 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 4 | R-1 Program Element (Number/Name)<br>PE 0603654N / *JNT Service EOD Development* | Project (Number/Name)<br>3177 / *Joint Counter Radio-Controlled IED Elec Warfare* | |

| COST ($ in Millions) | Prior Years | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3177: *Joint Counter Radio-Controlled IED Elec Warfare* | 83.714 | 18.469 | 19.597 | 15.034 | - | 15.034 | - | - | - | - | - | - |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

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

This project supports the defense objective of preventing terrorist and near peer operations against the US, allies, and partners. It provides for the research and development of Electronic Warfare (EW) systems, equipment, procedures, and tactical aids for all military services to counter the threat posed by Radio-Controlled Improvised Explosive Devices (RCIEDs)and to prevent initiation of RCIEDs across the spectrum of Joint military operations. It utilizes Joint requirements to provide a system of systems approach for a suite of equipment for mounted, dismounted, and fixed site operations, and develops; equipment, procedures, and tactical aids to make rapid improvements to performance, supportability and affordability, while maintaining pace with the evolving global RCIED threat.
Joint Counter RCIED electronic Warfare (JCREW), Increment 1 Block 1 (I1B1) is the next generation of counter RCIED system of systems. JCREW includes fixed site, mounted and dismounted units, which provide countermeasures against the global RCIED threat. Key system design features include significant performance increases over current legacy systems,
a modular open architecture system design to facilitate improvements to address current and future advanced threats, robust information assurance and security, and is net-capable for improved Communications and Control (C2). JCREW I1B1 supports global deployment and sustainment for all combatant commands providing increased protection to Warfighter
against the evolving worldwide RCIED threats. This project also provides for the research, development, and systems engineering of related CREW systems, providing capability improvements to fielded systems based on ever-changing RCIED
threats against EOD technicians. And it provides for research, development, and systems engineering of electronic forensic capabilities related to the technical exploitation of asymmetric threats, including RCIEDs, unmanned systems, and underwater mines. The information generated is used to increase the performance of CREW and other counter-IED systems, as well as enable development of new countermeasure capabilities.

This project also provides for continued development and testing of JCREW Counter-Unmanned Aerial System (C-UAS) capabilities to support Fleet Forces Command C-UAS requirements. This includes the modification of JCREW hardware, software, threat loads, and advanced techniques, integration into JCREW systems, lab verification, and open air testing. Fielded JCREW systems will be upgraded with modified hardware, software and threat loads to keep pace with the evolving C-UAS threat.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| ***Title:*** Joint Counter Radio-Controlled IED Elec Warfare | 16.623 | 17.641 | 13.754 | 0.000 | 13.754 |
| ***Articles:*** | - | - | - | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3177 / *Joint Counter Radio-Controlled IED Elec Warfare* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| ***Description:*** Supports the development, integration and test of Technology Insertion hardware, software, and advanced techniques into JCREW systems. Technology Insertion candidates include Office of Naval Research (ONR) sponsored technologies ready for transition to JCREW including the ENabling Dynamic Operational RF (ENDOR) Future Naval Capability (FNC); and techniques, hardware and software performance improvements developed by United States Government (USG) laboratories, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and the JCREW prime contractor. Analysis of Alternatives (AoA) will be conducted to evaluate and select Tech Insertion candidates based on technical maturity, cost, and performance. Hardware and software updates will be integrated, tested, and implemented into CREW systems through Engineering Change Proposals (ECPs).<br><br>Develop CREW load sets to remain current with continually changing CONUS and OCONUS threats. Develop hardware and software capabilities to enable enhanced cyber and electronics forensics and exploitation of evolving RCIED threats.<br><br>***FY 2021 Plans:***<br>Continue development and integration of technology insertion package 3, including the NextGen Software Defined Radio (SDR), CDU 2.0, and several C-IED and C-UAS advanced threat techniques for dismounted, mounted, and fixed site JCREW I1B1 systems. Prepare for implementation and test of the NextGen SDR, CDU 2.0 and advanced C-IED techniques in early FY22. Develop the analysis of alternatives, specifications, program plan, and contract vehicles for development and integration of technology insertion package 4 efforts in FY22.<br><br>OCO:<br>Continue development and integration of technology insertion package 3, including the NextGen SDR, CDU 2.0, and several C-IED and C-UAS advanced threat techniques for dismounted, mounted, and fixed site JCREW I1B1 systems. Prepare for implementation and test of NextGen SDR, CDU 2.0, and advanced C-IED techniques in FY22. Begin development of analysis of alternatives, specifications, program plan, and contract vehicles for development and integration of technology insertion package 4 in FY22.<br>***FY 2022 Base Plans:***<br>Complete development, integration, implementation, and test of technology insertion package 3 efforts, including the NextGen SDR, CDU 2.0, and several C-IED and C-UAS advanced threat techniques for dismounted, mounted, and fixed site JCREW I1B1 systems. Begin development and integration of technology insertion | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3177 / *Joint Counter Radio-Controlled IED Elec Warfare* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| package 4 efforts, including the electronic warfare operating kit, radio head and several C-IED and C-UAS advanced threat techniques for dismounted, mounted, and fixed site JCREW I1B1 systems.<br><br>Develop hardware and software capabilities to enable enhanced cyber and electronics forensics and exploitation of evolving RCIED threats. Further information available at a higher classification.<br>***FY 2022 OCO Plans:***<br>N/A<br>***FY 2021 to FY 2022 Increase/Decrease Statement:***<br>FY21 to FY22 Decrease due to completion of Tech Insertion 3 activities early in FY22, and is offset by minor increases from realigning EOD CREW and Hemlock project requirements to JCREW. | | | | | |
| ***Title:*** EOD CREW | 0.871 | 0.933 | 0.452 | 0.000 | 0.452 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2021 Plans:***<br>Provide systems engineering support for EOD CREW systems. Develop AN/PLT-5 load sets to remain current with continually changing CONUS and OCONUS threats. Develop and validate AN/PLT-4 replacement requirements.<br>***FY 2022 Base Plans:***<br>Provide systems engineering support for EOD CREW systems. Develop AN/PLT-5 load sets to remain current with continually changing CONUS and OCONUS threats. Develop and validate AN/PLT-4 replacement requirements.<br>***FY 2022 OCO Plans:***<br>N/A<br>***FY 2021 to FY 2022 Increase/Decrease Statement:***<br>Increased capabilities to meet requirements across all CREW systems is similar, so the development of these increased capabilities for all Navy CREW systems is most efficiently managed under the JCREW project. | | | | | |
| ***Title:*** HEMLOCK | 0.975 | 1.023 | 0.828 | 0.000 | 0.828 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2021 Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3177 / *Joint Counter Radio-Controlled IED Elec Warfare* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| Develop hardware and software capabilities to enable enhanced cyber and electronics forensics and exploitation of evolving RCIED threats. Continue Hybrid report upgrade adding Lexicon increment. Develop stand-alone Helmsman platform (plugin) to interface w/non-Hodor user databases. Further information available at a higher classification.<br>***FY 2022 Base Plans:***<br>Refine hardware and software capabilities to enable enhanced cyber and electronics forensics and exploitation of evolving RCIED threats. Finalize Hybrid report upgrade, adding Lexicon increment. Refine stand-alone Helmsman platform (plugin) to interface w/non-Hodor user databases. Further information available at a higher classification.<br>***FY 2022 OCO Plans:***<br>N/A<br>***FY 2021 to FY 2022 Increase/Decrease Statement:***<br>Decrease is due to realized efficiencies in the HEMLOCK Program and realigning funds to meet requirements across all CREW systems. The development of these capabilities for all Navy CREW systems is most efficiently managed under the JCREW project. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 18.469 | 19.597 | 15.034 | 0.000 | 15.034 |

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

| Line Item | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • OPN/5509(b): *Explosive Ordnance Disposal Equip* | 0.868 | 0.877 | 0.894 | - | 0.894 | - | - | - | - | - | - |

**Remarks**

**D. Acquisition Strategy**

Develop, integrate, test, and field hardware and software upgrades, and advanced techniques in JCREW systems through the JCREW Technology Insertion and Technology Refresh process. Technology insertion candidates include the Office of Naval Research (ONR) the ENabling Dynamic Operational RF (ENDOR) Future Naval Capability (FNC); and techniques, hardware and software performance improvements developed by United States Government (USG) laboratories, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and the JCREW prime contractor. Analysis of Alternatives (AoA) will be conducted to evaluate and select Tech Insertion candidates based on technical maturity, cost, and performance. Hardware and software updates will be

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3177 / *Joint Counter Radio-Controlled IED Elec Warfare* |

integrated, tested, and implemented in JCREW via Engineering Change Proposals (ECPs). This also supports the rapid development and testing of JCREW Counter-Unmanned Aerial System (C-UAS) for Fleet Forces Command C-UAS requirements and the N96 CUAS Afloat Top Level Requirements.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3177 / *Joint Counter Radio-Controlled IED Elec Warfare* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Primary Hardware Development | C/CPFF | Northrop Grumman : San Diego, CA | 15.776 | 3.154 | Jan 2020 | 3.518 | Jan 2021 | 2.749 | Jan 2022 | - | | 2.749 | - | - | - |
| Systems Engineering | C/CPFF | Northrop Grumman : San Diego, CA | 9.469 | 1.524 | Jan 2020 | 1.714 | Jan 2021 | 1.370 | Jan 2022 | - | | 1.370 | - | - | - |
| Software Development | C/CPFF | Northrop Grumman : San Diego, CA | 10.141 | 1.614 | Jan 2020 | 2.185 | Jan 2021 | 1.670 | Jan 2022 | - | | 1.670 | - | - | - |
| System Integration | C/CPFF | Northrop Grumman : San Diego, CA | 5.321 | 1.425 | Jan 2020 | 1.588 | Jan 2021 | 1.227 | Jan 2022 | - | | 1.227 | - | - | - |
| | | **Subtotal** | 40.707 | 7.717 | | 9.005 | | 7.016 | | - | | 7.016 | - | - | N/A |

**Remarks**

FY20 to FY21 increase for the primary hardware and software development to support complex technical refresh of the software defined radio (SDR) module, while continuing CIED/CUAS advanced threat technique development for current threats and development of technical insertion 4 analysis of alternatives.

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Loadset Development | FFRDC | JHU/APL, MITRE : Laurel, MD | 6.954 | 1.542 | Nov 2019 | 1.425 | Nov 2020 | 1.134 | Nov 2021 | - | | 1.134 | - | - | - |
| Systems Engineering | WR | NSWC : Various | 16.255 | 4.314 | Nov 2019 | 3.466 | Nov 2020 | 2.674 | Nov 2021 | - | | 2.674 | - | - | - |
| Program Management Support | WR | IHEODTD : Indian Head, MD | 2.217 | 0.636 | Nov 2019 | 0.621 | Nov 2020 | 0.475 | Nov 2021 | - | | 0.475 | - | - | - |
| Loadset Development | WR | IHEODTD : Indian Head, MD | 0.000 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | - | - | - |
| | | **Subtotal** | 25.426 | 6.492 | | 5.512 | | 4.283 | | - | | 4.283 | - | - | N/A |

**Remarks**

FY20 to FY21 increase for the systems engineering necessary to support complex technical refresh of the software defined radio (SDR) module, while continuing CIED/CUAS advanced threat technique development for current threats and development of technical insertion 4 analysis of alternatives.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3177 / *Joint Counter Radio-Controlled IED Elec Warfare* |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test & Evaluation | WR | NSWC : Various | 8.593 | 1.961 | Nov 2019 | 2.122 | Nov 2020 | 1.741 | Nov 2021 | - | | 1.741 | - | - | - |
| Test & Evaluation | MIPR | YPG : Yuma, Arizona | 6.432 | 1.626 | Nov 2019 | 1.913 | Nov 2020 | 1.309 | Nov 2021 | - | | 1.309 | - | - | - |
| | | **Subtotal** | 15.025 | 3.587 | | 4.035 | | 3.050 | | - | | 3.050 | - | - | N/A |

**Remarks**

FY20 to FY21 increase for the additional test and evaluation necessary to support complex technical refresh of the software defined radio (SDR) module, while continuing CIED/ CUAS advanced threat technique development for current threats and development of technical insertion 4 analysis of alternatives.

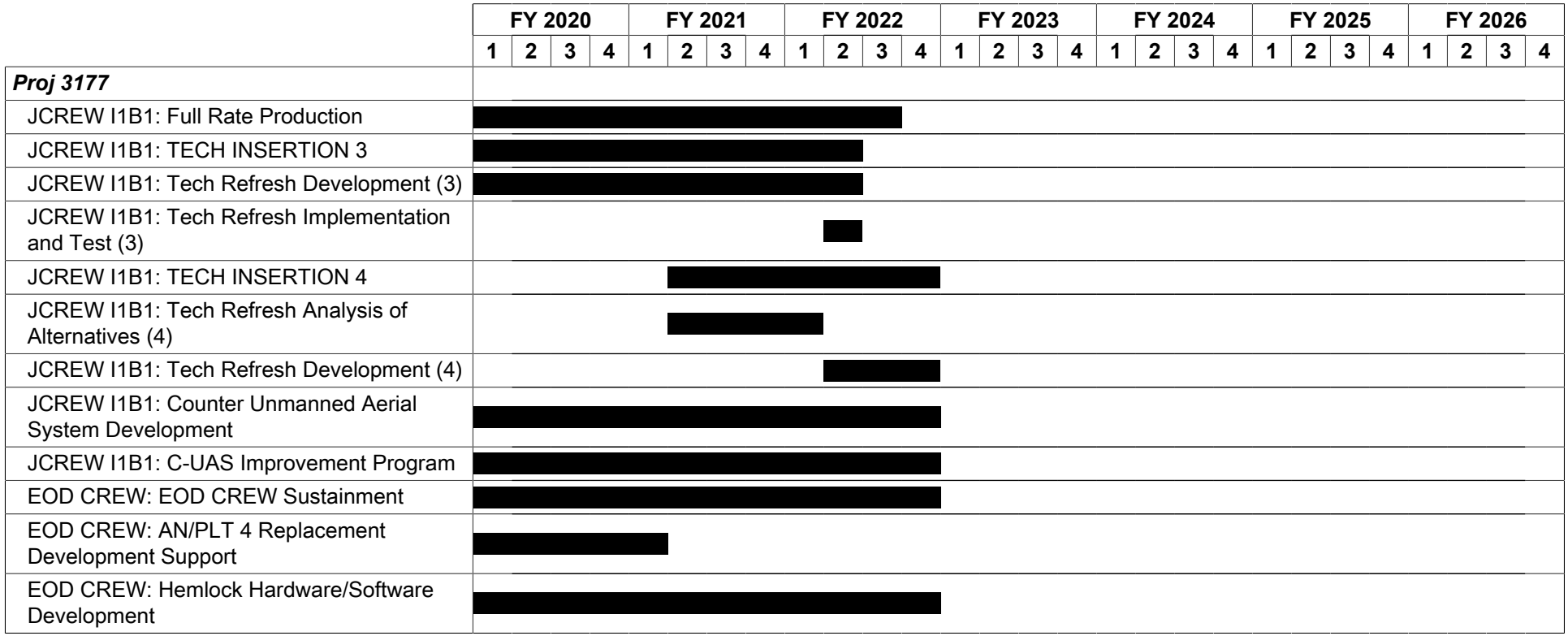
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Program Management Support | C/CPFF | Cydecor : Various | 1.015 | 0.350 | Nov 2019 | 0.430 | Nov 2020 | 0.286 | Nov 2021 | - | | 0.286 | - | - | - |
| Miscellaneous | WR | NSWC : Various | 1.541 | 0.323 | Nov 2019 | 0.615 | Nov 2020 | 0.399 | Nov 2021 | - | | 0.399 | - | - | - |
| | | **Subtotal** | 2.556 | 0.673 | | 1.045 | | 0.685 | | - | | 0.685 | - | - | N/A |

| | Prior Years | FY 2020 | | FY 2021 | | FY 2022 Base | | FY 2022 OCO | | FY 2022 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 83.714 | 18.469 | | 19.597 | | 15.034 | | - | | 15.034 | - | - | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3177 / *Joint Counter Radio-Controlled IED Elec Warfare* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3177 / *Joint Counter Radio-Controlled IED Elec Warfare* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 3177*** | | | | |
| JCREW I1B1: Full Rate Production | 1 | 2020 | 3 | 2022 |
| JCREW I1B1: TECH INSERTION 3 | 1 | 2020 | 2 | 2022 |
| JCREW I1B1: Tech Refresh Development (3) | 1 | 2020 | 2 | 2022 |
| JCREW I1B1: Tech Refresh Implementation and Test (3) | 2 | 2022 | 2 | 2022 |
| JCREW I1B1: TECH INSERTION 4 | 2 | 2021 | 4 | 2022 |
| JCREW I1B1: Tech Refresh Analysis of Alternatives (4) | 2 | 2021 | 1 | 2022 |
| JCREW I1B1: Tech Refresh Development (4) | 2 | 2022 | 4 | 2022 |
| JCREW I1B1: Counter Unmanned Aerial System Development | 1 | 2020 | 4 | 2022 |
| JCREW I1B1: C-UAS Improvement Program | 1 | 2020 | 4 | 2022 |
| EOD CREW: EOD CREW Sustainment | 1 | 2020 | 4 | 2022 |
| EOD CREW: AN/PLT 4 Replacement Development Support | 1 | 2020 | 1 | 2021 |
| EOD CREW: Hemlock Hardware/Software Development | 1 | 2020 | 4 | 2022 |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | | Date: May 2021 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 4 | R-1 Program Element (Number/Name)<br>PE 0603654N / *JNT Service EOD Development* | Project (Number/Name)<br>3447 / *Mine Expeditionary Response Vehicle (MESR)* | |

| COST ($ in Millions) | Prior Years | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3447: *Mine Expeditionary Response Vehicle (MESR)* | 0.000 | 0.000 | 0.000 | 8.826 | - | 8.826 | - | - | - | - | - | - |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

**Note**

MESR realigned from Project 4023 beginning in FY22

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

Funding supports the development of unmanned systems for the Navy's expeditionary unmanned underwater Explosive Ordnance Disposal (EOD) and Mine Countermeasures (MCM) capability. Specifically, it provides for development of affordable expeditionary remote stand-off underwater systems to support Navy Expeditionary forces including EOD, Mobile Diving and Salvage, Underwater Construction Teams (UCT), and Expeditionary Mine Countermeasures (ExMCM) mission operations. The equipment must be highly portable in order to support the Navy EOD technician to safely detect, approach, render safe, recover, exploit, and dispose of underwater explosive threats to include sea mines, limpet mines, maritime IEDs, and unexploded ordnance. Provides support for the Navy's high priority missions of Maritime Homeland Defense and MCM. This project directly supports Department of the Navy Strategic Roadmap for Unmanned Systems promulgated in March 2018 and addresses capability gaps defined by the Joint Service EOD (JSEOD) Initial Capabilities Document (ICD), Serial Number 671-75-05 of 3 June 2005, Joint Improvised Explosive Device (IED) Defeat Initial Capabilities Document (ICD) of 23 February 2006/JROCM 070-06, and the Expeditionary MCM ICD of June 2017. This project is being executed in accordance with approved CNO N9I Requirement #056-95-19, "Capability Development Document (CDD) for Maritime Expeditionary Standoff Response Family of Systems (MESR)," July 23, 2019.

Additional efforts continue to execute the open competition process necessary to acquire and verify an EOD Response ROV capability focusing on user effectiveness and operational suitability to provide a ROV based target interdiction capability to address the capability gaps assessed in the previously conducted Expeditionary UUV Neutralization System (EUNS) AoA. This next generation capability is developed to decrease risk when reacquiring/investigating a potential threat (i.e. sea mine or maritime IED).

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| ***Title:*** EOD Response ROVs and Maritime Expeditionary Standoff Response System of Systems | 0.000 | 0.000 | 8.826 | 0.000 | 8.826 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** This program supports development, testing and evaluation of technologies and commercial systems that will provide needed capabilities to EOD and Expeditionary forces in responding to the wide range of underwater threats and operational environments encountered in assigned mission areas to include: confined | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3447 / *Mine Expeditionary Response Vehicle (MESR)* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| areas, hulls, piers and pilings to detect, search, classify, map, re-acquire, identify, and neutralize sea and limpet mines and underwater improvised explosive devices.<br><br>***FY 2021 Plans:***<br>FY21 efforts are detailed in Project Unit 4023, beginning in FY22 MESR funding has transitioned to Project Unit 3447.<br><br>***FY 2022 Base Plans:***<br>FY22 efforts will focus on evaluating the operational effectiveness and suitability of the MESR engineering development models that have integrated various payloads to demonstrate potential MESR Increment I performance in accordance with CDD thresholds. Additional efforts in FY22 will focus on ensuring system design considers cybersecurity compliance, achieving initial Weapon System Explosive Safety Review Board (WSESRB) concurrence, and conducting evaluations in operationally realistic environments. FY22 efforts will also include conduct of environmental testing and conduct of an Alternative System Review (ASR) to inform MESR Increment II capability conceptual design and development.<br><br>***FY 2022 OCO Plans:***<br>N/A<br><br>***FY 2021 to FY 2022 Increase/Decrease Statement:***<br>Increase from FY21 is due to transition of Project Unit 4023 beginning in FY22.<br>Increase of $618K from FY2021 (Project Unit 4023) due to enhanced level of test and evaluation and costs associated with initial WSESRB review and concurrence to conduct testing and integration of energetic payloads onto candidate MESR Increment I platforms. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 0.000 | 0.000 | 8.826 | 0.000 | 8.826 |

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

| Line Item | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • OPN LI 0977: *Expeditionary Underwater Programs* | 0.000 | 0.000 | 0.000 | - | 0.000 | - | - | - | - | - | - |

**Remarks**

Funding reflected cites MESR OPN budget values only.

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3447 / *Mine Expeditionary Response Vehicle (MESR)* |

**D. Acquisition Strategy**

Analysis of Alternatives (AOA) studies and/or Alternative System Reviews (ASRs) are conducted prior to the initiation of new sub-projects. The AOA addresses and emphasizes acquisitions strategies of the most cost effective solution over the sub-projects' life -cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modifications), non-developmental item (including modifications), and lastly, developmental programs. Contracting for RDT&E, if required, is competitive and when feasible, production options are included. This ongoing program capitalizes on a User Operational Evaluation System (UOES) effort involving Fleet operators engaged in tactical experimentation with prototype EOD Response vehicles prior to fielding baseline systems and capability improvement package increments. Operational capabilities with ROVs have been realized at designated operational units, using a competitive, innovative acquisition strategy. The addition of enhanced capabilities through an evolutionary acquisition approach to the EOD Response toolbox is programmed for delivery in accordance with approved CNO requirements and ONR Technology Deployment Agreements (TDAs) which close capability gaps. Further improvements to the toolbox to add basic mine and underwater explosive threats neutralization capabilities will continue to be pursued, including expansion of EOD Response capabilities employing Remotely Operated Vehicles (ROVs) in areas where current UUVs cannot operate. Streamlined acquisition initiatives are in place to quickly evaluate candidate EOD response capabilities while the longer term Maritime Expeditionary Response System of Systems is developed. A key attribute for these systems is minefield suitability and control of system signatures to counter influence fired ordnance. Influence signatures of subject ROVs will be characterized as a vital component of the acquisition initiatives. Maximum use of innovative contracting mechanisms will be assessed and pursued where applicable and in the best interest of the Navy.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3447 / *Mine Expeditionary Response Vehicle (MESR)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Primary Hardware Development | WR | Various : Not Specified | 0.000 | 0.000 | | 0.000 | | 1.228 | Nov 2021 | - | | 1.228 | - | - | - |
| System Engineering | WR | Various : Not Specified | 0.000 | 0.000 | | 0.000 | | 2.860 | Nov 2021 | - | | 2.860 | - | - | - |
| | | **Subtotal** | 0.000 | 0.000 | | 0.000 | | 4.088 | | - | | 4.088 | - | - | N/A |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Technical Support | C/CPFF | PERATON : Herndon, VA | 0.000 | 0.000 | | 0.000 | | 0.450 | Nov 2021 | - | | 0.450 | - | - | - |
| | | **Subtotal** | 0.000 | 0.000 | | 0.000 | | 0.450 | | - | | 0.450 | - | - | N/A |

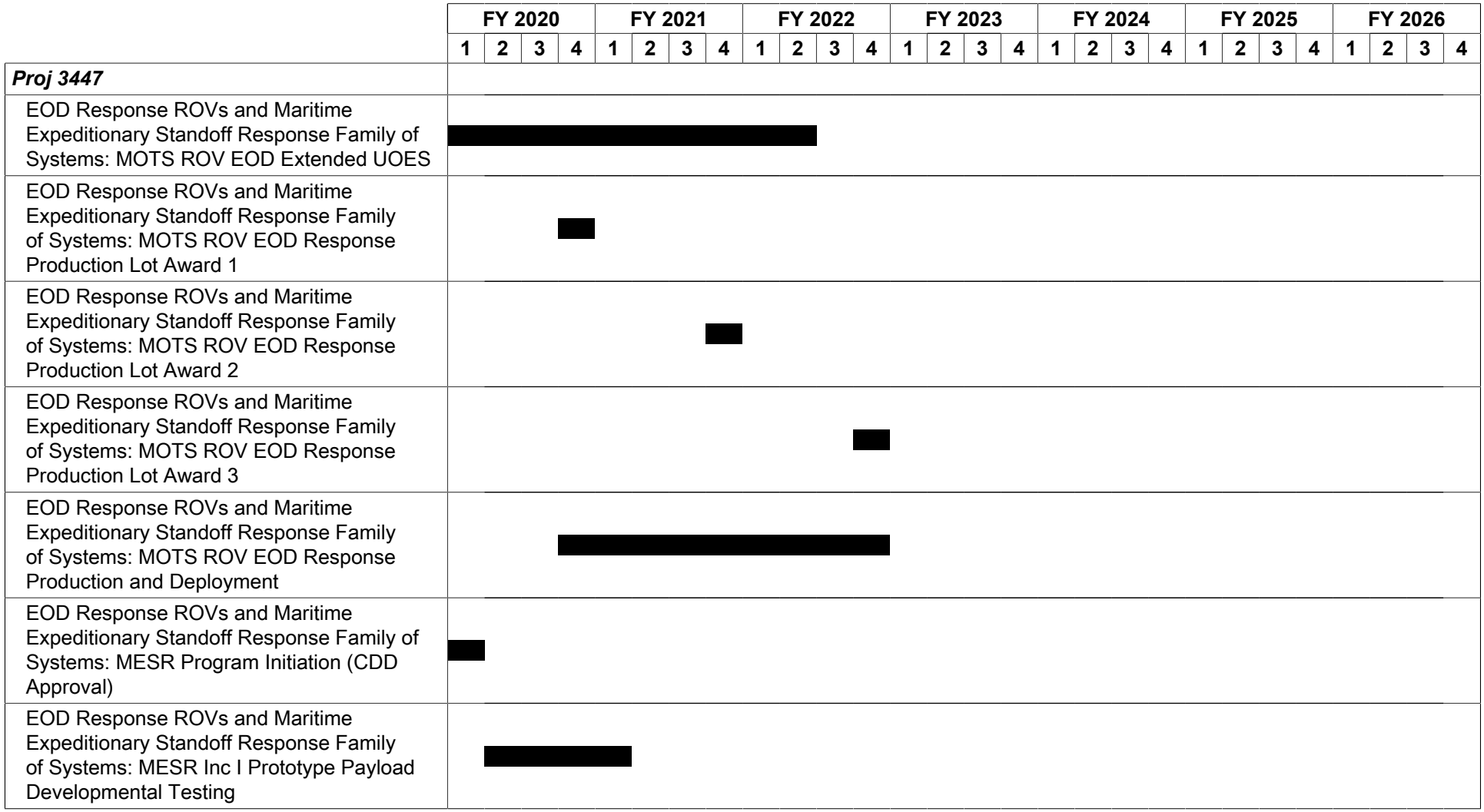
**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Developmental Test & Evaluation | WR | VARIOUS : Not Specified | 0.000 | 0.000 | | 0.000 | | 4.288 | Nov 2021 | - | | 4.288 | - | - | - |
| | | **Subtotal** | 0.000 | 0.000 | | 0.000 | | 4.288 | | - | | 4.288 | - | - | N/A |

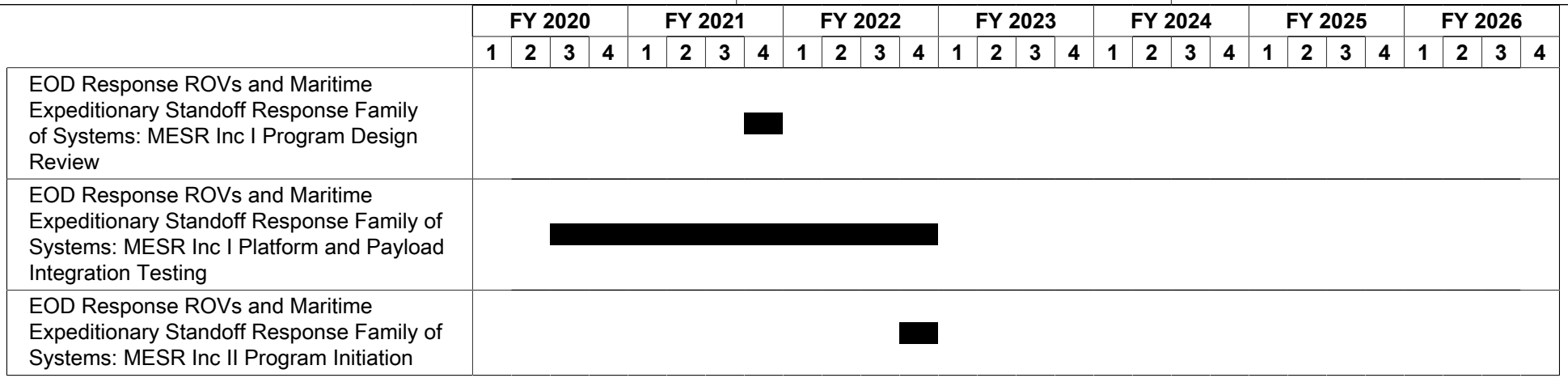
| | Prior Years | FY 2020 | | FY 2021 | | FY 2022 Base | | FY 2022 OCO | | FY 2022 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 0.000 | 0.000 | | 0.000 | | 8.826 | | - | | 8.826 | - | - | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3447 / *Mine Expeditionary Response Vehicle (MESR)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3447 / *Mine Expeditionary Response Vehicle (MESR)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>3447 / *Mine Expeditionary Response Vehicle (MESR)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 3447*** | | | | |
| EOD Response ROVs and Maritime Expeditionary Standoff Response Family of Systems: MOTS ROV EOD Extended UOES | 1 | 2020 | 2 | 2022 |
| EOD Response ROVs and Maritime Expeditionary Standoff Response Family of Systems: MOTS ROV EOD Response Production Lot Award 1 | 4 | 2020 | 4 | 2020 |
| EOD Response ROVs and Maritime Expeditionary Standoff Response Family of Systems: MOTS ROV EOD Response Production Lot Award 2 | 4 | 2021 | 4 | 2021 |
| EOD Response ROVs and Maritime Expeditionary Standoff Response Family of Systems: MOTS ROV EOD Response Production Lot Award 3 | 4 | 2022 | 4 | 2022 |
| EOD Response ROVs and Maritime Expeditionary Standoff Response Family of Systems: MOTS ROV EOD Response Production and Deployment | 4 | 2020 | 4 | 2022 |
| EOD Response ROVs and Maritime Expeditionary Standoff Response Family of Systems: MESR Program Initiation (CDD Approval) | 1 | 2020 | 1 | 2020 |
| EOD Response ROVs and Maritime Expeditionary Standoff Response Family of Systems: MESR Inc I Prototype Payload Developmental Testing | 2 | 2020 | 1 | 2021 |
| EOD Response ROVs and Maritime Expeditionary Standoff Response Family of Systems: MESR Inc I Program Design Review | 4 | 2021 | 4 | 2021 |
| EOD Response ROVs and Maritime Expeditionary Standoff Response Family of Systems: MESR Inc I Platform and Payload Integration Testing | 3 | 2020 | 4 | 2022 |
| EOD Response ROVs and Maritime Expeditionary Standoff Response Family of Systems: MESR Inc II Program Initiation | 4 | 2022 | 4 | 2022 |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | | Date: May 2021 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 4 | R-1 Program Element (Number/Name)<br>PE 0603654N / *JNT Service EOD Development* | Project (Number/Name)<br>4023 / *Expeditionary Underwater Systems* | |

| COST ($ in Millions) | Prior Years | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4023: *Expeditionary Underwater Systems* | 157.690 | 15.489 | 23.760 | 0.000 | - | 0.000 | - | - | - | - | - | - |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

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

Funding supports the development of unmanned systems for the Navy's expeditionary unmanned underwater Explosive Ordnance Disposal (EOD) and Mine Countermeasures (MCM) capability. Specifically, it provides for development of affordable expeditionary, unmanned underwater systems to support Navy Expeditionary forces including EOD, Mobile Diving and Salvage, Underwater Construction Teams (UCT), Very Shallow Water (VSW), and Expeditionary Mine Countermeasures (ExMCM) mission operations. The equipment must be highly portable in order to support the Navy EOD technician to safely approach, render safe, recover, exploit, and dispose of underwater explosive threats to include sea mines, limpet mines, and unexploded ordnance. Provides support for the Navy's high priority missions of Maritime Homeland Defense and MCM, including clandestine reconnaissance and mine clearance in support of amphibious operations. Development of Expeditionary UUV systems to support localization render-safe and detailed intelligence gathering of unexploded ordnance (UXO) including Underwater Improvised Explosive Devices (IEDs). This project directly supports Department of the Navy Strategic Roadmap for Unmanned Systems promulgated in March 2018 and the requirements defined by the Maritime Expeditionary MCM UUV (MEMUUV) CDD and is being executed in accordance with approved CNO N9I Requirement #056-95-19, "Capability Development Document for Maritime Expeditionary Standoff Response Family of Systems," July 23 2019.

FY22 will continue the development and testing of advanced technologies that will allow warfighters to detect, classify, and localize high priority threats in meeting mine warfare missions. MK 18 Mod 2 Increment II upgrade will provide improved Automated Target Recognition (ATR) algorithms, more advanced autonomy architecture and continue to enhance electro-optic sensor performance. Increment II development and testing will focus on improving MCM performance and reducing the tactical timeline through development of a Reacquire, Identify and Mark capability.

Additional efforts continue to execute the open competition process necessary to acquire and verify an EOD Response ROV capability focusing on user effectiveness and operational suitability to provide a ROV based target interdiction capability to address the capability gaps assessed in the previously conducted Expeditionary UUV Neutralization System (EUNS) AoA and defined by the Maritime Expeditionary Standoff Response (MESR) CDD approved 23 July 2019 (CDD # 056-95-19). This next generation capability is developed to decrease risk when reacquiring/investigating a potential threat (i.e. sea mine or maritime IED). Beginning in FY22, the EOD Response ROV and MESR efforts transition to Project Unit 3447.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| ***Title:*** Expeditionary UUV Family of Systems | 7.826 | 15.482 | 0.000 | 0.000 | 0.000 |
| ***Articles:*** | - | - | - | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>4023 / *Expeditionary Underwater Systems* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| ***Description:*** This program supports development, testing and Fleet approval for evolving generations of affordable, expeditionary Unmanned Underwater Vehicle (UUVs) systems to address validated requirements in support of expeditionary mission areas defined by the Maritime Expeditionary MCM UUV (MEMUUV) Capability Development Document (CDD) approved in September 2017.<br><br>***FY 2021 Plans:***<br>In order to meet Fleet capacity and capability requirements, VIPERFISH MEMUUV development is being accelerated to mitigate risk of future obsolescence of the MK18 platform and to take advantage of advances in UUV technology and modular open systems architecture. Additionally, funding will support the integration of advanced sensor technology in response to a 2019 N9 approved CENTCOM UONS and will support test and evaluation of a compact magnetometer sensor. Investments in autonomy and ATR capabilities will continue in support of VIPERFISH MEMUUV as these efforts show significant promise in increasing system performance and reduced false alarms. The rapid acquisition approach utilized for the development of the next generation VIPERFISH MEMUUVs will form a technologically advanced baseline from which to develop future capabilities to detect, classify and localize high priority threats in meeting mine warfare missions.<br><br>***FY 2022 Base Plans:***<br>Funding moved to PE 0604028N beginning in FY22<br><br>***FY 2022 OCO Plans:***<br>N/A<br><br>***FY 2021 to FY 2022 Increase/Decrease Statement:***<br>Decrease of $15.482M from FY2021 reflects PU 4023 being moved to PE 0604028N beginning in FY22. | | | | | |
| ***Title:*** EOD Response ROVs and Maritime Expeditionary Standoff Response System of Systems | 7.663 | 8.278 | 0.000 | 0.000 | 0.000 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** This program supports development, testing and evaluation of technologies and commercial systems that will provide needed capabilities to EOD and Expeditionary forces in responding to the wide range of underwater threats and operational environments encountered in assigned mission areas to include: confined areas, hulls, piers and pilings to search, classify, map, re-acquire, identify, and neutralize sea and limpet mines and underwater improvised explosive devices.<br><br>***FY 2021 Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>4023 / *Expeditionary Underwater Systems* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|---|---|---|---|---|
| FY21 will continue to investigate and develop, test and evaluate enhancements to the selected MOTS ROV that has been fielded to provide an interim EOD Response capability to operational fleet units. Additionally, development and testing of the first generation MESR systems will continue. Component technologies will be integrated into three specific capability sets: Response Vehicle (RV) systems; standoff command and control modules; Task-Specialized Response Payloads. FY21 efforts will continue to evaluate the operational effectiveness and suitability of the MESR prototypes. Events in FY21 will focus on demonstrating performance in operationally realistic environments to demonstrate compliance with the system performance specification requirements as well as testing emergent technologies and components that will reduce the system's magnetic, acoustic, or other influence signatures.<br>***FY 2022 Base Plans:***<br>Funding for MESR has been transitioned to Project Unit 3447 beginning in FY22.<br>***FY 2022 OCO Plans:***<br>N/A<br>***FY 2021 to FY 2022 Increase/Decrease Statement:***<br>Funding for MESR has been transitioned to Project Unit 3447 beginning in FY22 | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 15.489 | 23.760 | 0.000 | 0.000 | 0.000 |

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

| Line Item | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • OPN/0977(a): *Underwater EOD Program (Cost Code UQ034)* | 0.000 | 4.715 | 1.939 | - | 1.939 | - | - | - | - | - | - |
| • OPN/0977(b): *Expeditionary Mine Countermeasures (ExMCM) (Cost Code UQ038)* | 32.310 | 3.903 | 5.163 | - | 5.163 | - | - | - | - | - | - |
| • OPN/0977 (c): *MK18 Unmanned Underwater Vehicle (MK UUV) (Cost Code UQ040)* | 25.746 | 0.000 | 0.000 | - | 0.000 | - | - | - | - | - | - |
| • OPN/1611: *Expeditionary UUV (Cost Code MU002)* | 0.000 | 32.550 | 17.116 | - | 17.116 | - | - | - | - | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>4023 / *Expeditionary Underwater Systems* |

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

| Line Item | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|

**Remarks**

**D. Acquisition Strategy**

Analysis of Alternatives (AOA) studies are conducted prior to the initiation of new sub-projects. The AOA addresses and emphasizes acquisitions strategies of the most cost-effective solution over the sub-projects' life -cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modifications), non-developmental item (including modifications), and lastly, developmental programs. Contracting for RDT&E, if required is competitive and when feasible, production options are included. This ongoing program capitalizes on a User Operational Evaluation System (UOES) effort involving Fleet operators engaged in tactical experimentation with prototype UUVs prior to fielding baseline systems and capability improvement package increments. These UUV operators also participate in detailed requirements analyses and definition. Operational capabilities with UUVs have been realized at designated operational units, with a competitive acquisition strategy. The addition of enhanced capabilities through an evolutionary acquisition approach to the UUV toolbox is programmed for delivery in accordance with approved CNO requirements and ONR Technology Deployment Agreements (TDAs) which close capability gaps. Further improvements to the toolbox to add basic mine and underwater explosive threats neutralization capabilities will continue to be pursued. A key attribute for these systems is minefield suitability and control of system signatures to counter influence fired ordnance. Influence signatures of subject UUVs will be characterized as a vital component of the acquisition initiatives. Maximum use of innovative contracting mechanisms will be assessed and pursued where applicable and in the best interest of the Navy.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy | | | Date: May 2021 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 4 | R-1 Program Element (Number/Name)<br>PE 0603654N / *JNT Service EOD Development* | Project (Number/Name)<br>4023 / *Expeditionary Underwater Systems* | |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Primary Hardware Development | WR | Multiple Activities : Not Specified | 30.450 | 3.297 | Nov 2019 | 5.358 | Nov 2020 | 0.000 | Nov 2021 | - | | 0.000 | - | - | - |
| Systems Engineering | WR | NSWC Activities : Not Specified | 20.269 | 2.263 | Nov 2019 | 4.410 | Nov 2020 | 0.000 | Nov 2021 | - | | 0.000 | - | - | - |
| Primary Hardware Development | WR | NSWCIHEODTD : Indian Head, MD | 16.238 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | - | - | - |
| Systems Engineering | WR | NSWC, Activities : Not Specified | 28.758 | 2.424 | Nov 2019 | 3.574 | Nov 2020 | 0.000 | Nov 2021 | - | | 0.000 | - | - | - |
| | | **Subtotal** | 95.715 | 7.984 | | 13.342 | | 0.000 | | - | | 0.000 | - | - | N/A |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Technical Support | C/CPFF | PERATON : Herndon, VA | 7.417 | 0.496 | Nov 2019 | 0.519 | Nov 2020 | 0.000 | Nov 2021 | - | | 0.000 | - | - | - |
| | | **Subtotal** | 7.417 | 0.496 | | 0.519 | | 0.000 | | - | | 0.000 | - | - | N/A |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Developmental Test & Evaluation-WR | WR | NSWC Activities : Not Specified | 24.496 | 3.504 | Nov 2019 | 4.676 | Nov 2020 | 0.000 | Nov 2021 | - | | 0.000 | - | - | - |
| Independent T&E | WR | NSWC Activities : Not Specified | 7.859 | 1.784 | Nov 2019 | 1.820 | Nov 2020 | 0.000 | Nov 2021 | - | | 0.000 | - | - | - |
| Developmental Test & Evaluation | WR | NSWC Activities : Not Specified | 12.698 | 1.172 | Nov 2019 | 2.837 | Nov 2020 | 0.000 | Nov 2021 | - | | 0.000 | - | - | - |
| Independent T&E | WR | NSWCIHEODTD : Indian Head, MD | 1.424 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | - | - | - |
| | | **Subtotal** | 46.477 | 6.460 | | 9.333 | | 0.000 | | - | | 0.000 | - | - | N/A |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>4023 / *Expeditionary Underwater Systems* |

**Management Services ($ in Millions)**

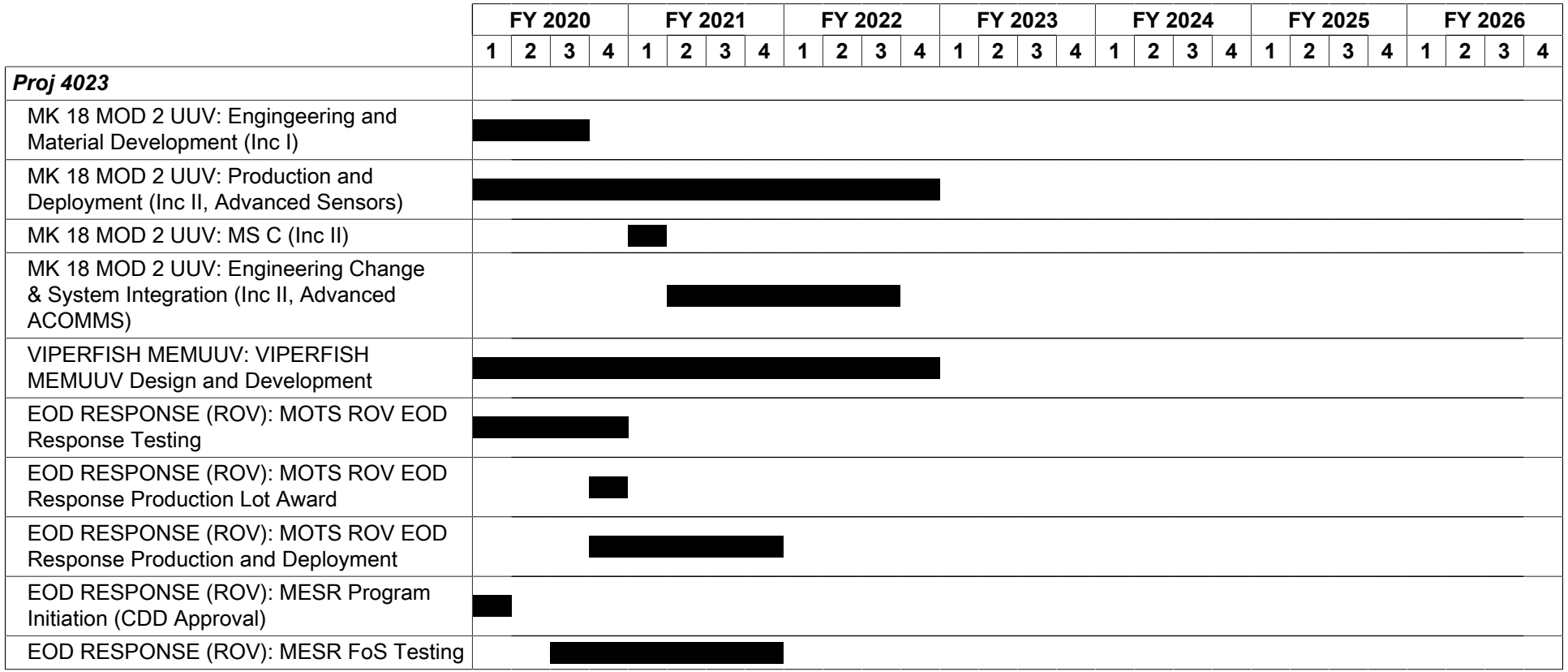
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2020 Cost | FY 2020 Award Date | FY 2021 Cost | FY 2021 Award Date | FY 2022 Base Cost | FY 2022 Base Award Date | FY 2022 OCO Cost | FY 2022 OCO Award Date | FY 2022 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Program Management Support | WR | NSWCIHEODTD : Indian Head, MD | 5.350 | 0.428 | Nov 2019 | 0.344 | Nov 2020 | 0.000 | Nov 2021 | - | | 0.000 | - | - | - |
| Miscellaneous | WR | NSWC Activities : Not Specified | 2.713 | 0.121 | Nov 2019 | 0.222 | Nov 2020 | 0.000 | Nov 2021 | - | | 0.000 | - | - | - |
| DAWDF | Various | Not Specified : Not Specified | 0.018 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | - | - | - |
| | | **Subtotal** | 8.081 | 0.549 | | 0.566 | | 0.000 | | - | | 0.000 | - | - | N/A |

| | Prior Years | FY 2020 | | FY 2021 | | FY 2022 Base | | FY 2022 OCO | | FY 2022 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 157.690 | 15.489 | | 23.760 | | 0.000 | | - | | 0.000 | - | - | N/A |

**Remarks**

FY20 efforts include use of Defense Innovation Unit (DIU) Other Transactional Agreements (OTAs) to support rapid fielding of MOTS EOD response ROVS and Small UUV Next Generation systems.
FY21 efforts include
FY22 efforts

| Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>4023 / *Expeditionary Underwater Systems* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy | | Date: May 2021 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603654N / *JNT Service EOD Development* | **Project (Number/Name)**<br>4023 / *Expeditionary Underwater Systems* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 4023*** | | | | |
| MK 18 MOD 2 UUV: Engingeering and Material Development (Inc I) | 1 | 2020 | 3 | 2020 |
| MK 18 MOD 2 UUV: Production and Deployment (Inc II, Advanced Sensors) | 1 | 2020 | 4 | 2022 |
| MK 18 MOD 2 UUV: MS C (Inc II) | 1 | 2021 | 1 | 2021 |
| MK 18 MOD 2 UUV: Engineering Change & System Integration (Inc II, Advanced ACOMMS) | 2 | 2021 | 3 | 2022 |
| VIPERFISH MEMUUV: VIPERFISH MEMUUV Design and Development | 1 | 2020 | 4 | 2022 |
| EOD RESPONSE (ROV): MOTS ROV EOD Response Testing | 1 | 2020 | 4 | 2020 |
| EOD RESPONSE (ROV): MOTS ROV EOD Response Production Lot Award | 4 | 2020 | 4 | 2020 |
| EOD RESPONSE (ROV): MOTS ROV EOD Response Production and Deployment | 4 | 2020 | 4 | 2021 |
| EOD RESPONSE (ROV): MESR Program Initiation (CDD Approval) | 1 | 2020 | 1 | 2020 |
| EOD RESPONSE (ROV): MESR FoS Testing | 3 | 2020 | 4 | 2021 |