| Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy | Date: April 2022 |
|---|---|
| **Appropriation/Budget Activity**<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)* | **R-1 Program Element (Number/Name)**<br>PE 0604755N *I Ship Self Def (Detect & Cntrl)* |

| COST ($ in Millions) | Prior Years | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | FY 2024 | FY 2025 | FY 2026 | FY 2027 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Program Element | 662.788 | 139.001 | 142.595 | 159.426 | - | 159.426 | 159.410 | 148.305 | 145.301 | 144.303 | Continuing | Continuing |
| 2178: *QRCC* | 603.493 | 129.108 | 127.079 | 145.226 | - | 145.226 | 146.311 | 135.745 | 132.858 | 131.700 | Continuing | Continuing |
| 3172: *Joint Non-Lethal Weapons* | 24.441 | 1.148 | 3.095 | 3.996 | - | 3.996 | 3.484 | 3.152 | 3.210 | 3.271 | Continuing | Continuing |
| 3358: *SSDS Training Improvement Program* | 34.854 | 8.745 | 12.421 | 10.204 | - | 10.204 | 9.615 | 9.408 | 9.233 | 9.332 | Continuing | Continuing |

**Note**

The FY 2023 funding request was reduced by $6.119 million to account for the availability of prior year execution balances.

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

A. Mission Description and Budget Item Justification

This program element provides Aircraft Carriers and Amphibious Class ships Ship Self Defense System (SSDS) MK 2 Combat System upgrades and integrates new equipment and systems to pace the threat and capture advances in technology. Examples of captured advanced technologies are: advanced information assurance and cyber defense; Fire Control Loop Improvement Project (FCLIP); Identification Friend or Foe (IFF) Mode 5 to include Far-Term Interoperability Improvement Project (FTIIP); and other command and control systems, advanced sensors, and weapon integration, all of which require corresponding SSDS MK 2 changes. The program element also includes the SSDS integrated Combat System project for embedded shipboard training, Common Aviation Command and Control System Afloat (CAC2S Afloat) integration, and the Non-Lethal weapons project in support of anti- terrorism/force protection missions.

QRCC project (PU 2178) - implements an evolutionary acquisition of improved ship self-defense capabilities against Anti-Ship Cruise Missiles (ASCMs) and improved multi-warfare capabilities for Aircraft carriers and Amphibious Class ships. SSDS MK 2 integrates a diverse set of fire control loop sensors and weapons (SPY-6(V)2, SPY-6(V)3, SLQ-32(V)6 SEWIP, RAM Block 2A/2B, ESSM Block 2, CIWS) and C4I systems (CANES) for each ship class (CVN68/78, LHA6, LHD1, LPD17, and LSD 41/49). SSDS MK 2 provides combat direction, and joint interoperability via the Cooperative Engagement Capability (CEC) Increment 1 and 2 and Tactical Digital Information Link (TADIL)-J/Link 16. System design emphasizes commonality and a single source software library that are major mechanisms for cost control and avoidances. SSDS uses a physically distributed, open system architecture computer network consisting of common hardware such as the Common Processor System (CPS) and the Common Display System (CDS). SSDS MK 2 integrates new combat system war-fighting capabilities and improvements, as well as DoD and Navy-mandated enhanced cybersecurity capabilities via incremental capability packages and computing infrastructure (previously Technology Insertion (TI)) improvement deliveries. Capabilities beyond SSDS Build 12 will begin to transition to development to third party software developers and a common Software construct. PU 2178 efforts are divided into two major functional areas: SSDS Product Development/Combat Systems Integration, and Test and Evaluation/Certification.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy | Date: April 2022 |
|---|---|
| **Appropriation/Budget Activity**<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)* | **R-1 Program Element (Number/Name)**<br>PE 0604755N *I Ship Self Def (Detect & Cntrl)* |

Joint Non-Lethal Weapons (PU 3172) - provides a long range laser warning and dazzle system, maritime vessel stopper (MVS) system, and combined effects (light, laser, and sound) system for use in the maritime environment. Optical warning and distraction has been identified by the services as a possible technology solution to mitigate and/or address several known joint nonlethal capability gaps.

Visual Augmentation Systems (VAS) supports research, development, and testing of material solutions for VAS capability gaps encountered during missions in combat zones. Expeditionary force lacks the ability to detect and recognize potential threat craft at the maximum possible range and at the earliest time in all-weather environments during day and night. In addition, the warfighter needs the ability to record both audio/video encounters and incidents for after action reporting

SSDS Training Improvement Program (PU 3358) - provides enhancements and upgrades to the SSDS Total Ship Training Capability (TSTC) components within the combat system, combat system elements, Battle-Force Tactical Training (BFTT), and Advanced Training Domain (ATD), to address needs for increased training capability and functionality in conjunction with SSDS MK 2 capability improvements, IFF Mode 5 (to include FTIIP), Task Force Cyber Awakening (TFCA) Boundary Defense Capability (BDC), and Technical Insertion efforts under PU 2178 (QRCC). These enhancements will address current and future training requirements by implementing new functionality to enable the individual warfighter, through distributed battle group events, to engage in more complex training scenarios to support fleet required training certification events. Capability Development and integration are related to Self Defense, Underwater, Surface, and other warfare areas. Capability enhancements and upgrades include development of re-useable common components that can be leveraged by other combat systems, and/or integration of re-usable common components developed by the TSTC/BFTT Program and AEGIS Advanced Training Domain (ATD)/Total Ship Training Capability (TSTC) projects to meet AEGIS combat system training requirements. TSTC continues to integrate and update, as new tactical capabilities are being introduced, to enable crew operator proficiency training for basic and sustainment level training events, through distributed strike group certification, fleet synthetic training (FST) events, and including COMPTUEX FST at sea integration into a Live, Virtual and Constructive (LVC) environment. Continued development is required to integrate new capabilities and interfaces to provide training for SSDS combat system capability upgrades, and to address the Fleet's LVC Fleet Training Wholeness initiative. Additionally, modernization is needed to support the DoD Training Transformation Plan, the Chief of Naval Operations Fleet Response Plan and Commander United States Fleet Forces Command Fleet Readiness Training Plan.

| B. Program Change Summary ($ in Millions) | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 153.532 | 149.433 | 0.000 | - | 0.000 |
| Current President's Budget | 139.001 | 142.595 | 159.426 | - | 159.426 |
| Total Adjustments | -14.531 | -6.838 | 159.426 | - | 159.426 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | -6.838 | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -10.000 | 0.000 | | | |
| • SBIR/STTR Transfer | -4.531 | 0.000 | | | |
| • Program Adjustments | 0.000 | 0.000 | 0.000 | - | 0.000 |
| • Rate/Misc Adjustments | 0.000 | 0.000 | 0.000 | - | 0.000 |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy | | | | | Date: April 2022 |
|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)* | | | R-1 Program Element (Number/Name)<br>PE 0604755N *I Ship Self Def (Detect & Cntrl)* | | |
| • Adjustments to Budget Year | - | - | 159.426 | - | 159.426 |

**Change Summary Explanation**

FUNDING CHANGES SINCE THE PREVIOUS PRESIDENT'S BUDGET AT THE OVERALL PE LEVEL:
- FY 2021 net decrease of -$4.531M for the Small Business Innovative Research (SBIR) transfer and 10M for OMNIBUS reprogramming

- FY 2022 No change

The FY 2023 PU 2178 increase of $18.147M from FY 2022 to FY 2023 provides for increased efforts associated with transition to Common Computing infrastructure and Common Software construct development efforts and slight increase in required testing in FY2023. As well as the CAC2S Afloat design, development, integration, test, and certification efforts for the Shipboard C5I efforts.

The FY2023 PU 3172 increase of $.901M provides funding supports successful transition from lab level research to acquisition capability for production and deployment of Maritime Vessel Stopping (MVS) Production and Assembly of Synthetic Slime (PASS).

The FY 2023 PU 3358 decrease of -$2,217 from FY 2022 to FY 2023 is due to completion of ASW, SLQ-32, and CIWS simulation capability, as well as Total Force Management Reduction of -$0.044M and NWCF PB-23 RATE ADJUSTMENTS -$.010

R-4 PROGRAM SCHEDULE CHANGES:
The FY 2023 PU 2178 and PU 3358 Program Schedule R4 changes Reflect the transition to the Common Computing Infrastructure and Common Software Constructs. The schedules were updated to provided more details on the tasking to be accomplished, no new work was added. The additional details are the Integrated Combat System ICS Systems Engineering PI events and Common Software Epic events.

The FY 2024 PU 3172 program schedule change reflects the determination that Maritime Vessel Stopping Occlusion Technology (MVSOT) interim solution of Drogue systems was deemed insufficient to meet requirements. The current schedule shows the intent to release an RFP for the Production and Assembly of Synthetic Slime (PASS) to meet MVS requirement.
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FY 2023 funding increase reflects the fact that the FY 2022 President’s Budget request did not include out-year funding.

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy | | | Date: April 2022 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 5 | R-1 Program Element (Number/Name)<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | Project (Number/Name)<br>2178 / *QRCC* | |

| COST ($ in Millions) | Prior Years | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | FY 2024 | FY 2025 | FY 2026 | FY 2027 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2178: *QRCC* | 603.493 | 129.108 | 127.079 | 145.226 | - | 145.226 | 146.311 | 135.745 | 132.858 | 131.700 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

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

A. Mission Description and Budget Item Justification

The FY 2023 funding request for Project 2178 was reduced by $5.418M to account for availability of prior year execution balances.

The QRCC project (PU 2178) implements an evolutionary acquisition of improved ship self-defense capabilities against Anti-Ship Cruise Missiles (ASCMs), and improved multi-warfare capabilities, for Aircraft Carriers and Amphibious Class ships. SSDS MK 2 integrates a diverse set of fire control loop sensors and weapons and C4I systems for each ship class (CVN68/78, LHA6, LHD1, LPD17, and LSD41/49). SSDS MK 2 provides combat direction, and joint interoperability via the Cooperative Engagement Capability (CEC) and Tactical Digital Information Link (TADIL)-J/Link 16. System design emphasizes commonality and a single source software library that are major mechanisms for cost control and avoidances. SSDS uses a physically distributed, open system architecture computer network consisting of common hardware such as the CPS/CDS. SSDS MK 2 integrates new combat system war-fighting capabilities and improvements via incremental capability packages and computing infrastructure (previously Technology Insertion) improvement deliveries. PU 2178 efforts are divided into two major functional areas: SSDS Product Development/ Combat Systems Integration, and Test and Evaluation/Certification.

SSDS Product Development encompasses systems engineering efforts, technology and capability insertion/integration, and cyber-security, including the development and integration of SSDS Build 10 with the required Technology Insertion TI12/12H computing and display configuration and the development and integration of SSDS Build 12 with the required TI16 computing and display configuration. SSDS Product Development will provide warfighter upgrades including implementation of common software components for System Track Management; integration of CPS and CDS; expansion of SSDS MK 2 Local Area Network (LAN) to a Combat System LAN; integration of new Combat System/C4I elements (SPY-6(V)2, SPY-6(V)3, SLQ-32(V)6 SEWIP, RAM Block 2A/2B, ESSM Block 2, CIWS, and CANES); implementation of shared, inheritable CS-level cybersecurity capabilities and Total Ship Training Capability. Capabilities beyond SSDS Build 12 will begin to transition to development to third party software developers and a Common Software construct.

SSDS Build 10 is fielded on CVN 78, CVN 72, LHD 2, LSD 46 and LHD 6. CVN 72 and LHD 2 have completed ship deployments; CVN 78 Completed ship operational testing and combat system ship qualification trails. LSD 46 and CVN 70 completed the first installation of the TI-12H hardware configuration, CVN 70 and CVN 72 completed combat system ship qualification trials. To improve efficiency and reduce SW build proliferation, the SSDS design is migrating an initial release of Build 12 with Advanced Training Domain capability to the TI-16 hardware configuration for initial installation on the CVN 73. SSDS Build 12 development will continue with additional releases to implement SSDS improvements to integrate the SPY-6 variants, ESSM Block 2, SEWIP Softkill Coordination Subsystem (SKCS) and Global Positioning System (GPS) based Positioning, Navigation, and Timing Service (GPNTS) and includes system engineering, critical experiments, software development, operating environment, cyber-security software, hardware/software integration, factory qualification testing, land-based engineering testing, system/software Test, Analyze, and Fix (TAAF) effort in support of CS, logistics products and ashore training course development. FY 2022/2023 includes completing transition to production

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>2178 / *QRCC* |

for the next SSDS hardware configuration, establishing a Common Computing Infrastructure allowing for targeted obsolesce and computing scaling upgrades vice wholesale modernization for ships so equipped. Capability development beyond SSDS Build 12 begins to explore utilization of a Common Software construct for development activities and scales with development capacity availability in FY 2023.

For Cybersecurity, initiatives under PU 2178 will provide the SSDS MK 2 Combat System (CS) layered protect and detect functionality and will introduce critical response functionality to respond to and recover from cyber-attacks. SSDS Cybersecurity is a phased multi-year effort to define, develop, and integrate DoD and Navy mandated enterprise Combat System cybersecurity solutions. Beginning in FY 2022 and continuing in FY 2023, SSDS begins collaborating to establish enterprise cyber accreditation processes for continuous and persistent certifications of hardware and software developed within a common software development environment. These solutions enhance the cybersecurity framework pillars of Identify, Protect, React, and Restore and expand force level cyber defense capabilities for the Carrier and Amphibious Fleet against actions by sophisticated adversaries.

System engineering efforts for Joint Strike Fighter (JSF) F35B&C integration Onboard LHA, LHD and CVN Class ships will provide improved F35 interoperability via Link 16 and integration of the Target Package Generator (TPG), a NAVAIR application. Systems engineering efforts will also provide improved land domain command and control for the Amphibious Readiness Group/Marine Air Ground Task Force (ARG/MAGTF) commanders and staffs through integration of USMC Common Aviation Command and Control System (CAC2S) program of record with LHA/LHD SSDS combat System. CAC2S Afloat also provides access to Variable Message Format (VMF) communications network and provides both Maritime and Land Situational Awareness for the ARG/MAGTF commanders and Ship Self Defense System operators.

Combat System Integration under PU 2178 encompasses Combat System (CS) System-of-Systems modeling and simulation, system analysis/engineering (including Model-Based System Engineering), and system/software development for integration of sensors, weapons and C4I systems with SSDS MK 2 in Aircraft Carrier and Amphibious Class Ships. It also provides the system of systems engineering and development/integration of continued fire control loop improvements beyond FCLIP Phase 2 for tracking, weapon scheduling and engagement control with ESSM Block 2 missile; SEWIP Block 2 Soft kill Coordination Subsystem (SKCS), along with additional capability integration for GPNTS, and RAM Block 2B. (Integration of SEWIP Block 3 Electronic Attack has been deferred due to deferral of SEWIP Block 3 fielding to CVNs.)
FTIIP is the second phase of the corrective action plan for the resolution of the strike group interoperability issues. FTIIP includes implementation of Tactical Data Link (TADIL) IFF Mode 5 identification capabilities, F/A-18 Digital Air Control (Phase 1) in support of F/A-18 and F-35 Joint Strike Fighter initial deployment, integration of the Shipboard Gridlock System/ Automatic Correlation (SGS/AC) system into the SSDS MK2 TI-16 configuration, and implementation of other high priority software.

CAC2S Afloat-SSDS integration provides capability to directly network with F-35, F/A-18 E/F, E/A-18G (and other joint tactical aircraft) and to downlink aircraft track and target data for enhanced command and control and force mission execution. It also provides a means to provide realtime aircraft mission status (weapons deployment, battle damage assessment, mission status, flight data and activity, communication channels, fuel state, time on station) and execution information at multiple locations onboard all networked ships and shore sites for force coordination of mission activity and coordination of remote fires for over the horizon (OTH) weapons. Ultimately, this integration effort will enable the ARG/MAGTF the ability to properly execute expeditionary advanced base operation and operate in a contested littoral environment. CAC2S Afloat integration encompasses system analysis/engineering, and system/software development for integration of multiple shipboard C5I system interfaces to include interfaces to GCCS-M, DCGS-N, JADOCS, TBMCS, SSDS, and the OTH Missile Launching System (OTH MLS).

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntr l)* | **Project (Number/Name)**<br>2178 / *QRCC* |

Test and Evaluation/Certification under PU 2178 encompasses SSDS MK 2 Developmental Test and Evaluation (DT&E) providing for comprehensive testing and certification of the integrated CS for the CVN 68, CVN 78, LPD 17, LHD1, LHA 6 and LSD41/49 ship classes. This includes Land-Based testing at Wallops Island and At-Sea testing for the lead ships for the new CS configurations, and Live Fire testing on the Self-Defense Test Ship (SDTS) and land-based and shipboard cyber testing. The DT&E encompasses test planning, preparation, test conduct, data collection and analysis, and resolution and verification of deficiency corrections. The SSDS MK 2 T&E/Certification supports Combat System certification, the SSDS Test and Evaluation Master Plan (TEMP) execution and the Air Warfare Ship Self Defense CAPSTONE Enterprise TEMP execution which includes continuation of DT and FOT&E events for the CVN 78 SSDS MK 2 Mod 6C configuration with the DBR, SEWIP Block 2 ES, ESSM Block 1 with JUWL up-link, and RAM Block 2.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total |
|---|---|---|---|---|---|
| ***Title:*** SSDS MK2 Product Development/Combat Systems Integration | 101.947 | 104.000 | 121.825 | 0.000 | 121.825 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2022 Plans:***<br>For Build 12<br>-Continue/start systems engineering efforts for the following capability insertions, to include requirements development/updates, use cases, trade studies, and conduct SETR events as required:<br>+AN/SPY-6(V)2/3 integration, including CVN 74<br>+ RAM Block 2B<br>+ GPNTS/GEDMS<br>+ CAC2S-SSDS-NSM<br>+ Engage on Remote Advanced RAM Defensive Capability integration<br>+ Common Display Architecture design<br>-Continue/start integration/lifecycle engineering efforts in support of the following capability insertions:<br>+ AN/SPY-6(V)2/3 integration, including CVN 74<br>+ AN/SLQ-32(V)7 (Electronic Warfare Improvement)<br>+ RAM Block 2B<br>+ GPNTS/GEDMS<br>+ CAC2S-SSDS-NSM<br>+ CEC Underway Training/Live Virtual Construct<br><br>-Continue Build 12 Integrated Combat System integration engineering activities.<br><br>-Provide required Build 12 CP 2 TAAF to support CVN 71, LHD 7, and LPD 17 ship installation, test and certification events | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>2178 / *QRCC* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total |
|---|---|---|---|---|---|
| -Continue systems and software test and certification efforts for improved integration of CAC2S with one way interface with SSDS<br><br>-Complete CAC2S Afloat Flight 0+, initiate Flight 1 development and deployment bringing Naval Digital Aircraft Control capability for deployment, increased lethality of the JSF, and embarked MEU.<br><br>-Continue designing, developing and implementing Cybersecurity capability improvements to secure the combat system enclave.<br><br>-Complete the initial SSDS Build 12 cybersecurity phasing, implementation, development, and integration efforts with CSEA.<br><br>-Continue CAC2S Afloat design, development, integration, test, and certification efforts for the Shipboard C5I interfaces in support of Long Range Surface Warfare (LRSUW) including SSDS, OTH MLS (Afloat) and NMESIS (Ashore) for deployment of the Naval Strike Missile [NSM], AFATDS for Blue/Green "Call for Fires", TBMCS for missile fly-out corridors, DCGS-N for additional intel and track characteristics and performance data, AN/PRC-158 direct VMF interface for Joint land target coordination, IBS and Minotaur (receive-only) for track data, and JADOCS for targeting and fires coordination).<br>***FY 2023 Base Plans:***<br>For Build 12+<br>-Continue/start systems engineering efforts for the following capability insertions, to include requirements development/updates, use cases, trade studies, and conduct SETR events as required:<br>-RAM Block 2B<br>-Common Display Architecture<br>-SSDS containerization and merge with the Integrated Combat System (ICS)<br>-Integration of ICS applicable Battle Decision Aids<br><br>-Complete Design and Development of CAC2S Afloat with one way interface with SSDS<br><br>-Continue/Complete CAC2S Afloat design, development, integration, test, and certification efforts for the Shipboard C5I interfaces in support of Long Range Surface Warfare (LRSUW) including SSDS, OTH MLS/ | | | | | |

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|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>2178 / *QRCC* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total |
|---|---|---|---|---|---|
| NMESIS, IBS, Minotaur (two-way interface), DCGS-N, TBMCS-R, JADOCS Next, CEC and AN/PRC-158 direct VMF interface.<br><br>-Continue integration/lifecycle engineering efforts in support of the following capability insertions:<br>+ AN/SPY-6(V)2/3 integration, including CVN 74<br>+ AN/SLQ-32(V)7 (Electronic Warfare Improvement)<br>+ GPNTS/GEDMS<br>+ CAC2S-SSDS-NSM<br><br>-Continue Build 12 Integrated Combat System integration engineering activities.<br>-Provide required Build 12 CP 3 TAAF to support CVN 79, LHA 8, and LPD 29 and LHD 3 ship installation, test and certification events.<br>-Conduct and complete CCI configuration transition to production activities.<br><br>-Continue designing, developing and implementing Cybersecurity capability improvements to secure the combat system enclave.<br>***FY 2023 OCO Plans:***<br>N/A<br>***FY 2022 to FY 2023 Increase/Decrease Statement:***<br>The FY2022 to FY2023 increase (+$10.987M) is due to increased efforts associated with transition to Common Computing infrastructure and Common Software construct development efforts. As well as the CAC2S Afloat design, development, integration, test, and certification efforts for the Shipboard C5I efforts | | | | | |
| ***Title:*** SSDS MK2 Development Test & Evaluation | 27.161 | 23.079 | 23.401 | 0.000 | 23.401 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2022 Plans:***<br>FY 2022 Base Plans:<br>For SSDS MK 2 Build 12<br>-Conduct USS Secure Testing: Vulnerability Regression Test 1<br>-Conduct Build 12 Capability package 1 Combat systems software engineering and certification tests in support of ATD capability integration for CVN 73 and LPD 28<br>-Continue Build 12 Cyber Table Top (CTT) for Capability Packages 2/3 | | | | | |

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| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>2178 / *QRCC* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total |
|---|---|---|---|---|---|
| -Complete Build 12 Capability Package 2 FSIT and FQT.<br>-Continue Combat System Integration Test (CSIT) at SCSC for Objective Quality Evidence for ICS software package for CVN 73 certification<br>-Conduct Combat System Integration Test (CSIT) at SCSC for Objective Quality Evidence for ICS software package for 12.13.03 software CVN 71/72 certification<br>-Conduct delta Combat System Integration Test (CSIT) at SCSC for Objective Quality Evidence for ICS software package for 12.13.03 LHD 7 & LPD 17/23/28 certification For SSDS Build 10<br>-Conduct Combat System Integration Test (CSIT) at SCSC for Objective Quality Evidence for CS software package for LHD2 for SSDS Build 9<br>-Conduct Combat System Integration Test (CSIT) at SCSC for Objective Quality Evidence for 9.08.06 CS for SSDS Build 6<br>-Completed Combat System Integration Test (CSIT) at SCSC for Objective Quality Evidence for 6.06.04 CS | | | | | |
| ***FY 2023 Base Plans:***<br>-Complete Build 12 Capability Package 3 FSIT and conduct Capability Package 3/4 FQT<br>-Conduct Build 12 Capability Package 3 Land Based Testing for CVN 71- SVR, PCP and CSCP. LHD 7 LBTs-CSITs .<br>-Conduct Capability Package 3 Land Based Testing for LHA 8 configurations- SIEs, FSIT, CSIT LBT for LHA 3-CSIT.<br>-Conduct Land Based Testing CP 4 for CVN 79- SIE, CSIT,LBDT<br>-Conduct USS Secure Testing: Cooperative Vulnerability Identification event on CP3/4<br>-Continue Build 12 Cyber Table Top (CTT) for Capability Packages 3/4<br><br>- Complete Test and certification of CAC2S Afloat - SSDS one way interface<br><br>For SSDS Build 10<br>-Conduct USS Secure Testing: CVN78 Cyber OT: Cooperative Vulnerability Penetration Assessment (CVPA) and Adversarial Assessment (AA) at Wallops Island | | | | | |
| ***FY 2023 OCO Plans:***<br>N/A | | | | | |
| ***FY 2022 to FY 2023 Increase/Decrease Statement:*** | | | | | |

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|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>2178 / *QRCC* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total |
|---|---|---|---|---|---|
| The FY2022 to FY2023 Increase (+0.322M) is due to slight increase in required testing in FY2023 | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 129.108 | 127.079 | 145.226 | 0.000 | 145.226 |

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

| Line Item | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | FY 2024 | FY 2025 | FY 2026 | FY 2027 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • OPN/ BLI 5231 (SSDS): *SSDS* | 92.243 | 89.544 | 95.166 | - | 95.166 | 102.115 | 103.749 | 100.381 | 102.505 | Continuing | Continuing |
| • RDTEN/0607658N: *Cooperative Engagement Capability* | 129.578 | 162.676 | 156.121 | - | 156.121 | 175.794 | 172.696 | 163.794 | 165.554 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

D. Acquisition Strategy

A sole source follow-on Cost Plus Incentive Fee (CPIF) Level of Effort (LOE) contract, N00024-14-C-5128, was awarded 18 December 2013 with a Period of Performance (PoP) from FY14-FY17 for the development, test, certification of SSDS MK2 (ACB 12/TI-12) for CVN78, CVN72, LHD2, and the software migration of ACB 12 to TI-12H/TI-16 for CVN 68, LHD 1, LPD 17 ship classes. This contract was extended to June 2020 and an additional extension to Q2 FY21 is planned to provide continued support of the SSDS MK 2 to complete the contract scope requirements for CVN and Amphibious ship Modernization ACB 12 on TI-12 and TI-12H (SSDS Software Build 10).

The competitive contract for the SSDS Combat System Engineering Agent (CSEA)/Software Design Agent (SDA) was awarded in FY 2019 with a ten (10)-year PoP from FY19-FY29. This contract provides support for the Aircraft Carrier and Amphibious Ship Class SSDS Combat System (CS) element development of SSDS Software Build 12 and follow-on technology upgrades based on the evolution of the SSDS MK 2 Combat Systems Build 10 (ACB 12/TI-12/TI-12H). The current requirements include systems and software engineering support, development of engineering products to support combat system integration, configuration control, developmental test/operational test (DT/OT) support, training and logistics support, and field technical support for the SSDS ICS.

For SSDS MK2 TI-12H/TI-16 hardware, the SSDS program uses competitive build-to-specification production contracts, and leverages common enterprise COTS products for computing, storage, display, network, conversion, and cyber security. SSDS Common Computing Infrastructure will utilize an Other Transaction Agreement vehicle to prototype and transition to production equipment for ship installations.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>2178 / *QRCC* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2021 Cost | FY 2021 Award Date | FY 2022 Cost | FY 2022 Award Date | FY 2023 Base Cost | FY 2023 Base Award Date | FY 2023 OCO Cost | FY 2023 OCO Award Date | FY 2023 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PD - Build 12//TI-16 - SW Dev CSEA | C/CPIF | CSEA Contract : Moorestown, NJ | 3.543 | 21.186 | Dec 2020 | 25.838 | Dec 2021 | 23.865 | Dec 2022 | - | | 23.865 | 0.000 | 74.432 | - |
| PD - Build 12/TI-16 - SE Spt | C/CPFF | JHU/APL : Laurel, MD | 0.632 | 3.250 | Dec 2020 | 3.250 | Dec 2021 | 1.831 | Dec 2022 | - | | 1.831 | Continuing | Continuing | Continuing |
| PD - Build 12//TI-16/Trng Course/Dev | WR | NSWC PHD : Pt Hueneme, CA | 1.082 | 0.950 | Nov 2020 | 0.450 | Nov 2021 | 0.253 | Nov 2022 | - | | 0.253 | Continuing | Continuing | Continuing |
| PD - Build 12//TI-16/ Metrics/On Site spt | WR | NSWC Corona : Corona, CA | 0.000 | 0.589 | Nov 2020 | 0.500 | Nov 2021 | 0.282 | Nov 2022 | - | | 0.282 | Continuing | Continuing | Continuing |
| PD - Build 12//TI-16 - SE spt | WR | NSWC DD : Dahlgren, VA | 0.457 | 4.175 | Nov 2020 | 4.000 | Nov 2021 | 2.254 | Nov 2022 | - | | 2.254 | Continuing | Continuing | Continuing |
| PD - Build 12//TI-16-SE spt | C/CPFF | Gryphon : Washington, DC | 0.000 | 1.450 | Dec 2020 | 1.250 | Dec 2021 | 0.704 | Nov 2022 | - | | 0.704 | Continuing | Continuing | Continuing |
| PD - Cyber Resiliency / BDC REQT & ENG | SS/CPFF | JHU/APL : Laurel, MD | 7.757 | 4.400 | Nov 2020 | 3.500 | Nov 2021 | 1.972 | Nov 2022 | - | | 1.972 | Continuing | Continuing | Continuing |
| PD - Cyber Resiliency / BDC HW EDM | WR | CDSA DN : Dam Neck, VA | 0.864 | 0.568 | Oct 2020 | 0.750 | Oct 2021 | 0.423 | Oct 2022 | - | | 0.423 | Continuing | Continuing | Continuing |
| PD - Cyber Resiliency / BDC ILS | WR | NSWC PHD : Port Hueneme, CA | 1.107 | 0.513 | Oct 2020 | 0.225 | Oct 2021 | 0.127 | Oct 2022 | - | | 0.127 | Continuing | Continuing | Continuing |
| PD - Cyber Resiliency / BDC SEIT | C/CPIF | Gryphon/DELTA : Washington DC | 1.732 | 0.900 | Nov 2020 | 1.000 | Nov 2021 | 0.563 | Nov 2022 | - | | 0.563 | Continuing | Continuing | Continuing |
| PD - Cyber Resiliency / BDC CSEA | C/CPIF | CSEA Contract : Moorestown NJ | 21.932 | 15.041 | Oct 2020 | 8.552 | Dec 2021 | 4.817 | Oct 2022 | - | | 4.817 | Continuing | Continuing | Continuing |
| PD - Cyber Resiliency / BDC CSTK DEV'T | C/CPIF | Progeny Systems Corp : Manassas, VA | 8.325 | 1.000 | Oct 2020 | 1.100 | Oct 2021 | 0.620 | Oct 2022 | - | | 0.620 | Continuing | Continuing | Continuing |
| PD-Cyber Resiliency / BDC SE | WR | NSWC - DD : Dahlgren, VA | 5.078 | 1.371 | Oct 2020 | 1.439 | Oct 2021 | 0.811 | Oct 2022 | - | | 0.811 | Continuing | Continuing | Continuing |
| PD - TI-16TR/TI22 - HW Engineering | C/CPFF | Gryphon : Washington DC | 0.682 | 1.525 | Nov 2020 | 1.575 | Nov 2021 | 0.887 | Nov 2022 | - | | 0.887 | Continuing | Continuing | Continuing |
| PD - TI-16TR/TI22 -HW Engineering | WR | NSWC-DD : Dalhgren, VA | 15.689 | 7.189 | Oct 2020 | 7.250 | Oct 2021 | 4.084 | Nov 2022 | - | | 4.084 | Continuing | Continuing | Continuing |
| PD - HQ Travel | Various | PEO IWS : Washington DC | 0.845 | 0.178 | Dec 2020 | 0.200 | Dec 2021 | 0.113 | Nov 2022 | - | | 0.113 | Continuing | Continuing | Continuing |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy | | | Date: April 2022 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 5 | R-1 Program Element (Number/Name)<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | Project (Number/Name)<br>2178 / *QRCC* | |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2021 Cost | FY 2021 Award Date | FY 2022 Cost | FY 2022 Award Date | FY 2023 Base Cost | FY 2023 Base Award Date | FY 2023 OCO Cost | FY 2023 OCO Award Date | FY 2023 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PD - F35B Integration / LHA / LHD | C/CPFF | JHU/APL : Laurel, MD | 7.915 | 1.952 | Nov 2020 | 1.906 | Nov 2021 | 1.074 | Nov 2022 | - | | 1.074 | Continuing | Continuing | Continuing |
| PD - F35B Integration / LHA / LHD | WR | NSWC DD : Dalhgren, VA | 10.643 | 1.559 | Oct 2020 | 2.000 | Oct 2021 | 1.821 | Nov 2022 | - | | 1.821 | Continuing | Continuing | Continuing |
| PD - F35B Integration / LHA / LHD | C/CPIF | SEI&T : Washington DC | 3.846 | 0.350 | Dec 2020 | 0.400 | Dec 2021 | 0.360 | Nov 2022 | - | | 0.360 | Continuing | Continuing | Continuing |
| PD - F35B/C - ICS Link 16 Integration | C/CPFF | JHU/APL : Laurel, MD | 2.282 | 1.952 | Nov 2020 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| PD - F35B Integration / LHA / LHD | TBD | PEO LS : Quantico, VA | 8.432 | 3.100 | Dec 2020 | 2.100 | Dec 2021 | 1.905 | Nov 2022 | - | | 1.905 | Continuing | Continuing | Continuing |
| PD - F35B/C - ICS Link 16 Integration | WR | NSWC DD : Dalhgren, VA | 2.931 | 1.191 | Oct 2020 | 1.250 | Oct 2021 | 0.704 | Nov 2022 | - | | 0.704 | Continuing | Continuing | Continuing |
| PD - F35B Integration / LHA / LHD | C/CPIF | CSEA : Moorestown NJ | 6.002 | 3.127 | Oct 2020 | 2.888 | Oct 2021 | 1.627 | Nov 2022 | - | | 1.627 | Continuing | Continuing | Continuing |
| PD - F35B/C - ICS Link 16 Integration | C/CPIF | SEI&T : Washington DC | 1.182 | 0.685 | Dec 2020 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| PD - F35B Integration / LHA / LHD | TBD | PEO C4I : San Diego, CA | 1.435 | 2.000 | Dec 2020 | 1.250 | Dec 2021 | 1.159 | Nov 2022 | - | | 1.159 | Continuing | Continuing | Continuing |
| PD - PM Prod Development | C/CPIF | various : various | 42.523 | 3.100 | Dec 2020 | 3.300 | Dec 2021 | 1.859 | Nov 2022 | - | | 1.859 | Continuing | Continuing | Continuing |
| CSI - Build 12 (Less SPY-6 Var) - SE | WR | NSWC DD : Dalhgren, VA | 15.669 | 2.226 | Oct 2020 | 3.000 | Oct 2021 | 1.690 | Nov 2022 | - | | 1.690 | Continuing | Continuing | Continuing |
| CSI - Build 12 (Less EASR) - SEI&T | C/CPFF | Gryphon : Washington DC | 7.251 | 0.452 | Dec 2020 | 0.500 | Dec 2021 | 0.282 | Nov 2022 | - | | 0.282 | Continuing | Continuing | Continuing |
| CSI - Build 12 (Less SPY-6 Var) - SE | SS/CPFF | JHU/APL : Laurel, MD | 14.446 | 1.050 | Nov 2020 | 3.250 | Nov 2021 | 1.830 | Nov 2022 | - | | 1.830 | Continuing | Continuing | Continuing |
| CSI - Build 12 (Less SPY-6 Var) - SE | C/CPIF | CSEA Contract : Moorestown NJ | 17.330 | 2.357 | Oct 2020 | 4.358 | Dec 2021 | 2.455 | Nov 2022 | - | | 2.455 | Continuing | Continuing | Continuing |
| CSI - FTIIP - SE | WR | NSWC-DD : Dahlgren, VA | 7.324 | 2.750 | Oct 2020 | 1.500 | Oct 2021 | 0.845 | Nov 2022 | - | | 0.845 | Continuing | Continuing | Continuing |
| CSI - FTIIP - SE | WR | CDSA DN : Dam Neck, VA | 0.616 | 0.613 | Oct 2020 | 0.500 | Oct 2021 | 0.282 | Nov 2022 | - | | 0.282 | Continuing | Continuing | Continuing |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy | | | Date: April 2022 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 5 | R-1 Program Element (Number/Name)<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | Project (Number/Name)<br>2178 / *QRCC* | |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2021 Cost | FY 2021 Award Date | FY 2022 Cost | FY 2022 Award Date | FY 2023 Base Cost | FY 2023 Base Award Date | FY 2023 OCO Cost | FY 2023 OCO Award Date | FY 2023 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CSI - FTIIP - SE | WR | NSWC PHD : Port Hueneme, CA | 0.671 | 1.025 | Oct 2020 | 1.000 | Oct 2021 | 0.563 | Nov 2022 | - | | 0.563 | Continuing | Continuing | Continuing |
| CSI - FTIIP - SEI&T | C/CPFF | Gryphon : Washington DC | 5.012 | 1.150 | Dec 2020 | 1.150 | Dec 2021 | 1.049 | Nov 2022 | - | | 1.049 | Continuing | Continuing | Continuing |
| CSI - ICS SE - SEI&T | C/CPFF | Gryphon : Washington DC | 7.748 | 1.750 | Dec 2020 | 1.250 | Dec 2021 | 0.704 | Nov 2022 | - | | 0.704 | Continuing | Continuing | Continuing |
| CSI - ICS SE | SS/CPFF | JHU/APL : Laurel, MD | 8.753 | 1.250 | Nov 2020 | 1.500 | Nov 2021 | 0.845 | Nov 2022 | - | | 0.845 | Continuing | Continuing | Continuing |
| CSI - SPY-6 Var / ERS SE | C/CPIF | CSEA Contract : Moorestown NJ | 11.233 | 4.023 | Oct 2020 | 5.295 | Oct 2021 | 2.983 | Nov 2022 | - | | 2.983 | Continuing | Continuing | Continuing |
| CSI - SPY-6 Var / ERS SE | WR | NSWC PHD : Port Huneme, CA | 1.285 | 0.000 | | 0.339 | Nov 2021 | 0.191 | Nov 2022 | - | | 0.191 | Continuing | Continuing | Continuing |
| CSI - SPY-6 Var / ESS SE | SS/CPFF | JHU/APL : Laurel, MD | 7.922 | 0.000 | | 0.568 | Dec 2021 | 0.320 | Nov 2022 | - | | 0.320 | Continuing | Continuing | Continuing |
| CSI - SPY-6 Var / ESS SE | WR | NSWC DD : Dalhgren, VA | 10.825 | 0.000 | | 1.832 | Nov 2021 | 1.032 | Nov 2022 | - | | 1.032 | Continuing | Continuing | Continuing |
| CSI - SPY-6 Var / ESS / SEI&T | C/CPFF | Gryphon : Washington DC | 9.074 | 0.000 | | 1.600 | Dec 2021 | 0.901 | Nov 2022 | - | | 0.901 | 0.000 | 11.575 | - |
| PD - ACB12/TI-16/TI12H - Navy Link Cert/Cross-Domain Sprt | WR | SPAWAR : San Diego, CA | 0.326 | 0.000 | | 0.385 | Oct 2021 | 0.351 | Nov 2022 | - | | 0.351 | 0.000 | 1.062 | - |
| PD - ICS Development / SW | TBD | TBD Contractor : TBD | 0.000 | 0.000 | | 0.000 | | 16.560 | Nov 2022 | - | | 16.560 | 0.000 | 16.560 | - |
| PD - F35B/C - ICS LINK 16 Integration | C/CPFF | NAWC China Lake : Ridgecrest, CA | 0.000 | 0.000 | | 0.000 | | 0.221 | Nov 2022 | - | | 0.221 | 0.000 | 0.221 | - |
| PD - ICS Development / SW | WR | NSWC DD : Dahlgren, VA | 0.000 | 0.000 | | 0.000 | | 6.095 | Nov 2022 | - | | 6.095 | 0.000 | 6.095 | - |
| CSI - FTIIP - SE | WR | NAWC China Lake : Ridgecrest, CA | 0.000 | 0.000 | | 0.000 | | 0.138 | Oct 2022 | - | | 0.138 | 0.000 | 0.138 | - |
| PD - ICS Development / SE Spt / MBSE | WR | NSWC DD : Dahlgren, VA | 0.000 | 0.000 | | 0.000 | | 8.078 | Nov 2022 | - | | 8.078 | 0.000 | 8.078 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntr l)* | **Project (Number/Name)**<br>2178 / *QRCC* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2021 Cost | FY 2021 Award Date | FY 2022 Cost | FY 2022 Award Date | FY 2023 Base Cost | FY 2023 Base Award Date | FY 2023 OCO Cost | FY 2023 OCO Award Date | FY 2023 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PD - ICS Development / SW Ecosystem | WR | NSWC DD : Dahlgren, VA | 0.000 | 0.000 | | 0.000 | | 8.078 | Nov 2022 | - | | 8.078 | 0.000 | 8.078 | - |
| PD - ICS Development & SE Spt | C/CPFF | TBD Contract : TBD | 0.000 | 0.000 | | 0.000 | | 1.123 | Nov 2022 | - | | 1.123 | 0.000 | 1.123 | - |
| PD-Cyber Resiliency (ICS) / SW | TBD | TBD Contract : TBD | 0.000 | 0.000 | | 0.000 | | 5.520 | Nov 2022 | - | | 5.520 | 0.000 | 5.520 | - |
| PD-Cyber Resiliency (ICS) / SW | WR | NSWC DD : Dahlgren, VA | 0.000 | 0.000 | | 0.000 | | 0.000 | Nov 2022 | - | | 0.000 | 0.000 | 0.000 | - |
| PD-Cyber Resiliency / SE Spt / MBSE | WR | NSWC DD : Dahlgren, VA | 0.000 | 0.000 | | 0.000 | | 2.787 | Nov 2022 | - | | 2.787 | 0.000 | 2.787 | - |
| PD-Cyber Resiliency / SF Ecosystem | WR | NSWC DD : Dahlgren, VA | 0.000 | 0.000 | | 0.000 | | 2.787 | Nov 2022 | - | | 2.787 | 0.000 | 2.787 | - |
| | | **Subtotal** | 282.401 | 101.947 | | 104.000 | | 121.825 | | - | | 121.825 | Continuing | Continuing | N/A |

**Remarks**

In FY23 costs currently reflect the transition to common computing infrastructure and common software construct for development efforts

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2021 Cost | FY 2021 Award Date | FY 2022 Cost | FY 2022 Award Date | FY 2023 Base Cost | FY 2023 Base Award Date | FY 2023 OCO Cost | FY 2023 OCO Award Date | FY 2023 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DT&E (PHD) | WR | NSWC PHD : Port Hueneme, CA | 122.131 | 5.915 | Oct 2020 | 4.025 | Oct 2021 | 4.081 | Nov 2022 | - | | 4.081 | Continuing | Continuing | Continuing |
| DT&E (SCSC-WI) | WR | SCSC-WI : Wallops Is, VA | 91.450 | 7.625 | Nov 2020 | 7.750 | Nov 2021 | 7.858 | Nov 2022 | - | | 7.858 | Continuing | Continuing | Continuing |
| DT&E (JHU/APL) | SS/CPFF | JHU/APL : Laurel, MD | 34.089 | 2.550 | Nov 2020 | 1.550 | Nov 2021 | 1.572 | Nov 2022 | - | | 1.572 | Continuing | Continuing | Continuing |
| DT&E (Corona) | WR | NSWC Corona : Corona, CA | 21.391 | 2.500 | Oct 2020 | 1.500 | Oct 2021 | 1.521 | Nov 2022 | - | | 1.521 | Continuing | Continuing | Continuing |
| DT&E/CST (DD - CST) | WR | NSWC DD : Dahlgren, VA | 43.311 | 4.871 | Oct 2020 | 4.504 | Oct 2021 | 4.567 | Nov 2022 | - | | 4.567 | Continuing | Continuing | Continuing |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>2178 / *QRCC* |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2021 Cost | FY 2021 Award Date | FY 2022 Cost | FY 2022 Award Date | FY 2023 Base Cost | FY 2023 Base Award Date | FY 2023 OCO Cost | FY 2023 OCO Award Date | FY 2023 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DT&E (COTF) | WR | OPTEVFOR : Norfolk, VA | 8.538 | 1.250 | Oct 2020 | 0.750 | Oct 2021 | 0.760 | Nov 2022 | - | | 0.760 | Continuing | Continuing | Continuing |
| DT&E (SAIC) | C/CPIF | SAIC : Reston, VA | 0.000 | 1.450 | Nov 2020 | 1.500 | Nov 2021 | 1.521 | Nov 2022 | - | | 1.521 | Continuing | Continuing | Continuing |
| DT&E (CSEA) LM | C/CPFF | CSEA : Moorestown, NJ | 0.000 | 0.000 | | 1.500 | Dec 2021 | 1.521 | Dec 2022 | - | | 1.521 | Continuing | Continuing | Continuing |
| DT&E Raytheon - PSEA | SS/CPIF | RSC (5128) : San Diego, CA | 0.182 | 1.000 | Dec 2020 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.182 | - |
| | | **Subtotal** | 321.092 | 27.161 | | 23.079 | | 23.401 | | - | | 23.401 | Continuing | Continuing | N/A |

**Remarks**

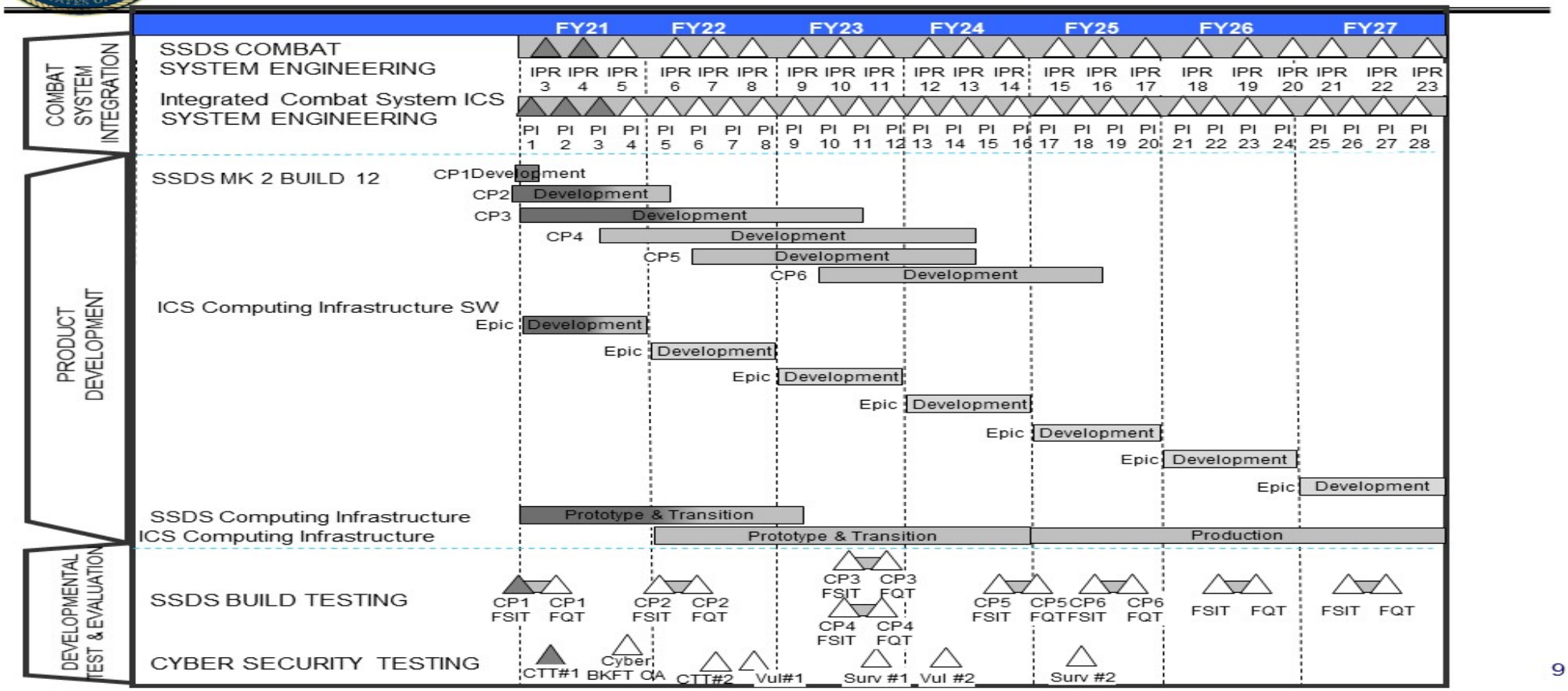
The increase in FY23 is due to slight increase in required testing

| | Prior Years | FY 2021 Cost | FY 2021 Award Date | FY 2022 Cost | FY 2022 Award Date | FY 2023 Base Cost | FY 2023 Base Award Date | FY 2023 OCO Cost | FY 2023 OCO Award Date | FY 2023 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 603.493 | 129.108 | | 127.079 | | 145.226 | | - | | 145.226 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>2178 / *QRCC* |

# Ship Self Defense System Schedule

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| Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>2178 / *QRCC* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 2178*** | | | | |
| SSDS MK 2 BUILD 12 - CP 1 | 1 | 2021 | 1 | 2021 |
| SSDS MK 2 BUILD 12 - CP 2 | 1 | 2021 | 1 | 2022 |
| SSDS MK 2 BUILD 12 - CP 3 | 1 | 2021 | 3 | 2023 |
| SSDS COMPUTING INFRASTRUCTURE | 1 | 2021 | 1 | 2023 |
| EPIC Development | 1 | 2021 | 4 | 2021 |
| SSDS MK 2 - IPR 3 | 1 | 2021 | 1 | 2021 |
| SSDS MK 2 - IPR 4 | 3 | 2021 | 3 | 2021 |
| SSDS MK 2 - IPR 5 | 4 | 2021 | 4 | 2021 |
| PI 1 | 1 | 2021 | 1 | 2021 |
| PI 2 | 2 | 2021 | 2 | 2021 |
| PI 3 | 3 | 2021 | 3 | 2021 |
| PI 4 | 4 | 2021 | 4 | 2021 |
| SSDS MK 2 BUILD 12 - CP 4 | 3 | 2021 | 3 | 2024 |
| SSDS MK 2 BUILD TEST - CP1 FSIT | 1 | 2021 | 1 | 2021 |
| SSDS MK 2 BUILD TEST - CP1 FQT | 2 | 2021 | 2 | 2021 |
| CYBER SECURITY TESTING - CTT # 1 | 2 | 2021 | 2 | 2021 |
| CYBER SECURITY TESTING CYBER BACKFIT OA | 3 | 2021 | 3 | 2021 |
| ICS COMPUTING INFRASTRUCTURE | 1 | 2022 | 4 | 2027 |
| - EPIC Development | 1 | 2022 | 4 | 2022 |
| SSDS MK 2 - IPR 6 | 1 | 2022 | 1 | 2022 |
| SSDS MK 2 - IPR 7 | 3 | 2022 | 3 | 2022 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>2178 / *QRCC* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| SSDS MK 2 - IPR 8 | 4 | 2022 | 4 | 2022 |
| PI 5 | 1 | 2022 | 1 | 2022 |
| PI 6 | 2 | 2022 | 2 | 2022 |
| PI 7 | 3 | 2022 | 3 | 2022 |
| PI 8 | 4 | 2022 | 4 | 2022 |
| SSDS MK 2 BUILD 12 - CP 5 | 2 | 2022 | 3 | 2024 |
| SSDS MK 2 BUILD TEST - CP 2 FSIT | 1 | 2022 | 1 | 2022 |
| SSDS MK 2 BUILD TEST - CP 2 FQT | 2 | 2022 | 2 | 2022 |
| CYBER SECURITY TESTING - CTT # 2 | 3 | 2022 | 3 | 2022 |
| CYBER SECURITY TESTING - Vul # 1 | 4 | 2022 | 4 | 2022 |
| * EPIC Development | 1 | 2023 | 4 | 2023 |
| SSDS MK 2 - IPR 9 | 1 | 2023 | 1 | 2023 |
| SSDS MK 2 - IPR 10 | 3 | 2023 | 3 | 2023 |
| SSDS MK 2 - IPR 11 | 4 | 2023 | 4 | 2023 |
| PI 9 | 1 | 2023 | 1 | 2023 |
| PI 10 | 2 | 2023 | 2 | 2023 |
| PI 11 | 3 | 2023 | 3 | 2023 |
| PI 12 | 4 | 2023 | 4 | 2023 |
| SSDS MK 2 BUILD 12 - CP 6 | 2 | 2023 | 3 | 2025 |
| SSDS MK 2 BUILD TEST - CP 3 FSIT | 3 | 2023 | 3 | 2023 |
| SSDS MK 2 BUILD TEST - CP 3 FQT | 4 | 2023 | 4 | 2023 |
| SSDS MK 2 BUILD TEST - CP 4 FSIT | 3 | 2023 | 3 | 2023 |
| SSDS MK 2 BUILD TEST - CP 4 FQT | 4 | 2023 | 4 | 2023 |
| CYBER SECURITY TESTING - Survy # 1 | 4 | 2023 | 4 | 2023 |
| # EPIC Development | 1 | 2024 | 4 | 2024 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>2178 / *QRCC* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| SSDS MK 2 - IPR 12 | 1 | 2024 | 1 | 2024 |
| SSDS MK 2 - IPR 13 | 3 | 2024 | 3 | 2024 |
| SSDS MK 2 - IPR 14 | 4 | 2024 | 4 | 2024 |
| PI 13 | 1 | 2024 | 1 | 2024 |
| PI 14 | 2 | 2024 | 2 | 2024 |
| PI 15 | 3 | 2024 | 3 | 2024 |
| PI 16 | 4 | 2024 | 4 | 2024 |
| SSDS MK 2 BUILD TEST - CP 5 FSIT | 3 | 2024 | 3 | 2024 |
| SSDS MK 2 BUILD TEST - CP 5 FQT | 4 | 2024 | 1 | 2025 |
| CYBER SECURITY TESTING - Vul # 2 | 2 | 2024 | 2 | 2024 |
| CYBER SECURITY TETSTING - SURV # 2 | 2 | 2025 | 2 | 2025 |
| EPIC Development * | 1 | 2025 | 4 | 2025 |
| SSDS MK 2 - IPR 15 | 1 | 2025 | 1 | 2025 |
| SSDS MK 2 - IPR 16 | 3 | 2025 | 3 | 2025 |
| SSDS MK 2 - IPR 17 | 4 | 2025 | 4 | 2025 |
| PI 17 | 1 | 2025 | 1 | 2025 |
| PI 18 | 2 | 2025 | 2 | 2025 |
| PI 19 | 3 | 2025 | 3 | 2025 |
| PI 20 | 4 | 2025 | 4 | 2025 |
| SSDS MK 2 BUILD TEST - CP 6 FSIT | 3 | 2025 | 3 | 2025 |
| SSDS MK 2 BUILD TEST - CP 6 FQT | 4 | 2025 | 4 | 2025 |
| EPIC Development @ | 1 | 2026 | 4 | 2026 |
| SSDS MK 2 - IPR 18 | 1 | 2026 | 1 | 2026 |
| SSDS MK 2 - IPR 19 | 3 | 2026 | 3 | 2026 |
| SSDS MK 2 - IPR 20 | 4 | 2026 | 4 | 2026 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>2178 / *QRCC* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| PI 21 | 1 | 2026 | 1 | 2026 |
| PI 22 | 2 | 2026 | 2 | 2026 |
| PI 23 | 3 | 2026 | 3 | 2026 |
| PI 24 | 4 | 2026 | 4 | 2026 |
| SSDS MK 2 BUILD TEST - FSIT | 2 | 2026 | 2 | 2026 |
| SSDS MK 2 BUILD TEST - FQT | 3 | 2026 | 3 | 2026 |
| + EPIC Development | 1 | 2027 | 4 | 2027 |
| SSDS MK 2 - IPR 21 | 1 | 2027 | 1 | 2027 |
| SSDS MK 2 - IPR 22 | 3 | 2027 | 3 | 2027 |
| SSDS MK 2 - IPR 23 | 4 | 2027 | 4 | 2027 |
| PI 25 | 1 | 2027 | 1 | 2027 |
| PI 26 | 2 | 2027 | 2 | 2027 |
| PI 27 | 3 | 2027 | 3 | 2027 |
| PI 28 | 4 | 2027 | 4 | 2027 |
| SSDS MK 2 BUILD TEST -- FSIT | 2 | 2027 | 2 | 2027 |
| SSDS MK 2 BUILD TEST -- FQT | 3 | 2027 | 3 | 2027 |

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy | | | Date: April 2022 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 5 | R-1 Program Element (Number/Name)<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | Project (Number/Name)<br>3172 / *Joint Non-Lethal Weapons* | |

| COST ($ in Millions) | Prior Years | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | FY 2024 | FY 2025 | FY 2026 | FY 2027 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3172: *Joint Non-Lethal Weapons* | 24.441 | 1.148 | 3.095 | 3.996 | - | 3.996 | 3.484 | 3.152 | 3.210 | 3.271 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

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

Develop non-lethal weapon systems in support of anti-terrorism/force protection missions. Technologies include, but are not limited to: ocular interrupters, vessel propeller occlusion systems, and acoustic hailing devices. Current efforts are focused on the Long-Range Ocular Interrupter (LROI), Maritime Vessel Stopping (MVS) technologies, and Acoustic Hailing Devices (AHD).

The LROI is intended to provide the U.S. Navy with the capability to deliver a bright light producing a dazzling or glare effect on a closing target to warn and/or suppress potential threats through increasing levels of visual degradation. LROI will generate a non-lethal, eye safe laser that will provide warning and suppression effects. The extended range capability of LROI will effectively increase tactical decision-making time in support of escalation of force (EoF) tactics, techniques and procedures (TTP) across a broad range of military operations (ROMO). Further, the LROI will enhance Joint Force operations in determining the intent of a potential threat as early as possible.

The MVS technologies are systems designed to temporarily disable, slow, or stop waterborne vessels of varying degrees of size and different propulsion types in order to effectively execute escalation of force and intent determination procedures. The MVS technologies will provide the U.S. Navy with lightweight, compact, and reversible solution which will stop or slow marine platforms by occlusion of any type of marine propeller or propulsion.

Acoustic Hailing Devices project intelligible speech out to extended ranges. In addition to long-range projection of speech for warning or instructional purposes, the devices are also capable of transmitting loud tones that can distract or deter personnel from approaching U.S. positions or vessels.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total |
|---|---|---|---|---|---|
| ***Title:*** Joint Non-Lethal Weapons Development | 1.148 | 3.095 | 3.996 | 0.000 | 3.996 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2022 Plans:***<br>Technical demonstrations with end users in FY22 determined drogues do not meet the requirement and are an insufficient interim solution. Develop and test deployment mechanisms for MVS technologies. Advance future AHD technologies for tech refresh of systems at end of life. | | | | | |
| ***FY 2023 Base Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3172 / *Joint Non-Lethal Weapons* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total |
|---|---|---|---|---|---|
| Efforts for the next iteration of the acoustic hailing device to include complete system deployment testing, environmental testing, and electromagnetic immunity testing.<br>***FY 2023 OCO Plans:***<br>N/A<br>***FY 2022 to FY 2023 Increase/Decrease Statement:***<br>Increased funding supports successful transition from lab level research to acquisition capability for production and deployment of Maritime Vessel Stopping (MVS) Production and Assembly of Synthetic Slime (PASS). Systems engineering increase for MVS efforts specific to the delivery mechanism for the synthetic slime. Additionally, this covers the analysis of alternatives for the future acoustic hailing device (AHD). The AHDs will not be supported in FY23 due to obsolescence and a future solution for the requirement must be determined. The reduction of Test and Evaluation is due to completion of FY22 exercises and FY23 efforts will focus review of data and feedback following those events. Program Management increase for efforts to address future solutions in the three NNLE capability areas; AHDs, Laser Dazzling and MSV. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 1.148 | 3.095 | 3.996 | 0.000 | 3.996 |

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

| Line Item | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | FY 2024 | FY 2025 | FY 2026 | FY 2027 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • OPN/8128: *NNLE Family of Systems* | 5.250 | 4.096 | 2.232 | - | 2.232 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 18.488 |

**Remarks**

**D. Acquisition Strategy**

The Navy Non-Lethal Effects (NNLE) Family of Systems (FoS) ACAT IVM Program of Record will focus on development efforts on the Maritime Vessel Stopping and technical data and logistics development for LROI.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3172 / *Joint Non-Lethal Weapons* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2021 Cost | FY 2021 Award Date | FY 2022 Cost | FY 2022 Award Date | FY 2023 Base Cost | FY 2023 Base Award Date | FY 2023 OCO Cost | FY 2023 OCO Award Date | FY 2023 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| System Engineering NNLE | WR | NSWC Panama City : Panama City, FL | 6.075 | 0.000 | | 1.817 | Nov 2021 | 2.758 | Dec 2022 | - | | 2.758 | Continuing | Continuing | Continuing |
| System Engineering NNLE | WR | NSWC Dahlgren : Dahlgren, VA | 17.841 | 0.000 | | 0.000 | | 0.014 | Dec 2022 | - | | 0.014 | Continuing | Continuing | Continuing |
| | | **Subtotal** | 23.916 | 0.000 | | 1.817 | | 2.772 | | - | | 2.772 | Continuing | Continuing | N/A |

**Remarks**

Acoustic Hailing Device (AHD) replacement system and Maritime Vessel Stopping Occlusion Technology (MVSOT) deployment packaging and method production development begins in FY 2023.

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2021 Cost | FY 2021 Award Date | FY 2022 Cost | FY 2022 Award Date | FY 2023 Base Cost | FY 2023 Base Award Date | FY 2023 OCO Cost | FY 2023 OCO Award Date | FY 2023 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test and Evaluation NNLE | WR | NSWC Panama City : Panama City, FL | 0.400 | 0.004 | Dec 2020 | 0.869 | Nov 2021 | 0.624 | Dec 2022 | - | | 0.624 | 0.000 | 1.897 | - |
| Test and Evaluation VAS | WR | NSWC Crane : Crane, IN | 0.000 | 0.800 | Jan 2021 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.800 | - |
| | | **Subtotal** | 0.400 | 0.804 | | 0.869 | | 0.624 | | - | | 0.624 | 0.000 | 2.697 | N/A |

**Remarks**

Cancellation of MVSOT Drogue effort reduced overall NNLE Test and Evaluation requirement for FY 2023.

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2021 Cost | FY 2021 Award Date | FY 2022 Cost | FY 2022 Award Date | FY 2023 Base Cost | FY 2023 Base Award Date | FY 2023 OCO Cost | FY 2023 OCO Award Date | FY 2023 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Program Management NNLE | WR | NSWC Panama City : Panama City, FL | 0.125 | 0.000 | | 0.409 | Nov 2021 | 0.600 | Dec 2022 | - | | 0.600 | 0.000 | 1.134 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3172 / *Joint Non-Lethal Weapons* |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2021 Cost | FY 2021 Award Date | FY 2022 Cost | FY 2022 Award Date | FY 2023 Base Cost | FY 2023 Base Award Date | FY 2023 OCO Cost | FY 2023 OCO Award Date | FY 2023 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Program Management VAS | WR | NSWC Crane : Crane, IN | 0.000 | 0.344 | Jan 2021 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.344 | - |
| | | **Subtotal** | 0.125 | 0.344 | | 0.409 | | 0.600 | | - | | 0.600 | 0.000 | 1.478 | N/A |

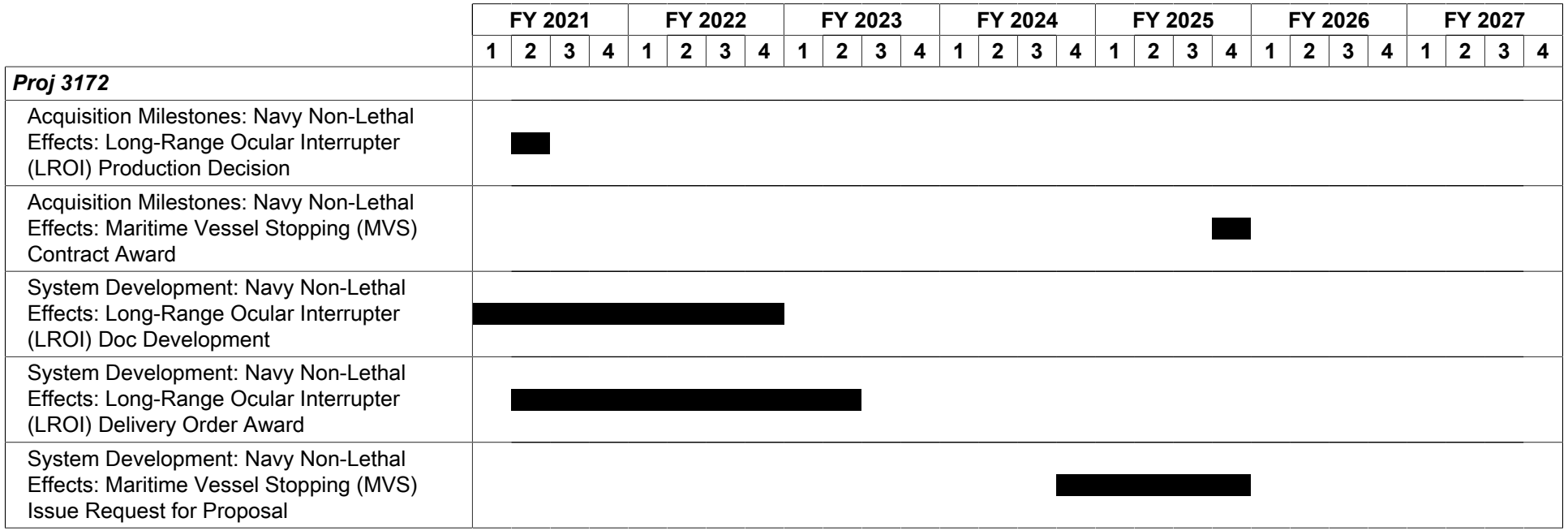
**Remarks**

LROI-COIL fielding primarily occurs in FY 2023 with NSWC Dahlgren managing initial fielding, training, and associated tasking.

| | Prior Years | FY 2021 | | FY 2022 | | FY 2023 Base | | FY 2023 OCO | | FY 2023 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 24.441 | 1.148 | | 3.095 | | 3.996 | | - | | 3.996 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3172 / *Joint Non-Lethal Weapons* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3172 / *Joint Non-Lethal Weapons* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 3172*** | | | | |
| Acquisition Milestones: Navy Non-Lethal Effects: Long-Range Ocular Interrupter (LROI) Production Decision | 2 | 2021 | 2 | 2021 |
| Acquisition Milestones: Navy Non-Lethal Effects: Maritime Vessel Stopping (MVS) Contract Award | 4 | 2025 | 4 | 2025 |
| System Development: Navy Non-Lethal Effects: Long-Range Ocular Interrupter (LROI) Doc Development | 1 | 2021 | 4 | 2022 |
| System Development: Navy Non-Lethal Effects: Long-Range Ocular Interrupter (LROI) Delivery Order Award | 2 | 2021 | 2 | 2023 |
| System Development: Navy Non-Lethal Effects: Maritime Vessel Stopping (MVS) Issue Request for Proposal | 4 | 2024 | 4 | 2025 |

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy | | | Date: April 2022 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 5 | R-1 Program Element (Number/Name)<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | Project (Number/Name)<br>3358 / *SSDS Training Improvement Program* | |

| COST ($ in Millions) | Prior Years | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | FY 2024 | FY 2025 | FY 2026 | FY 2027 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3358: *SSDS Training Improvement Program* | 34.854 | 8.745 | 12.421 | 10.204 | - | 10.204 | 9.615 | 9.408 | 9.233 | 9.332 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

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

FY 2023 funding request for Project 3358 was reduced by $0.701M to account for the availability of prior year execution balances.

SSDS Training Improvement Program provides enhancements and upgrades to the SSDS Total Ship Training Capability (TSTC) components within the combat system, combat system elements, Battle-Force Tactical Training (BFTT), and Advanced Training Domain (ATD) to address needs for increased training capability and functionality in conjunction with SSDS MK2 incremental capability packages, Far-Term Interoperability Improvement Project (FTIIP), Task Force Cyber Awakening (TFCA) Boundary Defense Capability (BDC), and Technical Insertion efforts under PU 2178 (QRCC). These enhancements will address current and future training requirements by implementing new functionality to enable the individual warfighter through distributed battle group events to engage in more complex training requirements to support fleet required training certification events. Capability Development and integration are related to Self Defense, Underwater, Surface, and other warfare areas. Capability enhancements and upgrades include development of re-useable common components that can be leveraged by SSDS MK2 combat systems, and/or integration of re-usable common components developed by the TSTC/BFTT Program and AEGIS Advanced Training Domain (ATD)/TSTC Total Ship Training Capability (TSTC) projects to meet AEGIS combat system training requirements. TSTC continues to integrate and update, as new tactical capabilities are being introduced, to enable crew operator proficiency training for basic and sustainment level training events, through distributed strike group certification fleet synthetic training (FST) events and including COMPTUEX FST at-Sea integration into Live, Virtual and Constructive (LVC) environment. Continued Development is required to integrate new capabilities and interfaces to provide training for AEGIS and SSDS combat system capability upgrades, and to address the Fleet's Live, Virtual and Constructive (LVC) Fleet Training Wholeness initiative. Additionally, modernization is needed to support the DoD Training Transformation Plan, the Chief of Naval Operations Fleet Response Plan and Commander United States Fleet Forces Command Fleet Readiness Training Plan.

The Advanced Training Domain (ATD) is being developed to combine BFTT and the AEGIS Combat Training System (ACTS) into a common system that integrates with AEGIS BL 9.2.2AF, and SSDS BL 12xAF. ATD is being hosted along with the AEGIS and SSDS combat system on TI-16 common processing and display hardware. ATD is being designed to be the core of the Total Ship Training Capability, and is projected to be more reliable, simpler to use, and architecturally extensible to meet interoperability and capability enhancement challenges in the future.

BFTT is being updated to maintain integration and capability enhancements developed for the Cooperative Engagement Capability (CEC), Surface Electronic Warfare Improvement Program (SEWIP), and the Carrier Tactical Support Center (CV-TSC), and SSDS Fire Control Loop Improvement Program.

TSTC provides realistic joint warfare training across the spectrum of armed conflict, realistic unit level team training in all warfare areas (e.g. NIFC-CA and BMD missions to support IAMD). TSTC provides ships' Commanding Officers and Battle Group/Battle Force Commanders with the ability to conduct coordinated realistic, high stress, combat system level team training as an integral part of the Afloat Training Organization, the Tactical Training Groups and C2F/C3F FST/LVC events.

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3358 / *SSDS Training Improvement Program* |

Continue develop and integrate MH-60R simulator to enable embedded shipboard training in support of basic and sustainment training, as well as establishes the pathway to support pier-side Fleet Synthetic Training (FST) events.

Continue development and integration of Cooperative Engagement Capability (CEC) Enhanced Training (CET) to support basic and sustainment level training, as well as provide ability to distribute and establish CEC data link during pier-side fleet synthetic training exercises. CET is an enabler for proficiency training of NIFC-CA capability.

Complete development of Identification Friend or Foe (IFF) simulator to enable training of Modes 1, 2, 3A, 4, C, 5 and S on both AEGIS and SSDS ships. Capability will enable training of AEGIS and SSDS IFF MODE 5/S, and address Mode 4 Inoculation.

Develop and integrate commensurate training improvements to SSDS ACB 20 for Enhanced Sea Sparrow Missile (ESSM) and Electronic Warfare (EW) tactical improvements.

Integrate Navy Continuous Training Environment (NCTE) networking and cyber security upgrades to maintain authorization to participate in distributed shipboard training events.

TSTC integrated on SSDS provides the capability to complete system and operational level testing of the combat system.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total |
|---|---|---|---|---|---|
| ***Title:*** SSDS Total Ship Training Capability | 8.745 | 12.421 | 10.204 | 0.000 | 10.204 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2022 Plans:***<br>-Continue LVC sensor improvements for SSDS MK2, allowing for Real vs. Synthetic target discrimination at the sensor level. Target sensors include continuation of SPQ-9B, and AN/SPS-73(V) 18, AN/SPS-48G, AN/SPS-49A with the common Training Sensor DDS Interface, DN 18-05, and the AN/SPY-6 training integration with WS-35955.<br><br>-Continue development of Advanced Training Domain (ATD) for SSDS BL 12.x. Begin integration with SSDS BL12 with TI12 and TI12H when appropriate ICDs developed.<br><br>-Continue integration and testing of Strike Group Cooperative Engagement Capability (CEC) Underway capability onto SSDS Combat Systems Baselines. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3358 / *SSDS Training Improvement Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total |
|---|---|---|---|---|---|
| -Initiate integration, testing and certification for Identification Friend or Foe (IFF) simulation capability coordinating impacted Program Offices to enable training of Modes 1, 2, 3A, 4, C, 5 and S on both AEGIS and SSDS ships. Capability will enable training of AEGIS and SSDS IFF MODE 5/S, and address Mode 4 Inoculation.<br><br>-Continue Anti-Submarine Warfare (ASW) Training improvements with CV-TSC to support multi-warfare integrated training on SSDS, including the MH-60R Simulator and integration with the electronic warfare system, SLQ-32(V) 6.<br><br>-Complete integration and test of LINK 16 TADIL capability for training to allow simulated LINK 16 message transmission between the training domain to the SSDS combat system supporting Digital Air Control and AOEW training simulation.<br><br>-Complete requirements for developing, and begin integration of ATD with the SLQ-32(V) 7 training capability. The introduction of (V) 7 on SSDS may defer the need for this capability.<br><br>-Complete integration of PHALANX Close-In Weapon System (CIWS) simulation capability with SSDS Build 12.X, Phase 1.<br><br>-Establish Phase 2 of PHALANX Close-In Weapon System (CIWS) simulation capability with SSDS Build 12.X. requirements to include Operator Training supporting Surface Mode operations.<br><br>-Initiate and complete requirements for developing, and begin integration of upgrades to ATD to support training for RAM 2B and ESSM Blk 2, with SSDS. | | | | | |
| ***FY 2023 Base Plans:***<br>-Complete LVC sensor improvements for SSDS MK2, allowing for Real vs. Synthetic target discrimination at the sensor level. Target sensors that should be completed include SPQ-9B, AN/SPS-73(V)18 (pending element funding), AN/SPS-48G, and AN/SPS-49A with the common Training Sensor DDS Interface, DN 18-05, and the AN/SPY-6 training integration with WS-35955.<br><br>-Continue integration of Advanced Training Domain (ATD) for SSDS BL 12.x. Continue integration with SSDS BL12 with TI12 and TI12H when appropriate ICDs developed. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3358 / *SSDS Training Improvement Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total |
|---|---|---|---|---|---|
| -Complete integration and testing of Strike Group Cooperative Engagement Capability (CEC) Underway capability onto SSDS Combat Systems Baselines.<br><br>-Complete integration, testing and certification for Identification Friend or Foe (IFF) simulation capability coordinating impacted Program Offices to enable training of Modes 1, 2, 3A, 4, C, 5 and S on both AEGIS and SSDS ships. Capability will enable training of AEGIS and SSDS IFF MODE 5/S, and address Mode 4 Inoculation.<br><br>-Complete Anti-Submarine Warfare (ASW) Training improvements with CV-TSC FCR 5 to support multi-warfare integrated training on SSDS, including the MH-60R Simulator supporting dual-helo operations and integration with the electronic warfare system, SLQ-32(V)6. Support MH-60R Sim capability enhancements for AOEW when funded.<br><br>-Test LINK 16 TADIL capability for training to allow simulated LINK 16 message transmission between the training domain to the SSDS combat system supporting Digital Air Control and particularly AOEW training simulation when funded.<br><br>-Continue integration of ATD with the SLQ-32(V) 7 training capability. The introduction of SLQ-32(V) 7 on SSDS may defer the need for this capability.<br><br>-Complete requirements for Phase 2 of PHALANX Close-In Weapon System (CIWS) simulation capability with SSDS Build 12.X. to include Operator Training supporting Surface Mode operations.<br><br>-Compete integration of upgrades to ATD to support training for RAM 2B and ESSM Blk 2 with SSDS.<br><br>***FY 2023 OCO Plans:***<br>N/A<br><br>***FY 2022 to FY 2023 Increase/Decrease Statement:***<br>Decrease of -2.217 from FY 2022 to FY 2023 due to completion of SLQ-32 and CIWS simulation capability as well as Total Force Management Reduction of -$0.044M and NWCF PB-23 RATE ADJUSTMENTS -$.010 | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 8.745 | 12.421 | 10.204 | 0.000 | 10.204 |

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3358 / *SSDS Training Improvement Program* |

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

| Line Item | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | FY 2024 | FY 2025 | FY 2026 | FY 2027 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • RDTEN/0204571N/1427: *Surface Tactical Team Trainer (PU 1427)* | 38.974 | 30.744 | 13.721 | - | 13.721 | 17.334 | 16.298 | 15.757 | 15.965 | Continuing | Continuing |
| • RDTEN/0604307N/3357: *AEGIS Training Improv. Prog. (PU 3357)* | 8.560 | 7.018 | 6.379 | - | 6.379 | 5.605 | 5.227 | 5.257 | 5.345 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

For the SSDS MK2 software development, including the integration of TSTC software improvements and the TI-16 Open Architecture Computing Environment, the acquisition strategy identified for SSDS MK2 for QRCC Project (PU 2178) (R-2A exhibit) applies.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3358 / *SSDS Training Improvement Program* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2021 Cost | FY 2021 Award Date | FY 2022 Cost | FY 2022 Award Date | FY 2023 Base Cost | FY 2023 Base Award Date | FY 2023 OCO Cost | FY 2023 OCO Award Date | FY 2023 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TSTC SME Plan & Prep | WR | NSWC CN : Corona, CA | 0.650 | 0.487 | Nov 2020 | 0.950 | Nov 2021 | 0.000 | | - | | 0.000 | 0.000 | 2.087 | - |
| TSTC Sys Eng | WR | NSWC DD : Dahlgren, VA | 3.076 | 0.807 | Nov 2020 | 1.859 | Nov 2021 | 1.327 | Nov 2022 | - | | 1.327 | 0.000 | 7.069 | - |
| TSTC Sys Eng | WR | CDSA DN : Dam Neck, VA | 2.286 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 2.286 | - |
| TSTC Sys Eng / Integration | C/CPIF | Raytheon (4112) : Suffolk, VA | 1.430 | 0.000 | Dec 2020 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.430 | - |
| TSTC FTW FCLIP / CSEA | C/CPIF | CSEA contract : Moorestown NJ | 4.080 | 3.352 | Dec 2020 | 3.381 | Dec 2021 | 0.408 | Dec 2022 | - | | 0.408 | 0.000 | 11.221 | - |
| TSTC TDL Gateway | C/CPIF | SPAWAR PMW 150 : San Diego, CA | 0.421 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.421 | - |
| TSTC Sys Eng / PSEA | SS/CPIF | RSC (5128) : San Diego, CA | 5.018 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| TSTC Sys Eng / MH-60R Training Capability | WR | Keyport (NUWC) : Keyport, RI | 1.159 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| TSTC Planning Support | C/CPIF | TMB : Washington, DC | 0.025 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.025 | - |
| TSTC ATD | TBD | IWS 1.0 : Washington, DC | 7.474 | 0.875 | Dec 2020 | 3.281 | Dec 2021 | 2.449 | Dec 2022 | - | | 2.449 | 0.000 | 14.079 | - |
| TSTC ESSM BLK2/EW Upgrades | TBD | Various : Various | 4.050 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 4.050 | - |
| TSTC EW | TBD | IWS 2.0 : Washington, DC | 1.019 | 0.187 | Dec 2020 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.206 | - |
| TSTC NCTE | WR | Corona(NSWC) : Corona, CA | 0.405 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.405 | - |
| TSTC GWS | TBD | IWS 3.0 : Washington, DC | 0.041 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.041 | - |
| TSTC FTW SENSOR | TBD | PEO IWS 2.0 : Washington, DC | 3.329 | 0.160 | Dec 2020 | 0.750 | Dec 2021 | 0.000 | | - | | 0.000 | 0.000 | 4.239 | - |
| TSTC FTW / STRIKE CEC | TBD | PEO IWS 6.0 : Washington, DC | 0.391 | 1.613 | Dec 2020 | 1.700 | Dec 2021 | 0.816 | Dec 2022 | - | | 0.816 | 0.000 | 4.520 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3358 / *SSDS Training Improvement Program* |

**Product Development ($ in Millions)**

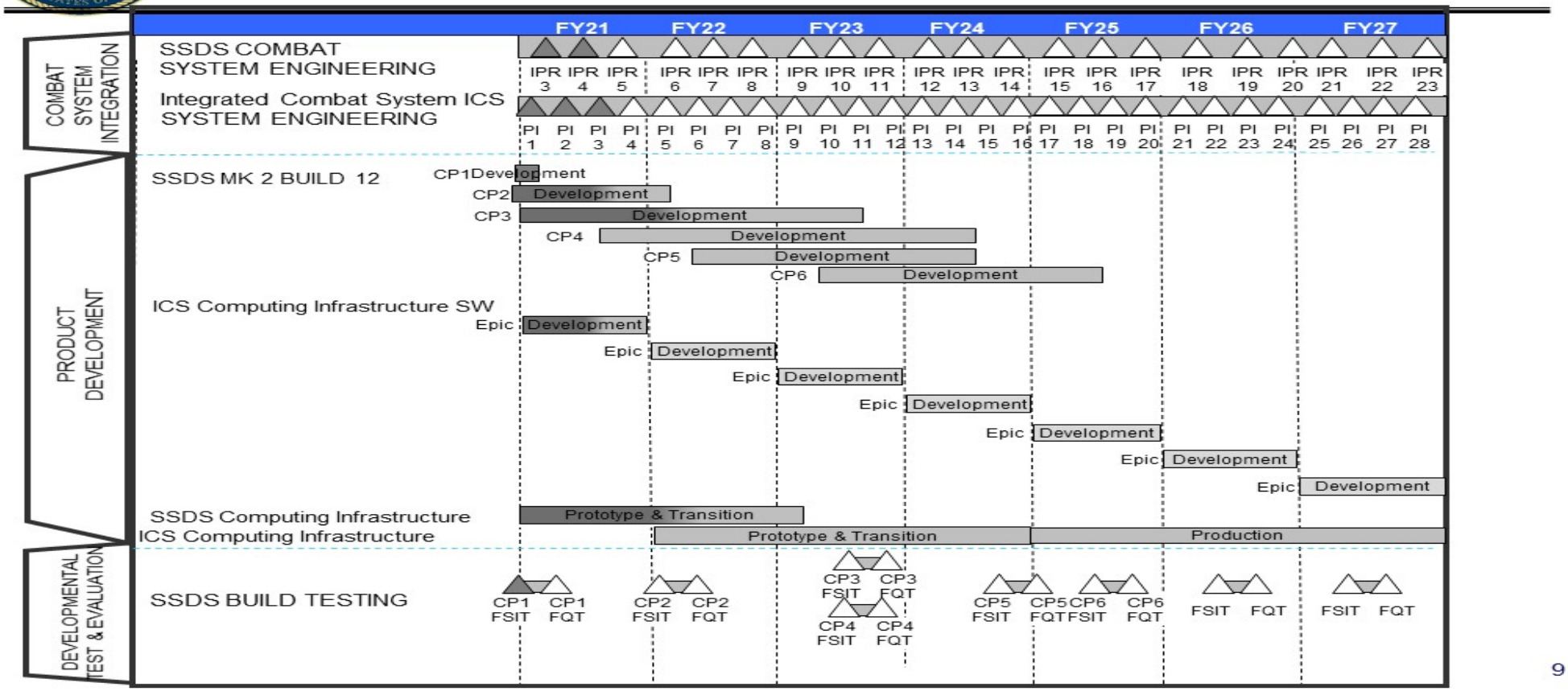
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2021 Cost | FY 2021 Award Date | FY 2022 Cost | FY 2022 Award Date | FY 2023 Base Cost | FY 2023 Base Award Date | FY 2023 OCO Cost | FY 2023 OCO Award Date | FY 2023 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TSTC FTW ASW | TBD | PEO IWS 5.0 : Washington, DC | 0.000 | 1.264 | Dec 2020 | 0.500 | Dec 2021 | 0.612 | Dec 2022 | - | | 0.612 | 0.000 | 2.376 | - |
| TSTC Training | C/CPIF | CSEA Contract : Moorestown NJ | 0.000 | 0.000 | Jul 2021 | 0.000 | Dec 2021 | 3.163 | Dec 2022 | - | | 3.163 | 0.000 | 3.163 | - |
| TSTC Training | WR | NSWC PHD : Port Hueneme CA | 0.000 | 0.000 | Dec 2020 | 0.000 | Dec 2021 | 1.429 | Dec 2022 | - | | 1.429 | 0.000 | 1.429 | - |
| | | **Subtotal** | 34.854 | 8.745 | | 12.421 | | 10.204 | | - | | 10.204 | Continuing | Continuing | N/A |

| | Prior Years | FY 2021 | | FY 2022 | | FY 2023 Base | | FY 2023 OCO | | FY 2023 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 34.854 | 8.745 | | 12.421 | | 10.204 | | - | | 10.204 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3358 / *SSDS Training Improvement Program* |

# Ship Self Defense System Schedule

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| Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntr l)* | **Project (Number/Name)**<br>3358 / *SSDS Training Improvement Program* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 3358*** | | | | |
| SSDS MK 2 BUILD 12 - CP 1 | 1 | 2021 | 1 | 2021 |
| SSDS MK 2 BUILD 12 - CP 2 | 1 | 2021 | 1 | 2022 |
| SSDS MK 2 BUILD 12 - CP 3 | 1 | 2021 | 3 | 2023 |
| SSDS COMPUTING INFRASTRUCTURE | 1 | 2021 | 1 | 2023 |
| EPIC Development FY21 | 1 | 2021 | 4 | 2021 |
| SSDS MK 2 - IPR 3 | 1 | 2021 | 1 | 2021 |
| SSDS MK 2 - IPR 4 | 3 | 2021 | 3 | 2021 |
| SSDS MK 2 - IPR 5 | 4 | 2021 | 4 | 2021 |
| PI 1 | 1 | 2021 | 1 | 2021 |
| PI 2 | 2 | 2021 | 2 | 2021 |
| PI 3 | 3 | 2021 | 3 | 2021 |
| PI 4 | 4 | 2021 | 4 | 2021 |
| SSDS MK 2 BUILD 12 - CP 4 | 3 | 2021 | 3 | 2024 |
| SSDS MK 2 BUILD TEST - CP1 FSIT | 1 | 2021 | 1 | 2021 |
| SSDS MK 2 BUILD TEST - CP1 FQT | 2 | 2021 | 2 | 2021 |
| ICS COMPUTING INFRASTRUCTURE | 1 | 2022 | 4 | 2027 |
| EPIC Development FY22 | 1 | 2022 | 4 | 2022 |
| SSDS MK 2 - IPR 6 | 1 | 2022 | 1 | 2022 |
| SSDS MK 2 - IPR 7 | 3 | 2022 | 3 | 2022 |
| SSDS MK 2 - IPR 8 | 4 | 2022 | 4 | 2022 |
| PI 5 | 1 | 2022 | 1 | 2022 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3358 / *SSDS Training Improvement Program* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| PI 6 | 2 | 2022 | 2 | 2022 |
| PI 7 | 3 | 2022 | 3 | 2022 |
| PI 8 | 4 | 2022 | 4 | 2022 |
| SSDS MK 2 BUILD 12 - CP 5 | 2 | 2022 | 3 | 2024 |
| SSDS MK 2 BUILD TEST - CP 2 FSIT | 1 | 2022 | 1 | 2022 |
| SSDS MK 2 BUILD TEST - CP 2 FQT | 2 | 2022 | 2 | 2022 |
| EPIC Development FY23 | 1 | 2023 | 4 | 2023 |
| SSDS MK 2 - IPR 9 | 1 | 2023 | 1 | 2023 |
| SSDS MK 2 - IPR 10 | 3 | 2023 | 3 | 2023 |
| SSDS MK 2 - IPR 11 | 4 | 2023 | 4 | 2023 |
| PI 9 | 1 | 2023 | 1 | 2023 |
| PI 10 | 2 | 2023 | 2 | 2023 |
| PI 11 | 3 | 2023 | 3 | 2023 |
| PI 12 | 4 | 2023 | 4 | 2023 |
| SSDS MK 2 BUILD 12 - CP 6 | 2 | 2023 | 3 | 2025 |
| SSDS MK 2 BUILD TEST - CP 3 FSIT | 3 | 2023 | 3 | 2023 |
| SSDS MK 2 BUILD TEST - CP 3 FQT | 4 | 2023 | 4 | 2023 |
| SSDS MK 2 BUILD TEST - CP 4 FSIT | 3 | 2023 | 3 | 2023 |
| SSDS MK 2 BUILD TEST - CP 4 FQT | 4 | 2023 | 4 | 2023 |
| EPIC Development FY24 | 1 | 2024 | 4 | 2024 |
| SSDS MK 2 - IPR 12 | 1 | 2024 | 1 | 2024 |
| SSDS MK 2 - IPR 13 | 3 | 2024 | 3 | 2024 |
| SSDS MK 2 - IPR 14 | 4 | 2024 | 4 | 2024 |
| PI 13 | 1 | 2024 | 1 | 2024 |
| PI 14 | 2 | 2024 | 2 | 2024 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntrl)* | **Project (Number/Name)**<br>3358 / *SSDS Training Improvement Program* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| PI 15 | 3 | 2024 | 3 | 2024 |
| PI 16 | 4 | 2024 | 4 | 2024 |
| SSDS MK 2 BUILD TEST - CP 5 FSIT | 3 | 2024 | 3 | 2024 |
| SSDS MK 2 BUILD TEST - CP 5 FQT | 4 | 2024 | 1 | 2025 |
| EPIC Development FY25 | 1 | 2025 | 4 | 2025 |
| SSDS MK 2 - IPR 15 | 1 | 2025 | 1 | 2025 |
| SSDS MK 2 - IPR 16 | 3 | 2025 | 3 | 2025 |
| SSDS MK 2 - IPR 17 | 4 | 2025 | 4 | 2025 |
| PI 17 | 1 | 2025 | 1 | 2025 |
| PI 18 | 2 | 2025 | 2 | 2025 |
| PI 19 | 3 | 2025 | 3 | 2025 |
| PI 20 | 4 | 2025 | 4 | 2025 |
| SSDS MK 2 BUILD TEST - CP 6 FSIT | 3 | 2025 | 3 | 2025 |
| SSDS MK 2 BUILD TEST - CP 6 FQT | 4 | 2025 | 4 | 2025 |
| EPIC Development FY26 | 1 | 2026 | 4 | 2026 |
| SSDS MK 2 - IPR 18 | 1 | 2026 | 1 | 2026 |
| SSDS MK 2 - IPR 19 | 3 | 2026 | 3 | 2026 |
| SSDS MK 2 - IPR 20 | 4 | 2026 | 4 | 2026 |
| PI 21 | 1 | 2026 | 1 | 2026 |
| PI 22 | 2 | 2026 | 2 | 2026 |
| PI 23 | 3 | 2026 | 3 | 2026 |
| PI 24 | 4 | 2026 | 4 | 2026 |
| SSDS MK 2 BUILD TEST - FSIT | 2 | 2026 | 2 | 2026 |
| SSDS MK 2 BUILD TEST - FQT | 3 | 2026 | 3 | 2026 |
| EPIC Development FY27 | 1 | 2027 | 4 | 2027 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604755N / *Ship Self Def (Detect & Cntr l)* | **Project (Number/Name)**<br>3358 / *SSDS Training Improvement Program* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| SSDS MK 2 - IPR 21 | 1 | 2027 | 1 | 2027 |
| SSDS MK 2 - IPR 22 | 3 | 2027 | 3 | 2027 |
| SSDS MK 2 - IPR 23 | 4 | 2027 | 4 | 2027 |
| PI 25 | 1 | 2027 | 1 | 2027 |
| PI 26 | 2 | 2027 | 2 | 2027 |
| PI 27 | 3 | 2027 | 3 | 2027 |
| PI 28 | 4 | 2027 | 4 | 2027 |
| SSDS MK 2 BUILD TEST -- FSIT | 2 | 2027 | 2 | 2027 |
| SSDS MK 2 BUILD TEST -- FQT | 3 | 2027 | 3 | 2027 |