| Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy | | | | | | | | | | | Date: February 2020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0604366N *I Standard Missile Improvements* | | | | | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2019** | **FY 2020** | **FY 2021 Base** | **FY 2021 OCO** | **FY 2021 Total** | **FY 2022** | **FY 2023** | **FY 2024** | **FY 2025** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 2,576.295 | 199.499 | 195.296 | 386.225 | - | 386.225 | 284.513 | 204.890 | 79.557 | 27.681 | Continuing | Continuing |
| 0439: *Standard Missile Improvement* | 1,195.097 | 104.563 | 77.533 | 61.940 | - | 61.940 | 50.177 | 18.261 | 10.557 | 10.768 | Continuing | Continuing |
| 2063: *SM-6 Blk IB* | 0.000 | 23.100 | 77.605 | 231.503 | - | 231.503 | 155.898 | 112.736 | 27.527 | 3.679 | Continuing | Continuing |
| 3092: *Standard Missile 6 Program* | 1,381.198 | 47.717 | 33.158 | 92.782 | - | 92.782 | 78.438 | 73.893 | 41.473 | 13.234 | Continuing | Continuing |
| 9999: *Congressional Adds* | 0.000 | 24.119 | 7.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 31.119 |

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

STANDARD Missile (SM) is Navy's premier Anti-Air Warfare (AAW) missile, providing both area defense for the Fleet and self-defense for individual AEGIS CGs and DDGs, as required by the Joint Theater Air Missile Defense (TAMD), Mission Need Statement (MNS), Defense Planning Guidance (DPG), Quadrennial Defense Review (QDR), and Ship Class AAW Self Defense Capstone Requirements Document. SM-6 provides an air defense force multiplier to the U.S. Navy to greatly expand the AWS battlespace. Combining a modified Advanced Medium-Range Air-to-Air Missile (AMRAAM) active seeker onto the proven STANDARD Missile airframe, SM-6 provides an extended range (ER) anti-air warfare capability both over sea and overland. This low-risk approach relying on non-developmental items supported an FY 2011 Initial Operating Capability. With integrated fire control support, SM-6 BLK I ER provides the Navy with an increased battlespace against Anti-Air Warfare (AAW) threats over-the-horizon.

| B. Program Change Summary ($ in Millions) | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 190.881 | 232.391 | 241.362 | - | 241.362 |
| Current President's Budget | 199.499 | 195.296 | 386.225 | - | 386.225 |
| Total Adjustments | 8.618 | -37.095 | 144.863 | - | 144.863 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | -44.095 | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | 7.000 | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | 15.391 | 0.000 | | | |
| • SBIR/STTR Transfer | -6.772 | 0.000 | | | |
| • Program Adjustments | 0.000 | 0.000 | 145.024 | - | 145.024 |
| • Rate/Misc Adjustments | -0.001 | 0.000 | -0.161 | - | -0.161 |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy | Date: February 2020 |
|---|---|
| **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 0604366N *I Standard Missile Improvements* |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2019 | FY 2020 |
|---|---|---|
| **Project:** 9999: *Congressional Adds* | | |
| Congressional Add: *SM-6 Electronics Unit* | 24.119 | 0.000 |
| Congressional Add: *Advanced carbon nanotube materials research* | 0.000 | 7.000 |
| Congressional Add Subtotals for Project: 9999 | 24.119 | 7.000 |
| Congressional Add Totals for all Projects | 24.119 | 7.000 |

**Change Summary Explanation**

Proj 0439:
FY 2020 reflects a congressional decrease (-$5.0M) for schedule delays.

FY 2021 reflects a decrease to account for the availability of prior year execution balances (-$6.1M)

Project 2063:
FY 2019 reflects an increase for a below threshold reprogramming from project unit 3092 ($6.4M) and an above threshold reprogramming ($16.7M) for SM-6 BLK IB phase IB which provides funding for rocket motor prototyping and development and AUR integration and testing.

FY 2020 reflects a congressional decrease (-$39.1M) for contract award delays.

FY 2021 reflects an increase for SM-6 Blk 1B requirements ($27M), SM-6 Blk IB Phase IB AUR integration ($65.9M) and a decrease due to rate/misc adjustments (-$0.1M).

Project 3092:
FY 2021 reflects an increase for SM-6 Blk IA related ROT&E events aligned with AEGIS ACB16 platform testing ($14.6M) and an increase for Standard Missile Electronics Unit obsolescence Navy funding was required for the development effort due to a revised cost share ratio with MDA ($46.1M). The program was also decreased by (-$2.5M) to account for the availability of prior year execution balances.

Project 9999:
FY 2020 reflects a Congressional Add for ($7M) for advanced carbon nanotube materials research.

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy | | | Date: February 2020 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 5 | R-1 Program Element (Number/Name)<br>PE 0604366N / *Standard Missile Improvements* | Project (Number/Name)<br>0439 / *Standard Missile Improvement* | |

| COST ($ in Millions) | Prior Years | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0439: *Standard Missile Improvement* | 1,195.097 | 104.563 | 77.533 | 61.940 | - | 61.940 | 50.177 | 18.261 | 10.557 | 10.768 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

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

Future Combat System Integration S-Band Radar (AMDR-S) for DDG 51 Flight III ships, and with other platforms/Combat System baselines, will include requirements review/updates and analysis, verification; technical documentation, design review and working group Subject Matter Expert (SME) support, missile/radar integration, missile test hardware procurement, risk assessment, safety, test and evaluation planning, analysis, and data collection. Deliverables include interface control documents (ICDs) changes, missile specifications changes, and engineering documents updates to support AEGIS Baseline 10 (BL10) IPR Process (FY 18-21) Engineering Development Model (EDM) testing (FY 2016-2020); Combat Systems Engineering Development Site (CSEDS) , Moorestown, NJ; Combat System/missile integration testing at Pacific Missile Range Facility/Advanced Radar Detection Laboratory (PMRF/ARDEL) Kauai, HI (FY 2018-2020) and Sudbury, MA (FY2020); Waterfront Integration Testing (WIT) FY 2022 and Electromagnetic Environmental Effects (E3) and Hazard of Electromagnetic Radiation to Ordnance (HERO) Testing, analysis, and reports for BL10 DDG 51 FLT III.

Standard Missile-2 BLK IIIC engineering changes funding is for the design, systems engineering, analysis, integration, and test of replacements for obsolete components as well as performance improvements to address emerging threats. Development will include transition to an active seeker baseline leveraging the investment made with the SM-6 BLK I and ESSM Block II missiles. Capability improvements: Enhanced stream-raid performance against numerous threats via target resolution and missile/target pairing logic, increased depth of fire, and improved firepower due to decreased dependence on illuminators. The program was designated an Accelerated Acquisition (AA) program by the CNO/ASN RDA on November 14, 2017. Initial Capability (IC) planned for Q2FY2023.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total |
|---|---|---|---|---|---|
| ***Title:*** Future Combat System Integration (formerly AMDR) | 9.794 | 5.623 | 5.796 | 0.000 | 5.796 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2020 Plans:***<br>Plan and support missile radar and combat system (CS) testing using VOM with AEGIS combat system using SPY-6 at Combat System Engineering Development Site (CSEDS), Combat System/missile integration testing at PMRF/ARDEL Kauai, HI (FY2020) and Sudbury, MA (FY2020). Continue to integrate and implement ET-17 solutions. Support HERO Issue testing at NSWC Dahlgren Division. Support AEGIS BL10 IPR Process. | | | | | |
| ***FY 2021 Base Plans:***<br>Continue to plan and support missile radar and combat system (CS) testing using IOM/VOM with AEGIS combat system using SPY-6 at CSEDS. Continue to integrate and implement ET-17 solutions. Continue HERO, and | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>0439 / *Standard Missile Improvement* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total |
|---|---|---|---|---|---|
| E3, including Electromagnetic MV support issue testing as required. Continue to support AEGIS Baseline 10 IPR Process.<br>***FY 2021 OCO Plans:***<br>N/A<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>The increase from FY20 to FY21 is due to the start of land-based testing to support combat system/missile integration at CSEDs along with Electronic Environmental Testing due to Hazards to Electromagnetic Radiation to Ordnance (HERO). | | | | | |
| ***Title:*** Standard Missile-2 BLK IIIC | 94.769 | 71.910 | 56.144 | 0.000 | 56.144 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2020 Plans:***<br>Perform and support WSESRBs. Continue Jet tab assembly, hybrid control surface assembly, and dorsal fin testing to verify design. Continue Vertical Launch System (VLS) and canister development efforts. Continue missile software development and AEGIS integration. Make preparations for Controlled Test Vehicle 1 (CTV-1) flight test at White Sands Missile Range (WSMR). Prepare for and conduct Electromagnetic Environmental Effects (E3) and Hazard of Electromagnetic Radiation to Ordnance (HERO) testing and analysis. Finalize design for new/modified hardware.<br>***FY 2021 Base Plans:***<br>Prepare for and conduct Controlled Test Vehicle 1 and 2 (CTV-1/2) and Guided Test Vehicle 1 (GTV-1) flight tests at White Sands Missile Range (WSMR). Continue missile software (SW) development and AEGIS integration. Continue to support SSSTRP and WSESRB meetings. Continue Electromagnetic Environmental Effects (E3) and Hazard of Electromagnetic Radiation to Ordnance (HERO) testing and analysis. Receive approval to enter in to Low Rate Initial Production 1 (LRIP-1). Prepare for Demonstration Decision to conduct at-sea flight testing. Prepare for and support a Rapid Fielding Decision (RFD).<br>***FY 2021 OCO Plans:***<br>N/A<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>The decrease from FY 20 to FY 21 is because the program is transitioning to the testing phase. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 104.563 | 77.533 | 61.940 | 0.000 | 61.940 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>0439 / *Standard Missile Improvement* |

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

N/A

**Remarks**

**D. Acquisition Strategy**

Engineering and integration testing for SM-2 BLK IIIC in FY 2017-FY 2023 to support Quick Reaction Assessment (QRA) Testing in FY 2020-2022 and continue follow-on ship integration and design update effort in FY 2023.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>0439 / *Standard Missile Improvement* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Design and Analysis1 | C/CPFF | RAYTHEON : Tucson, AZ | 318.612 | 74.537 | Nov 2018 | 50.286 | Nov 2019 | 50.307 | Nov 2020 | - | | 50.307 | Continuing | Continuing | Continuing |
| Design and Analysis2 | C/CPFF | JHU/APL : Laurel, MD | 15.861 | 6.308 | Nov 2018 | 5.700 | Nov 2019 | 3.618 | Nov 2020 | - | | 3.618 | 0.000 | 31.487 | - |
| Design and Analysis3 | MIPR | MIT/Lin Lab : Lexington, MA | 0.050 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.050 | - |
| Design and Analysis4 | WR | NSWC : Dahlgren | 790.817 | 0.975 | Nov 2018 | 0.280 | Jan 2020 | 0.784 | Nov 2020 | - | | 0.784 | 0.000 | 792.856 | - |
| Design and Analysis5 | WR | NSWC : Indian Head | 0.940 | 0.180 | Nov 2018 | 0.000 | Nov 2019 | 0.070 | Nov 2020 | - | | 0.070 | 0.000 | 1.190 | - |
| Design and Analysis6 | WR | NAWC : China Lake | 5.629 | 0.315 | Nov 2018 | 0.165 | Nov 2019 | 0.165 | Nov 2020 | - | | 0.165 | 0.000 | 6.274 | - |
| Design and Analysis7 | Various | LOCKHEED MARTIN : Moorestown, NJ | 17.775 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 17.775 | - |
| Design and Analysis8 | WR | CNO : Washington, DC | 0.010 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.010 | - |
| Design and Analysis9 | WR | CMDP : Phoenix, AZ | 4.795 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 4.795 | - |
| Design and Analysis11 | WR | NSWC : Crane | 0.257 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.257 | - |
| Design and Analysis12 | WR | DOI&CNAP : Washington, DC | 0.487 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.487 | - |
| Design and Analysis13 | WR | COMPTEVFOR : Norfolk, VA | 0.300 | 0.160 | Nov 2018 | 0.000 | Nov 2019 | 0.300 | Nov 2020 | - | | 0.300 | 0.000 | 0.760 | - |
| Design and Analysis14 | C/CPFF | LOCKHEED MARTIN : Moorestown, NJ | 2.000 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 2.000 | - |
| Design and Analysis15 | WR | CARDEROCK : Bethesda, MD | 0.050 | 0.030 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.080 | - |
| Design and Analysis16 | WR | NWAS : Corona | 1.436 | 0.125 | Nov 2018 | 0.000 | Nov 2019 | 0.000 | | - | | 0.000 | 0.000 | 1.561 | - |
| Design and Analysis17 | C/CPFF | CORVID : Mooresville, NC | 0.100 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.100 | - |
| Design and Analysis18 | C/CPFF | BAE : Rockville, MD | 0.172 | 0.340 | Jan 2019 | 0.160 | Nov 2019 | 0.000 | | - | | 0.000 | 0.000 | 0.672 | - |
| Design and Analysis19 | MIPR | MDA : Dahlgren,VA | 1.257 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.257 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>0439 / *Standard Missile Improvement* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Design and Analysis20 | WR | IWS3D : ARLINGTON, VA | 1.500 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.500 | - |
| Design and Analysis21 | C/CPFF | LOCKHEED MARTIN : IWS (IWS 1) | 18.291 | 9.756 | Nov 2018 | 7.608 | Nov 2019 | 2.052 | Nov 2020 | - | | 2.052 | 0.000 | 37.707 | - |
| Design and Analysis22 | WR | IWS3L : Arlington, Va | 2.250 | 8.600 | Nov 2018 | 4.375 | Nov 2019 | 0.400 | Nov 2020 | - | | 0.400 | 0.000 | 15.625 | - |
| Design and Analysis23 | WR | NSWC : PHD | 0.684 | 0.075 | Nov 2018 | 0.000 | Nov 2019 | 0.000 | | - | | 0.000 | 0.000 | 0.759 | - |
| | | **Subtotal** | 1,183.273 | 101.401 | | 68.574 | | 57.696 | | - | | 57.696 | Continuing | Continuing | N/A |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEVELOPMENTAL TEST & EVALUATION1 | WR | NSWC : Port Hueneme | 0.185 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.185 | - |
| DEVELOPMENTAL TEST & EVALUATION2 | WR | WSMR : New Mexico | 1.600 | 0.030 | Nov 2018 | 1.000 | Jan 2020 | 0.000 | | - | | 0.000 | 0.000 | 2.630 | - |
| DEVELOPMENTAL TEST & EVALUATION3 | WR | NAWC : Pt Mugu | 0.098 | 0.000 | | 0.000 | | 0.800 | Nov 2020 | - | | 0.800 | 0.000 | 0.898 | - |
| DEVELOPMENTAL TEST & EVALUATION4 | WR | PMRF : Hawaii | 0.338 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.338 | - |
| DEVELOPMENTAL TEST & EVALUATION5 | WR | NSWC : PHD/ Techrep | 0.567 | 0.000 | | 0.000 | Nov 2019 | 0.000 | | - | | 0.000 | 0.000 | 0.567 | - |
| DEVELOPMENTAL TEST & EVALUATION6 | SS/CPFF | RAYTHEON : Tucson, Az | 0.000 | 0.000 | | 1.695 | Nov 2019 | 0.000 | | - | | 0.000 | 0.000 | 1.695 | - |
| DEVELOPMENTAL TEST & EVALUATION7 | C/CPFF | JHU/APL : Laurel, Md | 0.000 | 0.000 | | 0.519 | Nov 2019 | 0.000 | | - | | 0.000 | 0.000 | 0.519 | - |
| DEVELOPMENTAL TEST & EVALUATION7 | C/CPIF | VARIOUS : IWS (IWS 1) | 0.000 | 0.000 | | 2.372 | Nov 2019 | 0.000 | | - | | 0.000 | 0.000 | 2.372 | - |
| DEVELOPMENTAL TEST & EVALUATION7 | WR | NSWC : Dahlgren | 0.000 | 0.000 | | 0.248 | Jan 2020 | 0.000 | | - | | 0.000 | 0.000 | 0.248 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>0439 / *Standard Missile Improvement* |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Subtotal** | 2.788 | 0.030 | | 5.834 | | 0.800 | | - | | 0.800 | 0.000 | 9.452 | N/A |

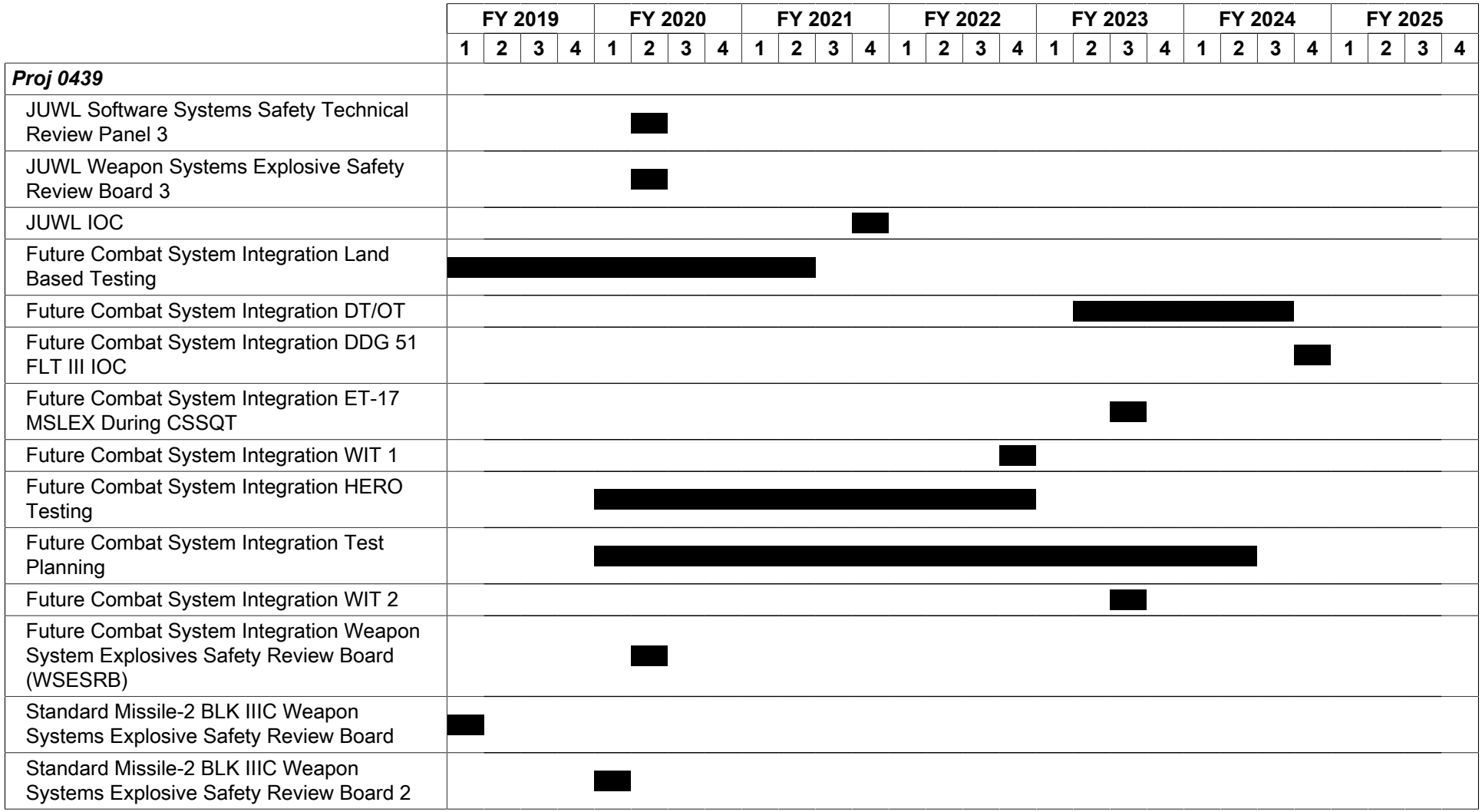
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONTRACTOR ENGINEERING SUPPORT | C/CPAF | VARIOUS : VARIOUS | 2.630 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 2.630 | - |
| PROGRAM MANAGEMENT SUPPORT | C/CPAF | VARIOUS : VARIOUS | 6.010 | 3.052 | Nov 2018 | 3.105 | Nov 2019 | 3.424 | Nov 2020 | - | | 3.424 | 0.000 | 15.591 | - |
| TRAVEL | Allot | IWS3 : Arlington, VA | 0.396 | 0.080 | Nov 2018 | 0.020 | Nov 2019 | 0.020 | Nov 2020 | - | | 0.020 | 0.000 | 0.516 | - |
| | | **Subtotal** | 9.036 | 3.132 | | 3.125 | | 3.444 | | - | | 3.444 | 0.000 | 18.737 | N/A |

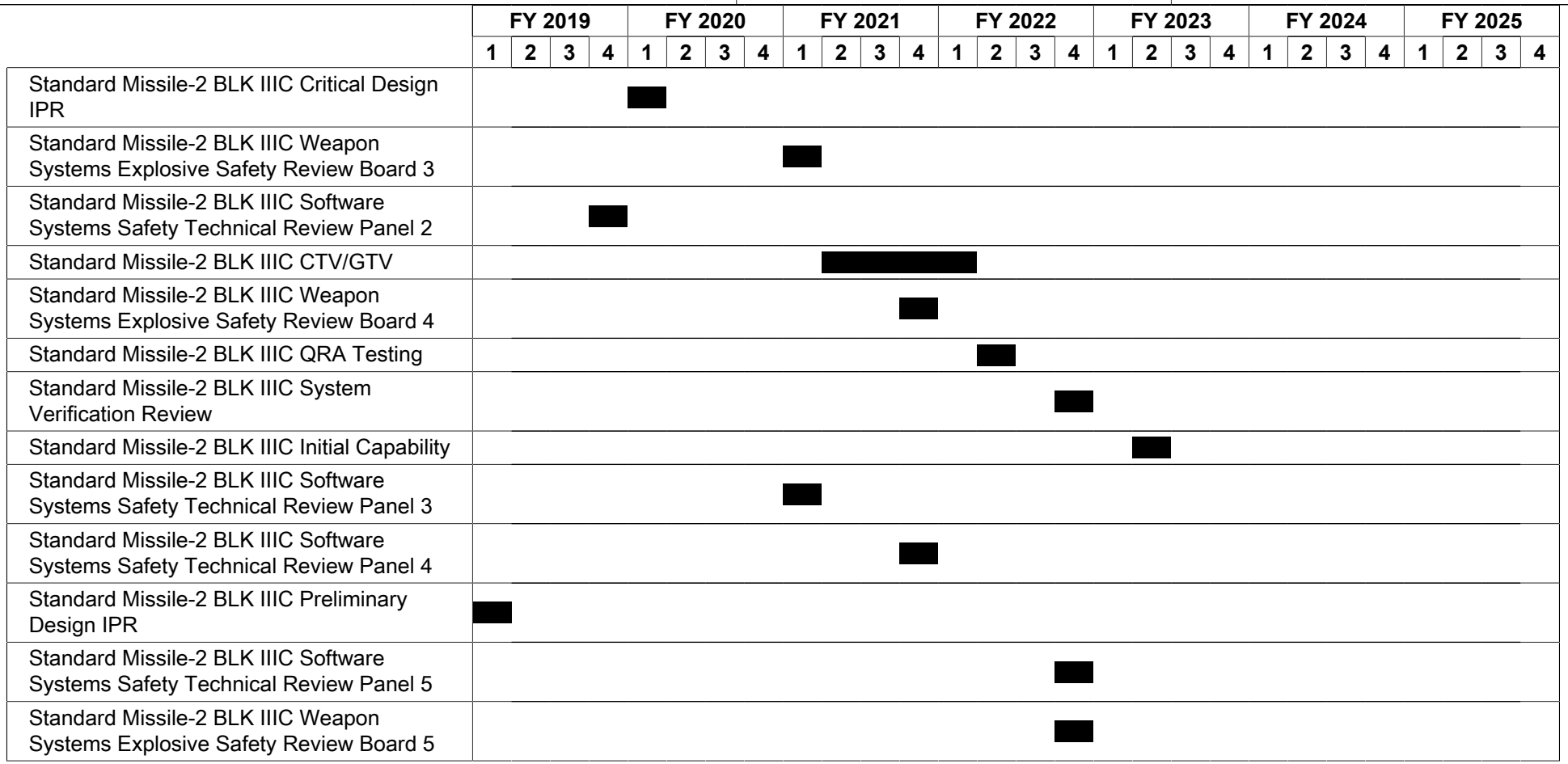
| | Prior Years | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 1,195.097 | 104.563 | | 77.533 | | 61.940 | | - | | 61.940 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>0439 / *Standard Missile Improvement* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>0439 / *Standard Missile Improvement* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>0439 / *Standard Missile Improvement* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 0439*** | | | | |
| JUWL Software Systems Safety Technical Review Panel 3 | 2 | 2020 | 2 | 2020 |
| JUWL Weapon Systems Explosive Safety Review Board 3 | 2 | 2020 | 2 | 2020 |
| JUWL IOC | 4 | 2021 | 4 | 2021 |
| Future Combat System Integration Land Based Testing | 1 | 2019 | 2 | 2021 |
| Future Combat System Integration DT/OT | 2 | 2023 | 3 | 2024 |
| Future Combat System Integration DDG 51 FLT III IOC | 4 | 2024 | 4 | 2024 |
| Future Combat System Integration ET-17 MSLEX During CSSQT | 3 | 2023 | 3 | 2023 |
| Future Combat System Integration WIT 1 | 4 | 2022 | 4 | 2022 |
| Future Combat System Integration HERO Testing | 1 | 2020 | 4 | 2022 |
| Future Combat System Integration Test Planning | 1 | 2020 | 2 | 2024 |
| Future Combat System Integration WIT 2 | 3 | 2023 | 3 | 2023 |
| Future Combat System Integration Weapon System Explosives Safety Review Board (WSESRB) | 2 | 2020 | 2 | 2020 |
| Standard Missile-2 BLK IIIC Weapon Systems Explosive Safety Review Board | 1 | 2019 | 1 | 2019 |
| Standard Missile-2 BLK IIIC Weapon Systems Explosive Safety Review Board 2 | 1 | 2020 | 1 | 2020 |
| Standard Missile-2 BLK IIIC Critical Design IPR | 1 | 2020 | 1 | 2020 |
| Standard Missile-2 BLK IIIC Weapon Systems Explosive Safety Review Board 3 | 1 | 2021 | 1 | 2021 |
| Standard Missile-2 BLK IIIC Software Systems Safety Technical Review Panel 2 | 4 | 2019 | 4 | 2019 |
| Standard Missile-2 BLK IIIC CTV/GTV | 2 | 2021 | 1 | 2022 |
| Standard Missile-2 BLK IIIC Weapon Systems Explosive Safety Review Board 4 | 4 | 2021 | 4 | 2021 |
| Standard Missile-2 BLK IIIC QRA Testing | 2 | 2022 | 2 | 2022 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>0439 / *Standard Missile Improvement* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| Standard Missile-2 BLK IIIC System Verification Review | 4 | 2022 | 4 | 2022 |
| Standard Missile-2 BLK IIIC Initial Capability | 2 | 2023 | 2 | 2023 |
| Standard Missile-2 BLK IIIC Software Systems Safety Technical Review Panel 3 | 1 | 2021 | 1 | 2021 |
| Standard Missile-2 BLK IIIC Software Systems Safety Technical Review Panel 4 | 4 | 2021 | 4 | 2021 |
| Standard Missile-2 BLK IIIC Preliminary Design IPR | 1 | 2019 | 1 | 2019 |
| Standard Missile-2 BLK IIIC Software Systems Safety Technical Review Panel 5 | 4 | 2022 | 4 | 2022 |
| Standard Missile-2 BLK IIIC Weapon Systems Explosive Safety Review Board 5 | 4 | 2022 | 4 | 2022 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy | | | Date: February 2020 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 5 | R-1 Program Element (Number/Name)<br>PE 0604366N / *Standard Missile Improvements* | Project (Number/Name)<br>2063 / *SM-6 Blk IB* | |

| COST ($ in Millions) | Prior Years | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2063: *SM-6 Blk IB* | 0.000 | 23.100 | 77.605 | 231.503 | - | 231.503 | 155.898 | 112.736 | 27.527 | 3.679 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

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

This program leverages existing missile technology and advanced missile technology from the SM-6 BLK IB Phase IA Rocket Motor Rapid Prototyping Experimentation and Demonstration (RPED) effort completing in FY 20. It aligns with the STANDARD Missile roadmap and takes advantage of the Navy's investment in the AEGIS Weapon System (AWS). This missile will provide an extended range capability for SM-6 and will be a key contributor to the protection of Joint U.S. Forces, in support of the 2018 National Defense Strategy. SM-6 Block IB addresses valid Joint, Fleet, and Navy Urgent Operational Needs and existing, JROC-approved requirements.

The Accelerated Acquisition Board of Directors (AA BoD) met on 17 January 2018 and approved the designation of the SM-6 Block IB Phase IA (Rocket Motor) as a Rapid Prototyping, Experimentation and Demonstration (RPED) project. This designation acknowledged the requirement to expedite the development, acquisition and fielding of the SM-6 Block IB to Naval Forces. The AA BoD met 9 November 2018 and directed SM-6 BLKIB to commence All Up Round prototyping (Phase IB).

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total |
|---|---|---|---|---|---|
| ***Title:*** SM-6 BLK IB Interim Capability Development | 23.100 | 77.605 | 212.149 | 0.000 | 212.149 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2020 Plans:***<br>RDTEN funds start the 21-inch rocket motor Engineering and Manufacturing Development (EMD) for a fully qualified system. Design and begin development of a 21-inch diameter rocker motor prototype. Fund design and development contracts for a new 21-inch rocket motor and missile steering control section. Conduct technical, schedule, and cost analyses for the integration of a new 21-inch rocket motor, a new steering control section, and modified control surface areas (CSA) to be integrated with existing components of the SM-6 Block IA missile. Develop preliminary design of a modified Power Conditioning and Telemetry section and conduct associated design trade studies. Conduct thermal analyses for all non-developmental components, and design a new All-Up- Round Thermal Protection System. Initiate updates to the tactical simulation, guidance navigation and control, autopilot algorithms and qualifications and system safety certifications. | | | | | |
| ***FY 2021 Base Plans:***<br>Continue design and development efforts started in FY 20. Initiate ground testing including wind tunnel testing to characterize aerodynamic changes to support model based analytical tools to facilitate design and design validation. Conduct a Preliminary Design Review for the All Up Round. Complete development of the 21-inch rocket motor design and fabricate multiple 21-inch diameter rocker motor prototypes. Proceed with qualification | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>2063 / *SM-6 Blk IB* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total |
|---|---|---|---|---|---|
| of the 21-inch diameter industry rocket motor, including conduct static firings and safety tests. Procure and deliver hardware prototypes of Control Surface Assemblies (CSAs), Steering Control Sections (SCS), Rocket Motors (RM), and Power Conditioning and Telemetry (PC&T) sections. Complete design and development of the All-Up- Round Thermal Protection System including analytical validation. Implement design modifications to the Vertical Launch System (VLS) MK 29 canister and begin qualification of the modified canister. Design and develop combat systems algorithms and conduct verification of combat system performance against Surface Warfare threats. Update all associated design and interface specifications as necessary. Complete design and begin to qualify in In-Flight Termination system required for developmental testing. Procure SM-6 BLK IA components, MK 72 Mod 2 Boosters, and integrate RM and SCS prototypes and MK 72 Mod 2 with SM-6 BLK IA hardware for test. Develop algorithms, software and autopilot updates to incorporate in advance of flight testing.<br>***FY 2021 OCO Plans:***<br>N/A<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>The increase from FY 20 and FY 21 is to develop and qualify an in-flight termination system mandatory for guided flight testing, transition design efforts from architectures and conceptual analyses into detailed models, validate those models with hardware in the loop prototype testing, and procure all up round and subsystem level test articles (thermal protection systems, rocket motors, steering control sections, integrated and control surface assemblies) to conduct Design verification testing (DVT) of prototypes and integrated prototypes. | | | | | |
| ***Title:*** SM-6 BLK IB Mission Integration, Development, and Operational Test | 0.000 | 0.000 | 19.354 | 0.000 | 19.354 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2020 Plans:***<br>N/A<br>***FY 2021 Base Plans:***<br>Initiate integration of algorithms into autopilot software to establish Block IB mission set. Conduct developmental analysis and simulation of mission set to verify missile performance and survivability relative to previously designed thermal protection system for rocket motor integration from the Interim Capability Development. Begin procuring test article hardware for mission set integration testing. Implement combat systems integration and initiate bench testing for mission set in advance of operational testing.<br>***FY 2021 OCO Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>2063 / *SM-6 Blk IB* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total |
|---|---|---|---|---|---|
| N/A<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Increase to create BLK IB Mission Integration, Development, and Operational Test is to establish effort for software and hardware integration, development and operational system test of capability including developing autopilot changes and procuring all-up-round test articles for validation. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 23.100 | 77.605 | 231.503 | 0.000 | 231.503 |

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

N/A

**Remarks**

**D. Acquisition Strategy**

SM-6 Block IB Acquisition Strategy in development.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>2063 / *SM-6 Blk IB* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Design and Analysis | C/CPFF | JHU/APL : Laurel, MD | 0.000 | 6.923 | Jan 2019 | 4.904 | Nov 2019 | 1.500 | Nov 2020 | - | | 1.500 | Continuing | Continuing | Continuing |
| Design and Analysis | WR | NAWC WD : China Lake | 0.000 | 0.000 | | 0.000 | | 1.050 | Nov 2020 | - | | 1.050 | Continuing | Continuing | Continuing |
| Design and Analysis | WR | NSWC : Indian Head | 0.000 | 0.081 | Jan 2020 | 0.850 | Nov 2019 | 3.689 | Nov 2020 | - | | 3.689 | Continuing | Continuing | Continuing |
| Design and Analysis | C/CPFF | Raytheon : Tucson, AZ | 0.000 | 10.336 | Dec 2019 | 42.450 | Nov 2019 | 79.483 | Nov 2020 | - | | 79.483 | Continuing | Continuing | Continuing |
| Design and Analysis | C/CPFF | BAE : ROCKVILLE, MD | 0.000 | 0.075 | Dec 2019 | 0.000 | | 0.000 | Nov 2020 | - | | 0.000 | Continuing | Continuing | Continuing |
| Design and Analysis | C/CPFF | GD-OTS : Healsburg, CA | 0.000 | 3.985 | Feb 2019 | 9.245 | Nov 2019 | 10.624 | Nov 2020 | - | | 10.624 | 0.000 | 23.854 | - |
| Design and Analysis | WR | NSWC Dahl : Dahlgren, Va | 0.000 | 0.100 | Jan 2019 | 0.250 | Nov 2019 | 5.050 | Nov 2020 | - | | 5.050 | 0.000 | 5.400 | - |
| Design and Analysis | Various | IWS 3L : Arlington, Va | 0.000 | 0.600 | Dec 2019 | 5.500 | Nov 2019 | 23.000 | Nov 2020 | - | | 23.000 | 0.000 | 29.100 | - |
| Design and Analysis | Various | Various : IWS 1.0 | 0.000 | 1.000 | Dec 2019 | 0.000 | | 11.000 | Nov 2020 | - | | 11.000 | 0.000 | 12.000 | - |
| Design and Analysis | TBD | TBD : TBD, TBD | 0.000 | 0.000 | | 10.500 | Nov 2019 | 30.000 | Nov 2020 | - | | 30.000 | 0.000 | 40.500 | - |
| Design and Analysis | C/CPFF | Corvid : Mooresville, NC | 0.000 | 0.000 | | 0.500 | Nov 2019 | 3.500 | Nov 2020 | - | | 3.500 | 0.000 | 4.000 | - |
| | | **Subtotal** | 0.000 | 23.100 | | 74.199 | | 168.896 | | - | | 168.896 | Continuing | Continuing | N/A |

**Remarks**

Line 17 is an open competition for the Rocket Motor.

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Developmental Test and Evaluation | C/CPFF | JHU/APL : Laurel, MD | 0.000 | 0.000 | | 0.000 | | 13.800 | Nov 2020 | - | | 13.800 | Continuing | Continuing | Continuing |
| Developmental Test and Evaluation | WR | NAWC WD : China Lake | 0.000 | 0.000 | | 0.000 | | 1.000 | Nov 2020 | - | | 1.000 | Continuing | Continuing | Continuing |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>2063 / *SM-6 Blk IB* |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Developmental Test and Evaluation | WR | NSWC : Port Hueneme | 0.000 | 0.000 | | 0.000 | | 0.500 | Nov 2020 | - | | 0.500 | Continuing | Continuing | Continuing |
| Developmental Test and Evaluation | C/CPFF | Raytheon : Tucson, AZ | 0.000 | 0.000 | | 0.000 | | 41.807 | Nov 2020 | - | | 41.807 | Continuing | Continuing | Continuing |
| | | **Subtotal** | 0.000 | 0.000 | | 0.000 | | 57.107 | | - | | 57.107 | Continuing | Continuing | N/A |

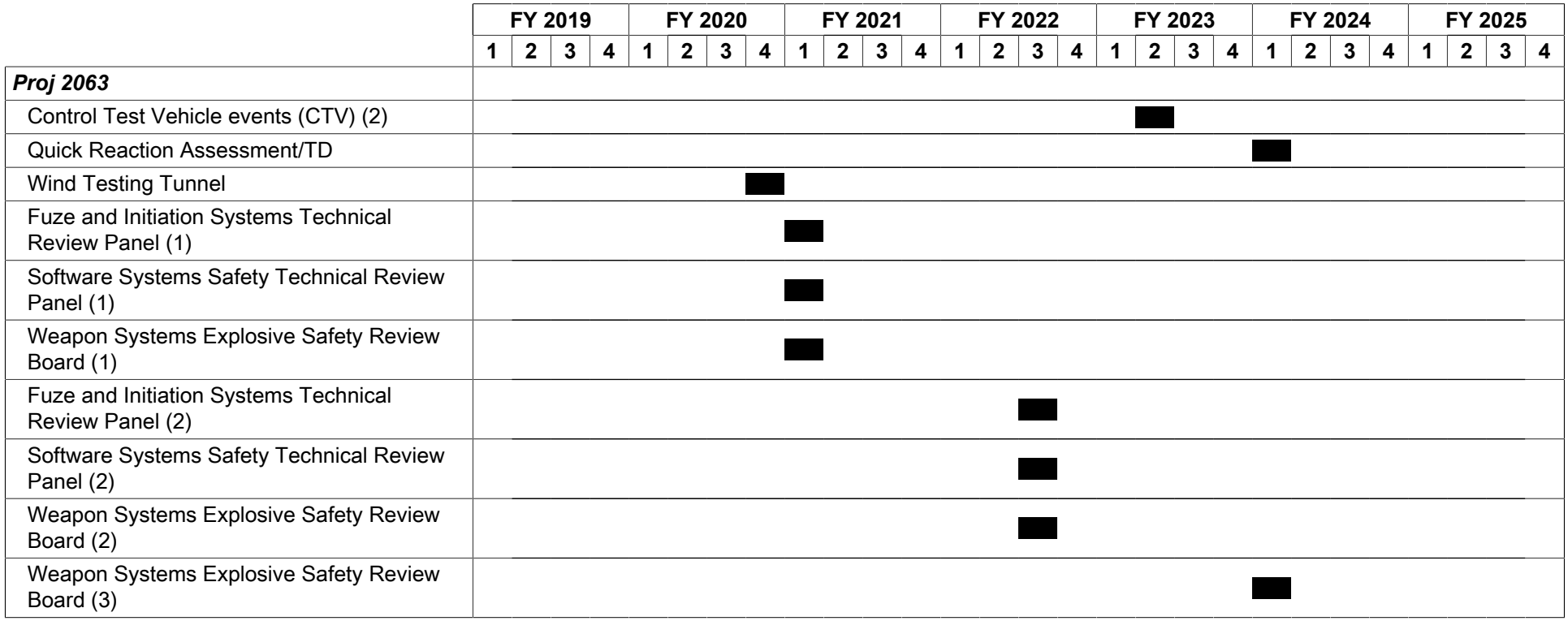
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Program Management Support | C/CPFF | VARIOUS : VARIOUS | 0.000 | 0.000 | | 3.406 | Nov 2019 | 5.500 | Nov 2020 | - | | 5.500 | Continuing | Continuing | Continuing |
| | | **Subtotal** | 0.000 | 0.000 | | 3.406 | | 5.500 | | - | | 5.500 | Continuing | Continuing | N/A |

| | Prior Years | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 0.000 | 23.100 | | 77.605 | | 231.503 | | - | | 231.503 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>2063 / *SM-6 Blk IB* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>2063 / *SM-6 Blk IB* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 2063*** | | | | |
| Control Test Vehicle events (CTV) (2) | 2 | 2023 | 2 | 2023 |
| Quick Reaction Assessment/TD | 1 | 2024 | 1 | 2024 |
| Wind Testing Tunnel | 4 | 2020 | 4 | 2020 |
| Fuze and Initiation Systems Technical Review Panel (1) | 1 | 2021 | 1 | 2021 |
| Software Systems Safety Technical Review Panel (1) | 1 | 2021 | 1 | 2021 |
| Weapon Systems Explosive Safety Review Board (1) | 1 | 2021 | 1 | 2021 |
| Fuze and Initiation Systems Technical Review Panel (2) | 3 | 2022 | 3 | 2022 |
| Software Systems Safety Technical Review Panel (2) | 3 | 2022 | 3 | 2022 |
| Weapon Systems Explosive Safety Review Board (2) | 3 | 2022 | 3 | 2022 |
| Weapon Systems Explosive Safety Review Board (3) | 1 | 2024 | 1 | 2024 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy | | | | | | | | | | | Date: February 2020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 5 | | | | | R-1 Program Element (Number/Name)<br>PE 0604366N / *Standard Missile Improvements* | | | | Project (Number/Name)<br>3092 / *Standard Missile 6 Program* | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2019** | **FY 2020** | **FY 2021 Base** | **FY 2021 OCO** | **FY 2021 Total** | **FY 2022** | **FY 2023** | **FY 2024** | **FY 2025** | **Cost To Complete** | **Total Cost** |
| 3092: *Standard Missile 6 Program* | 1,381.198 | 47.717 | 33.158 | 92.782 | - | 92.782 | 78.438 | 73.893 | 41.473 | 13.234 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

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

This program leverages existing missile technology and advanced missile technology. It aligns missile technology roadmaps across the services (NAVSEA, NAVAIR, USAF, USMC and USA) and missile variants within the services, taking advantage of the Navy's investment in the AEGIS Weapons System (AWS) and Cooperative Engagement Capability (CEC). This missile will provide an extended range engagement capability to provide the air superiority and the umbrella of protection for joint U.S. forces and allies against the full spectrum of manned-fixed and rotary-wing aircraft, unmanned aerial vehicles, and land attack and anti-ship cruise missiles in flight. This missile contributes to the continuous protection of forward deployed ground maneuver forces as well as theater rear assets supporting mission requirements discussed in the National Security Strategy (NSS), Secretary of Defense National Defense Strategy (NDS), Chairman of the Joint Chiefs' National Military Strategy (NMS), Capstone Concept for Joint Operations (CCJO), Joint Requirements Oversight Council (JROC) Integrated Air and Missile Defense (IAMD) Initial Capability Document (ICD), the JROC IAMD Joint Integrating Concept (JIC), JROC IAMD Operational Concept; the Theater and Air Missile Defense ICD (TAMD MDA-ICD), the Chairman of the Joint Chiefs of Staff Joint IAMD Vision 2020/2030 and the Joint Publication 3-01 Countering Air and Missile Threats; the Navy's Integrated Fire Control Naval Integrating Capability Concept (NIFC-NICC), the JROC Operational Requirements Document (ORD) for SM-6 BLK 1, and the JROC SM-6 Capability Production Document.

SM-6 portion of Joint and Naval Integrated Fire Control (IFC) is to support the integration, land-based and at-sea test, and analysis in support of the NIFC-CA test and evaluation strategy. NIFC-CA Increment 1 was successfully executed between 2009 and 2015. NIFC-CA Increment 2 commenced in FY 16 and will be tested in FY20 through FY24. It integrates sensor improvements, SM-6 BLK IA, CEC and AWS AEGIS Configuration Baseline (ACB) 16 into an advanced from the sea (FTS) Kill chain. Efforts include support for the White Sands Missile Range (WSMR) upgrade, Trackex events, Integration Events and Live Fire test at land based and at-sea tests.

Future Capabilities Demonstration project supports systems engineering, Standard Missile (SM) demonstrations, captive flight tests, data collection, and analysis tasks to develop and demonstrate new capabilities for the SM-6 Missile. These capabilities directly support high priority mission requirements requested by Combatant Commanders. Additional details are held at a higher classification.

SM-6 System Engineering and Flight Test supports the development of the guidance section software configuration. This includes the research, development, test and evaluation necessary to incorporate the software in production missiles. SM-6 BLK IA funding for AEGIS Configuration Baseline 16 (ACB 16) integration will verify compatibility with the latest Aegis Baseline that will use the full performance of the advanced missile.

STANDARD Missile 6 Electronics Unit funding is for the design, systems engineering, analysis, integration, and test of replacements for obsolete components. Funding will be combined with Missile Defense Agency funding for a shared approach to obsolescence and improved capability in defense of the sea base. Initial funding is for the requirements generation, risk reduction/mitigation, and establishment of development facilities necessary for the commencement of the obsolescence project. The

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>3092 / *Standard Missile 6 Program* |

Missile Defense Agency is the contracting office for the risk reduction/mitigation, and establishment of development facilities. This effort began in FY19 and continues through FY20. An increase in Navy funding was required for the development effort due to a revised cost share ratio with MDA. The development effort begins in FY20 and continues through FY24.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total |
|---|---|---|---|---|---|
| ***Title:*** Electronics Unit (EU) Obsolescence-Upgrade | 0.000 | 26.905 | 72.502 | 0.000 | 72.502 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2020 Plans:***<br>Conduct a system level Preliminary Design Review (PDR) and then design, integrate and begin qualification on hardware. Develop tactical software and simulations. Begin planning and execution of captive flight test campaign to characterize performance and refine missile tactical software and simulation. | | | | | |
| ***FY 2021 Base Plans:***<br>Conduct a system level Critical Design Review (CDR) and then continue qualification on hardware. Develop tactical software and simulations. Begin planning and execution of captive flight test campaign and tower testing to characterize performance and refine missile tactical software and simulation. | | | | | |
| ***FY 2021 OCO Plans:***<br>N/A | | | | | |
| ***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>The program Increased from FY20 to FY21 due to a revised cost share ratio with the Missile Defense Agency; total program requirements remain unchanged. | | | | | |
| ***Title:*** SM-6 System Engineering and Flight Test Support | 5.280 | 0.000 | 14.600 | 0.000 | 14.600 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2020 Plans:***<br>N/A | | | | | |
| ***FY 2021 Base Plans:***<br>Plan and execute ACB 16 integration testing of the SM-6 BLK IA. Tasks include developing live fire scenarios & test objectives, coordinating missile, ship, target and range assets, and evaluating system performance against the test objectives. | | | | | |
| ***FY 2021 OCO Plans:***<br>N/A | | | | | |
| ***FY 2020 to FY 2021 Increase/Decrease Statement:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>3092 / *Standard Missile 6 Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total |
|---|---|---|---|---|---|
| The program increases from FY 20 to FY 21 to accomplish the ACB 16 integration testing for the SM-6 BLK IA. | | | | | |
| ***Title:*** Naval Integrated Fire Control - Counter Air (NIFC-CA)<br>***Articles:***<br><br>***FY 2020 Plans:***<br>Continue supporting Increment 2 System of System (SoS) integration and test activities associated with the White Sands Missile Range (WSMR) Desert Ship Upgrade. Commence work for SM-6 BLK I and IA NIFC-CA related software upgrades. Support test event Live Fire Test (LFT) (7) and At-Sea (7) preparations.<br><br>***FY 2021 Base Plans:***<br>Continue supporting increment two (2) System of Systems (SOS) integration and test activities commence work for SM-6 BLK I and IA NIFC-CA related software upgrades. Support test event At-Sea (7) execution/analysis and Live Fire Test (8).<br><br>***FY 2021 OCO Plans:***<br>N/A<br><br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>The increase from FY20 to FY21 is because of the testing of the new software upgrades. | 2.868<br>- | 3.213<br>- | 3.260<br>- | 0.000<br>- | 3.260<br>- |
| ***Title:*** Future Capability Demonstration<br>***Articles:***<br><br>***FY 2020 Plans:***<br>Conduct Future Capability Demonstration At-Sea Test 4 (one TACDEMO flight) in 2QFY20. Conduct Future Capability Demonstration Land-Based Test (one TACDEMO flight) in 2QFY20. Generate objective quality evidence (OQE) to support a software Engineering Change Proposal (ECP) to cut the new capabilities into the SM-6 Blk IA production line.<br><br>***FY 2021 Base Plans:***<br>Execute all remaining tasking required to cut the final Future Capability Demonstration ECP into SM-6 Blk 1A production line. Support Navy doctrine and training commands as they finalize tactical memos and training curricula that support introduction of the Future Capability Demonstration missions into the Fleet. Conduct analysis and trade studies to identify future enhancements and expansion of the Future Capability Demonstration missions.<br><br>***FY 2021 OCO Plans:*** | 39.569<br>- | 3.040<br>- | 2.420<br>- | 0.000<br>- | 2.420<br>- |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>3092 / *Standard Missile 6 Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total |
|---|---|---|---|---|---|
| N/A<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>The program allocation reduces from FY 20 to FY 21 because the flight test are completed and the program is transitioning to production. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 47.717 | 33.158 | 92.782 | 0.000 | 92.782 |

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

| Line Item | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • WPN 2234: *Standard Missile* | 490.210 | 488.312 | 539.829 | - | 539.829 | 625.139 | 600.764 | 905.190 | 840.137 | 1,364.643 | 9,156.633 |
| • Standard Missile: *QTY* | 125.000 | 125.000 | 125.000 | - | 125.000 | 125.000 | 125.000 | 180.000 | 160.000 | 560.000 | 2,314.000 |

**Remarks**

**D. Acquisition Strategy**

SM-6 Acquisition Strategy signed by OSD AT&L 14 March 2012.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>3092 / *Standard Missile 6 Program* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Design & Analysis | C/CPFF | RAYTHEON : Tucson, AZ | 785.787 | 14.352 | Nov 2018 | 22.502 | Nov 2019 | 66.498 | Nov 2020 | - | | 66.498 | Continuing | Continuing | Continuing |
| Design & Analysis | C/CPFF | JHU/APL : Laurel MD | 67.147 | 2.626 | Nov 2018 | 3.716 | Nov 2019 | 6.351 | Nov 2020 | - | | 6.351 | 0.000 | 79.840 | - |
| Design & Analysis | MIPR | MIT/Lin Lab : Lexington, MA | 0.550 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.550 | - |
| Design & Analysis | WR | NAWC : China Lake | 13.144 | 0.480 | Nov 2018 | 0.400 | Nov 2019 | 0.380 | Nov 2020 | - | | 0.380 | 0.000 | 14.404 | - |
| Design & Analysis | WR | NSWC : Dahlgren | 12.908 | 0.000 | | 0.400 | Nov 2019 | 2.381 | Nov 2020 | - | | 2.381 | 0.000 | 15.689 | - |
| Design & Analysis | WR | NSWC : Indian Head | 3.942 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 3.942 | - |
| Design & Analysis | WR | NSWC : PHD | 12.627 | 0.000 | | 0.000 | | 1.000 | Nov 2020 | - | | 1.000 | 0.000 | 13.627 | - |
| Design & Analysis | WR | NSWC : Crane | 1.256 | 0.000 | | 0.100 | Nov 2019 | 0.300 | Nov 2020 | - | | 0.300 | 0.000 | 1.656 | - |
| Design & Analysis | MIPR | JSPO : Eglin AFB | 24.049 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 24.049 | - |
| Design & Analysis | C/CPFF | LOCKHEED Martin : Moorestown, NJ | 6.074 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 6.074 | - |
| Design & Analysis | WR | NSWC : Corona | 24.200 | 0.000 | | 0.000 | | 2.025 | Nov 2020 | - | | 2.025 | 0.000 | 26.225 | - |
| Design & Analysis | Reqn | ONR : Arlington, VA | 5.320 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 5.320 | - |
| Design & Analysis | Reqn | NRL : Washington, DC | 0.140 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.140 | - |
| Design & Analysis | WR | COMPTEVFOR : Norfolk, VA | 2.620 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 2.620 | - |
| Design & Analysis | WR | CARDEROCK : Philadelphia, PA | 4.058 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 4.058 | - |
| Design & Analysis | WR | NSWC : Pt Mugu | 0.613 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.613 | - |
| Design & Analysis | C/CPFF | BAE : Rockville, MD | 6.486 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 6.486 | - |
| Design & Analysis | MIPR | ARMY : Redstone | 0.350 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.350 | - |
| Design & Analysis | WR | NAWCAD : Pax River, MD | 3.762 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 3.762 | - |
| Design & Analysis | C/CPFF | CORVID : Mooresville, NC | 13.300 | 1.670 | Nov 2018 | 0.000 | | 0.458 | Nov 2020 | - | | 0.458 | 0.000 | 15.428 | - |
| Design & Analysis | C/CPFF | RNB : Arlington, VA | 0.010 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.010 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>3092 / *Standard Missile 6 Program* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Design & Analysis | WR | SPAWAR : Arlington, VA | 0.007 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.007 | - |
| Design & Analysis | WR | ARMY : Cecom | 0.066 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.066 | - |
| Design & Analysis | C/FP | GENERAL DYNAMICS : Falls Church, VA | 1.660 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.660 | - |
| Design & Analysis | WR | VARIOUS : (IWS 1A) | 122.257 | 8.099 | Nov 2018 | 0.000 | | 1.500 | Nov 2020 | - | | 1.500 | 0.000 | 131.856 | - |
| Design & Analysis | WR | VARIOUS : (VLS) | 25.674 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 25.674 | - |
| Design & Analysis | WR | NSWC : WSMR | 0.200 | 0.000 | | 0.000 | | 1.000 | Nov 2020 | - | | 1.000 | 0.000 | 1.200 | - |
| Design & Analysis | WR | PMRF : Hawaii | 3.806 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 3.806 | - |
| Design & Analysis | WR | DOI : Washington D.C. | 0.000 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.000 | - |
| | | **Subtotal** | 1,142.013 | 27.227 | | 27.118 | | 81.893 | | - | | 81.893 | Continuing | Continuing | N/A |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Developmental Test & Evaluation | WR | NSWC : Port Hueneme | 8.129 | 1.245 | Nov 2018 | 0.060 | Nov 2019 | 1.080 | Nov 2020 | - | | 1.080 | 0.000 | 10.514 | - |
| Developmental Test & Evaluation | WR | NSWC : WSMR | 30.025 | 3.175 | Nov 2018 | 0.000 | | 1.500 | Nov 2020 | - | | 1.500 | 0.000 | 34.700 | - |
| Developmental Test & Evaluation | WR | PMRF : Hawaii | 44.601 | 3.000 | Nov 2018 | 0.000 | | 0.775 | Nov 2020 | - | | 0.775 | 0.000 | 48.376 | - |
| Developmental Test & Evaluation | WR | NAWC : Pt Mugu | 5.191 | 0.875 | Nov 2018 | 0.000 | | 1.500 | Nov 2020 | - | | 1.500 | 0.000 | 7.566 | - |
| Developmental Test & Evaluation | C/CPAF | RAYTHEON : Tucson, AZ | 49.417 | 3.200 | Nov 2018 | 0.800 | Nov 2019 | 0.000 | | - | | 0.000 | 0.000 | 53.417 | - |
| Developmental Test & Evaluation | C/CPFF | JHU/APL : Laurel, MD | 18.004 | 1.800 | Nov 2018 | 0.980 | Nov 2019 | 0.000 | | - | | 0.000 | 0.000 | 20.784 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>3092 / *Standard Missile 6 Program* |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Developmental Test & Evaluation | WR | NSWC : Corona | 13.576 | 2.750 | Nov 2018 | 1.250 | Nov 2019 | 1.500 | Nov 2020 | - | | 1.500 | 0.000 | 19.076 | - |
| Developmental Test & Evaluation | WR | NSWC : Dahlgren | 2.766 | 0.620 | Nov 2018 | 0.850 | Nov 2019 | 0.000 | | - | | 0.000 | 0.000 | 4.236 | - |
| Developmental Test & Evaluation | WR | VLS : Arlington, VA | 2.369 | 0.000 | | 0.000 | | 0.090 | Nov 2020 | - | | 0.090 | 0.000 | 2.459 | - |
| Developmental Test & Evaluation | WR | COMPTEVFOR : Norfolk, Va | 1.889 | 0.230 | Nov 2018 | 0.000 | | 0.330 | Nov 2020 | - | | 0.330 | 0.000 | 2.449 | - |
| Developmental Test & Evaluation | WR | VARIOUS : (IWS 1A) | 4.282 | 0.000 | | 0.000 | | 0.600 | Nov 2020 | - | | 0.600 | 0.000 | 4.882 | - |
| Developmental Test & Evaluation | WR | NSWC : Carderock | 2.380 | 0.200 | Nov 2018 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 2.580 | - |
| Developmental Test & Evaluation | WR | NAWC : China Lake | 9.618 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 9.618 | - |
| Developmental Test & Evaluation | WR | ONR : Arlington, Va | 3.425 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 3.425 | - |
| Developmental Test & Evaluation | WR | DOI : Washington D.C. | 0.545 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.545 | - |
| | | **Subtotal** | 196.217 | 17.095 | | 3.940 | | 7.375 | | - | | 7.375 | 0.000 | 224.627 | N/A |

**Management Services ($ in Millions)**

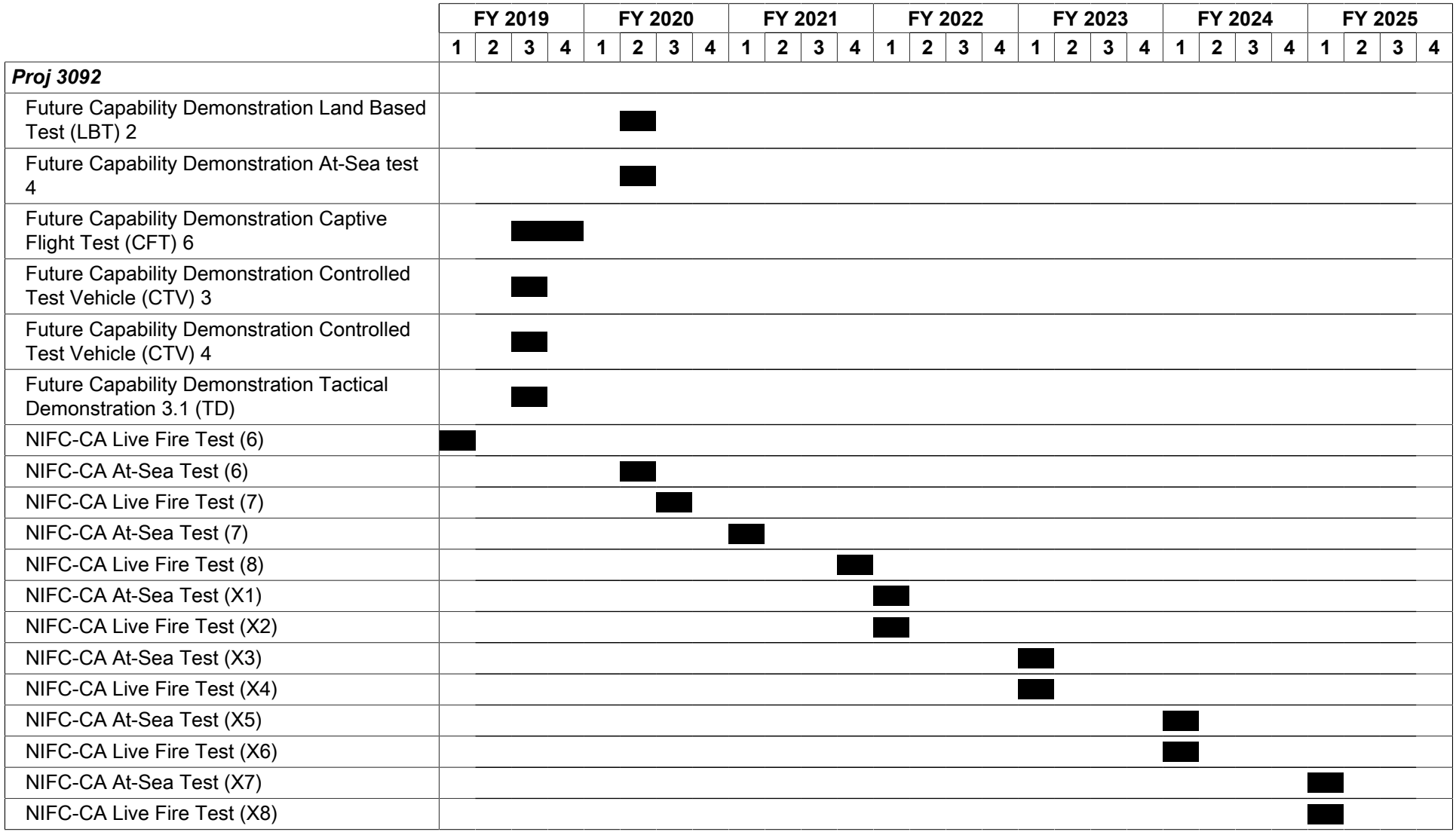
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contractor Engineering Services | C/CPAF | VARIOUS : Various | 40.360 | 3.272 | Nov 2018 | 2.000 | Nov 2019 | 3.514 | Nov 2020 | - | | 3.514 | 0.000 | 49.146 | - |
| Travel | Various | IWS3 : Arlington, VA | 1.478 | 0.123 | Nov 2018 | 0.100 | Nov 2019 | 0.000 | | - | | 0.000 | 0.000 | 1.701 | - |
| DAWDF | C/FP | Not Specified : Not Specified | 1.130 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.130 | - |
| | | **Subtotal** | 42.968 | 3.395 | | 2.100 | | 3.514 | | - | | 3.514 | 0.000 | 51.977 | N/A |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy | | | Date: February 2020 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 5 | R-1 Program Element (Number/Name)<br>PE 0604366N / *Standard Missile Improvements* | Project (Number/Name)<br>3092 / *Standard Missile 6 Program* | |

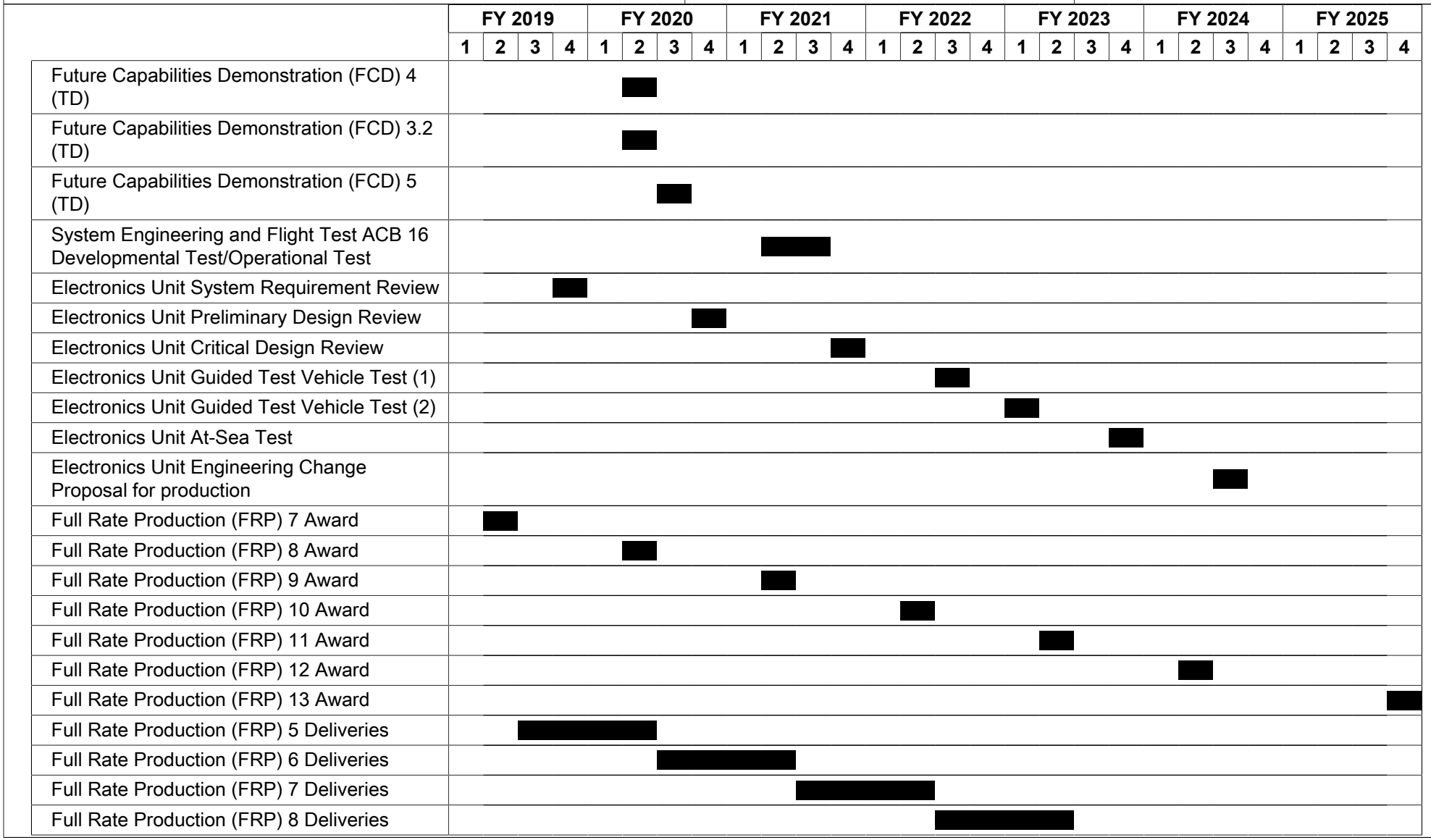
| | Prior Years | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 1,381.198 | 47.717 | | 33.158 | | 92.782 | | - | | 92.782 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>3092 / *Standard Missile 6 Program* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>3092 / *Standard Missile 6 Program* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>3092 / *Standard Missile 6 Program* |

| | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Full Rate Production (FRP) 9 Deliveries | | | | | | | | | | | | | | | | | | | [redacted] | | | | | | | | | |

| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>3092 / *Standard Missile 6 Program* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 3092*** | | | | |
| Future Capability Demonstration Land Based Test (LBT) 2 | 2 | 2020 | 2 | 2020 |
| Future Capability Demonstration At-Sea test 4 | 2 | 2020 | 2 | 2020 |
| Future Capability Demonstration Captive Flight Test (CFT) 6 | 3 | 2019 | 4 | 2019 |
| Future Capability Demonstration Controlled Test Vehicle (CTV) 3 | 3 | 2019 | 3 | 2019 |
| Future Capability Demonstration Controlled Test Vehicle (CTV) 4 | 3 | 2019 | 3 | 2019 |
| Future Capability Demonstration Tactical Demonstration 3.1 (TD) | 3 | 2019 | 3 | 2019 |
| NIFC-CA Live Fire Test (6) | 1 | 2019 | 1 | 2019 |
| NIFC-CA At-Sea Test (6) | 2 | 2020 | 2 | 2020 |
| NIFC-CA Live Fire Test (7) | 3 | 2020 | 3 | 2020 |
| NIFC-CA At-Sea Test (7) | 1 | 2021 | 1 | 2021 |
| NIFC-CA Live Fire Test (8) | 4 | 2021 | 4 | 2021 |
| NIFC-CA At-Sea Test (X1) | 1 | 2022 | 1 | 2022 |
| NIFC-CA Live Fire Test (X2) | 1 | 2022 | 1 | 2022 |
| NIFC-CA At-Sea Test (X3) | 1 | 2023 | 1 | 2023 |
| NIFC-CA Live Fire Test (X4) | 1 | 2023 | 1 | 2023 |
| NIFC-CA At-Sea Test (X5) | 1 | 2024 | 1 | 2024 |
| NIFC-CA Live Fire Test (X6) | 1 | 2024 | 1 | 2024 |
| NIFC-CA At-Sea Test (X7) | 1 | 2025 | 1 | 2025 |
| NIFC-CA Live Fire Test (X8) | 1 | 2025 | 1 | 2025 |
| Future Capabilities Demonstration (FCD) 4 (TD) | 2 | 2020 | 2 | 2020 |
| Future Capabilities Demonstration (FCD) 3.2 (TD) | 2 | 2020 | 2 | 2020 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>3092 / *Standard Missile 6 Program* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| Future Capabilities Demonstration (FCD) 5 (TD) | 3 | 2020 | 3 | 2020 |
| System Engineering and Flight Test ACB 16 Developmental Test/Operational Test | 2 | 2021 | 3 | 2021 |
| Electronics Unit System Requirement Review | 4 | 2019 | 4 | 2019 |
| Electronics Unit Preliminary Design Review | 4 | 2020 | 4 | 2020 |
| Electronics Unit Critical Design Review | 4 | 2021 | 4 | 2021 |
| Electronics Unit Guided Test Vehicle Test (1) | 3 | 2022 | 3 | 2022 |
| Electronics Unit Guided Test Vehicle Test (2) | 1 | 2023 | 1 | 2023 |
| Electronics Unit At-Sea Test | 4 | 2023 | 4 | 2023 |
| Electronics Unit Engineering Change Proposal for production | 3 | 2024 | 3 | 2024 |
| Full Rate Production (FRP) 7 Award | 2 | 2019 | 2 | 2019 |
| Full Rate Production (FRP) 8 Award | 2 | 2020 | 2 | 2020 |
| Full Rate Production (FRP) 9 Award | 2 | 2021 | 2 | 2021 |
| Full Rate Production (FRP) 10 Award | 2 | 2022 | 2 | 2022 |
| Full Rate Production (FRP) 11 Award | 2 | 2023 | 2 | 2023 |
| Full Rate Production (FRP) 12 Award | 2 | 2024 | 2 | 2024 |
| Full Rate Production (FRP) 13 Award | 4 | 2025 | 4 | 2025 |
| Full Rate Production (FRP) 5 Deliveries | 3 | 2019 | 2 | 2020 |
| Full Rate Production (FRP) 6 Deliveries | 3 | 2020 | 2 | 2021 |
| Full Rate Production (FRP) 7 Deliveries | 3 | 2021 | 2 | 2022 |
| Full Rate Production (FRP) 8 Deliveries | 3 | 2022 | 2 | 2023 |
| Full Rate Production (FRP) 9 Deliveries | 3 | 2023 | 2 | 2024 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy | | | Date: February 2020 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 5 | R-1 Program Element (Number/Name)<br>PE 0604366N / *Standard Missile Improvements* | Project (Number/Name)<br>9999 / *Congressional Adds* | |

| COST ($ in Millions) | Prior Years | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9999: *Congressional Adds* | 0.000 | 24.119 | 7.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 31.119 |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

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

STANDARD Missile 6 Electronics Unit funding is for the design, systems engineering, analysis, integration, and test of replacements for obsolete components. Funding will be combined with Missile Defense Agency funding for a shared approach to obsolescence and improved capability in defense of the sea base captured within the SM-6 Dual Increment 3 program. Initial funding is for the requirements generation, risk reduction/mitigation, and establishment of development facilities necessary for the commencement of the obsolescence project. The Missile Defense Agency is the contracting office and a RFP was issued in FY19 with contract award in FY20.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 |
|---|---|---|
| ***Congressional Add:*** SM-6 Electronics Unit<br>***FY 2019 Accomplishments:*** Contract award to Raytheon Missile Systems is expected Q4FY19 followed by a missiles Systems Requirement Review / Systems Functional Review in Q3FY19.<br>FY19 funding will be used to purchase hardware to modernize existing SM-6<br>Block IA development infrastructure.<br>***FY 2020 Plans:*** N/A | 24.119 | 0.000 |
| ***Congressional Add:*** Advanced carbon nanotube materials research<br>***FY 2019 Accomplishments:*** N/A<br>***FY 2020 Plans:*** N/A | 0.000 | 7.000 |
| **Congressional Adds Subtotals** | 24.119 | 7.000 |

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

N/A

**Remarks**

**D. Acquisition Strategy**

SM-6 Acquisition Strategy signed by OSD AT&L 14 March 2012.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>9999 / *Congressional Adds* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Design and Analysis | C/CPFF | Raytheon : Tucson, AZ | 0.000 | 19.000 | Mar 2019 | 7.000 | Nov 2020 | 0.000 | | - | | 0.000 | 0.000 | 26.000 | - |
| Design and Analysis | C/CPFF | JHU/APL : Laurel, Md | 0.000 | 2.000 | Jan 2019 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 2.000 | - |
| | | **Subtotal** | 0.000 | 21.000 | | 7.000 | | 0.000 | | - | | 0.000 | 0.000 | 28.000 | N/A |

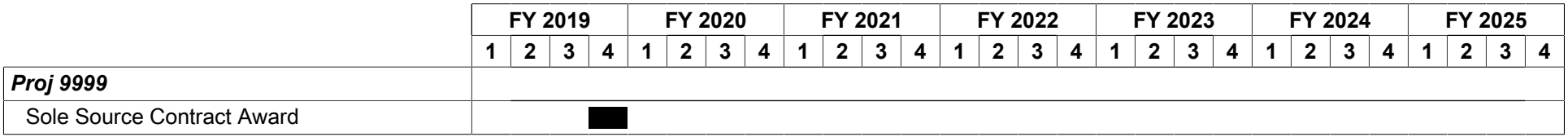
**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Program Management Support | C/CPFF | Various : Various | 0.000 | 3.119 | Mar 2019 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 3.119 | - |
| | | **Subtotal** | 0.000 | 3.119 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 3.119 | N/A |

| | Prior Years | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 0.000 | 24.119 | | 7.000 | | 0.000 | | - | | 0.000 | 0.000 | 31.119 | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>9999 / *Congressional Adds* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 5 | **R-1 Program Element (Number/Name)**<br>PE 0604366N / *Standard Missile Improvements* | **Project (Number/Name)**<br>9999 / *Congressional Adds* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 9999*** | | | | |
| Sole Source Contract Award | 4 | 2019 | 4 | 2019 |