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**Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Navy** **Date:** March 2024

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| <b>Appropriation/Budget Activity</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i> | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> |
|--|--|

| COST (\$ in Millions)                     | Prior Years | FY 2023 | FY 2024 | FY 2025 Base | FY 2025 OCO | FY 2025 Total | FY 2026 | FY 2027 | FY 2028 | FY 2029 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element                     | 1,510.213   | 82.311  | 47.492  | 74.214       | -           | 74.214        | 88.168  | 53.325  | 37.658  | 38.391  | Continuing       | Continuing |
| 0167: <i>5in Rolling Airframe Missile</i> | 359.542     | 16.725  | 11.086  | 19.157       | -           | 19.157        | 15.742  | 15.713  | 4.796   | 4.890   | Continuing       | Continuing |
| 0173: <i>NATO Sea Sparrow</i>             | 1,060.855   | 38.164  | 31.206  | 46.372       | -           | 46.372        | 63.082  | 33.659  | 32.862  | 33.501  | Continuing       | Continuing |
| 2070: <i>OTH Missile</i>                  | 67.627      | 8.130   | 5.200   | 2.039        | -           | 2.039         | 2.018   | 0.000   | 0.000   | 0.000   | 0.000            | 85.014     |
| 9081: <i>Phalanx CIWS SEARAM</i>          | 0.000       | 0.000   | 0.000   | 6.646        | -           | 6.646         | 7.326   | 3.953   | 0.000   | 0.000   | 0.000            | 17.925     |
| 9999: <i>Congressional Adds</i>           | 22.189      | 19.292  | 0.000   | 0.000        | -           | 0.000         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000            | 41.481     |

**Note**

Project 9081 Phalanx CIWS SEARAM is a FY 2025 new start.

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

This program element provides funding for the development of systems that fulfill a portion of the third phase of the Ship Self Defense: Engage Hard Kill. Development in this line will focus on hard kill capabilities in which missiles are used to intercept incoming Anti-Ship Cruise Missiles (ASCM), as well as a Surface-to Surface Strike weapon system. Missile and system improvements necessary to meet their requirements are being addressed via NATO SEASPARROW Missile System (NSSMS) (0173), Rolling Airframe Missile (RAM) (0167), Advanced Low Cost Munition Ordnance (ALaMO) (0243 and C772), Over-The-Horizon (OTH) missile (2070), and Phalanx Close-In Weapon System (CIWS) SeaRAM (9081). Missile improvements include improved kinematic performance plus advanced seeker and low elevation fusing/warhead capability improvements. CIWS System improvements include integration of RAM Block 2B into MK 15 MOD 40 CIWS RAM Defense Capability (CRDC). ALaMO (0243 and C772) qualifies a guided 57mm projectile with an active seeker for United States Navy (USN) use. ALaMO provides enhanced lethality against Fast In-shore Attack Craft (FIAC) when compared to existing 57mm ammunition.

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| <b>Appropriation/Budget Activity</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy I BA 5: System Development &amp; Demonstration (SDD)</i> | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N I <i>Ship Self Def (Engage: Hard Kill)</i> |
|--|--|

| <b>B. Program Change Summary (\$ in Millions)</b> | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b> | <b>FY 2025 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget                       | 84.518         | 47.492         | 56.149              | -                  | 56.149               |
| Current President's Budget                        | 82.311         | 47.492         | 74.214              | -                  | 74.214               |
| Total Adjustments                                 | -2.207         | 0.000          | 18.065              | -                  | 18.065               |
| • Congressional General Reductions                | -              | -              |                     |                    |                      |
| • Congressional Directed Reductions               | -              | -              |                     |                    |                      |
| • Congressional Rescissions                       | -              | -              |                     |                    |                      |
| • Congressional Adds                              | -              | -              |                     |                    |                      |
| • Congressional Directed Transfers                | -              | -              |                     |                    |                      |
| • Reprogrammings                                  | 0.000          | 0.000          |                     |                    |                      |
| • SBIR/STTR Transfer                              | -2.206         | 0.000          |                     |                    |                      |
| • Program Adjustments                             | 0.000          | 0.000          | 18.099              | -                  | 18.099               |
| • Rate/Misc Adjustments                           | -0.001         | 0.000          | -0.034              | -                  | -0.034               |

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

**Project:** 9999: *Congressional Adds*

Congressional Add: *ALaMO block 1 projectile*

|   | <b>FY 2023</b> | <b>FY 2024</b> |
|---|----------------|----------------|
|   | 19.292         | 0.000          |
| Congressional Add Subtotals for Project: 9999 | 19.292         | 0.000          |
| Congressional Add Totals for all Projects     | 19.292         | 0.000          |

**Change Summary Explanation**

The change from Previous President's Budget for FY 2025 is due to an increase for Rolling Airframe Missile (RAM) Electronic Surveillance Measurement Sensor (ESMS) Obsolescence and Upgrade, increase to support integration of RAM Block 2B with MK 15 MOD 40 CIWS, and other minor adjustments.

RAM increases from FY 2024 to FY 2025 due to expansion of the evolutionary agile development efforts to implement an uplink/downlink and Electronic Sensor Measurement System. NATO Sea Sparrow increase of funding from FY 2024 to FY 2025 is primarily due integration verification and flight testing in support of ESSM Block 2 IOT&E Phase 2 starting in FY 2025. OTH decrease in funding from FY 2024 to FY 2025 is due to program being in full rate production leading to reduced development efforts. CIWS increase in funding from FY 2024 to FY 2025 required to support integration of RAM Block 2B with MK 15 MOD 40 CIWS.

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |                    |                |                |                     |  |                      |                |                |  | <b>Date:</b> March 2024 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> |                      |                |                | <b>Project (Number/Name)</b><br>0167 / <i>5in Rolling Airframe Missile</i> |                         |                         |                   |
| <b>COST (\$ in Millions)</b>                                       | <b>Prior Years</b> | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b>   | <b>FY 2025 Total</b> | <b>FY 2026</b> | <b>FY 2027</b> | <b>FY 2028</b>   | <b>FY 2029</b>          | <b>Cost To Complete</b> | <b>Total Cost</b> |
| 0167: <i>5in Rolling Airframe Missile</i>                          | 359.542            | 16.725         | 11.086         | 19.157              | -  | 19.157               | 15.742         | 15.713         | 4.796  | 4.890                   | Continuing              | Continuing        |
| Quantity of RDT&E Articles   |                    | -              | -              | -                   | -  | -                    | -              | -              | -  | -                       |                         |                   |

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

The Rolling Airframe Missile (RAM) program is an international cooperative program with the government of the Federal Republic of Germany. The purpose of this program is to develop, test, and field a surface-to-air self-defense system consisting of both a missile launcher and dual mode, passive radio frequency/infrared seeker missiles. The RAM Block 2B missile defends against highly maneuverable Anti-Ship Cruise Missile (ASCM) threats and emerging complex raid attacks utilizing an advanced seeker and Missile-to-Missile Link (MML) while maintaining all the proven capabilities of previous RAM variants (Block 0/1/1A/2/2A): accurate terminal guidance, proven lethality, and post-launch fire and forget capability.

FY 2025 through FY 2029 efforts are as follows: 1) Complete integration of the latest RAM Guided Missile Weapon System (GMWS) into the Ship Self-Defense System (SSDS) Baseline (BL) 12 Combat System. This will enable the fleet to deploy the full capability of the RAM Block 2B missile which entered production in FY 2023. 2) Continue the RAM "Performance Lab" for experiments, Modeling and Simulation (M&S) that provide quick turnaround raid performance curves for guiding integration, tactics, and future investments decisions. 3) Continue the RAM Software Factory to provide end users with rapid missile software updates to address emerging threats. 4) Build on the successful FY 2023/2024 "Performance Lab" experiments to exploit the RAM Block 2B MML as an uplink/downlink and integrate an Electronic Sensor Measurement System (ESMS) into the RAM launchers. This will improve RAM Block 2B mid-course guidance and kill assessment providing an increased probability of missile intercept and increase the number of stowed kills possible by lowering missile usage. This capability will apply to both the MK 49 RAM launcher and the MK 15 SeaRAM launcher.

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

|  | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b> | <b>FY 2025 Total</b> |
|--|----------------|----------------|---------------------|--------------------|----------------------|
| <b>Title:</b> Rolling Airframe Missile Block 2 Development and Test  | 16.725         | 11.086         | 19.157              | 0.000              | 19.157               |
| <b>Articles:</b>   | -              | -              | -                   | -                  | -                    |
| <b>FY 2024 Plans:</b>  |                |                |                     |                    |                      |
| In support of integration efforts, conclude regression flight testing analysis to verify RAM Block 2B missile hardware and software raid performance improvements in SSDS BL 12. Conduct electromagnetic environmental effects (E3) testing for all fielded RAM variants with new US Navy emitters such as AN/SPY-6 (EASR) and AN/SLQ-32(V)7 (SEWIP Block 3), which is a requirement for combat systems certification. Build virtual RAM models for integrated combat system end-to-end development which enables rapid missile and combat system software development, certification and deployment to counter new and emerging threats. Conduct preliminary investigations to support RAM integration on Aegis platforms. Continue the RAM "Performance Lab" for |                |                |                     |                    |                      |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |  | <b>Date:</b> March 2024  |
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0167 / <i>5in Rolling Airframe Missile</i> |

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

|   | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b> | <b>FY 2025 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| <p>Modeling and Simulation (M&amp;S) efforts that provide quick turnaround raid performance curves which guide integration, tactics, and future investments decisions (including software improvements decisions). Continue evolutionary agile development efforts that deliver critical missile software-based capability packages to counter emerging threats such as hypersonic weapons.</p> <p><b>FY 2025 Base Plans:</b><br/>Continue integration efforts of the RAM Guided Missile Weapon System (GMWS) into SSDS BL12 Combat System which will provide the latest RAM GMRP variant (RAM Block 2B) capabilities to the fleet. Integration efforts include RAM engineering support to combat system designers understanding and interpretation of Weapon Specification (WS) 19622F combat system to RAM interface specification (including Guidelines for Effective Utilization of the RAM Weapon System document), and review of combat system architecture and weapon system integration documentation and design.</p> <p>Continue the RAM "Performance Lab" to provide quick turnaround raid performance curves which guide integration, tactics, and future investments decisions (including software improvements decisions). Continue to conduct experiments to verify the M&amp;S analysis indicating performance improvements are grounded in actual testing. The major experiment will be the Virtual Terminal Defense System (VTDS) with the goal to consolidate inherent Fire Control functions into a single software stack while isolating them from the hardware. Conduct a live fire demonstration of VTDS by integrating VTDS with a combat system, a prototype ESMS and RAM launcher to perform a RAM engagement.</p> <p>Continue Software (SW) Factory efforts to deliver RAM Guided Missile Round Pack (GMRP) software performance updates incorporating improvements identified through trade studies and flight tests. Develop and release a RAM Block 2B missile software update.</p> <p>Develop the RAM missile Uplink/Downlink and Electronic Sensor Measure System (ESMS) by finalizing the system requirements, design and performing in lab qualification and integration testing. Develop the missile launcher transmitter and receiver which will interface with the ship combat system and communicate with RAM while it is in flight. Update the missile software to receive and transmit messages, and process commands from the ship combat system. Update the missile launcher software to accept ESMS messages for processing and delivering ESMS threat information to RAM before missile launch. Obtain hardware and perform threat emitter</p> |                |                |                     |                    |                      |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |  | <b>Date:</b> March 2024  |
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0167 / <i>5in Rolling Airframe Missile</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b> | <b>FY 2025 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| ESMS sensitivity tests to determine ESMS capability versus current and future threat emitters. Perform system requirement review and critical design review. Begin planning for an FY 2026 test event.  |                |                |                     |                    |                      |
| <b><i>FY 2025 OCO Plans:</i></b><br>N/A   |                |                |                     |                    |                      |
| <b><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i></b><br>Increase from FY 2024 to FY 2025 due to expansion of the evolutionary agile development efforts to implement an Uplink/Downlink and Electronic Sensor Measurement System (ESMS). |                |                |                     |                    |                      |
| <b>Accomplishments/Planned Programs Subtotals</b>   | 16.725         | 11.086         | 19.157              | 0.000              | 19.157               |

| <b>C. Other Program Funding Summary (\$ in Millions)</b> |                |                |                     |                    |                      |                |                |                |                |                         |                   |
|--|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| <u>Line Item</u>   | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025 Base</u> | <u>FY 2025 OCO</u> | <u>FY 2025 Total</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>FY 2029</u> | <u>Cost To Complete</u> | <u>Total Cost</u> |
| • WPN 2242: RAM  | 92.131         | 114.896        | 141.021             | -                  | 141.021              | 114.669        | 115.797        | 118.763        | 127.104        | Continuing              | Continuing        |
| • OPN 5231: <i>Ship Missile Support Equipment</i>        | 7.053          | 7.222          | 71.493              | -                  | 71.493               | 62.139         | 63.332         | 64.603         | 65.906         | Continuing              | Continuing        |

**Remarks**

**D. Acquisition Strategy**

The RAM Program uses directed sole source contracts with Raytheon Missiles & Defense, Tucson, AZ.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy |                        |                                |             |   |            |         |            |              |                                     |             |            | Date: March 2024 |                  |            |                          |
|--|------------------------|--------------------------------|-------------|---|------------|---------|------------|--------------|-------------------------------------|-------------|------------|------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity                          |                        |                                |             | R-1 Program Element (Number/Name)               |            |         |            |              | Project (Number/Name)               |             |            |                  |                  |            |                          |
| 1319 / 5   |                        |                                |             | PE 0604756N / Ship Self Def (Engage: Hard Kill) |            |         |            |              | 0167 / 5in Rolling Airframe Missile |             |            |                  |                  |            |                          |
| Product Development (\$ in Millions)                   |                        |                                |             | FY 2023   |            | FY 2024 |            | FY 2025 Base |                                     | FY 2025 OCO |            | FY 2025 Total    |                  |            |                          |
| Cost Category Item                                     | Contract Method & Type | Performing Activity & Location | Prior Years | Cost  | Award Date | Cost    | Award Date | Cost         | Award Date                          | Cost        | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Block 2 Upgrade  | C/CPAF                 | Various : Various              | 154.650     | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 154.650    | -                        |
| Primary Hardware Dev/Blk 1                             | Various                | Various : Various              | 10.081      | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 10.081     | -                        |
| FCLIP  | WR                     | PHD : CA                       | 0.777       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 0.777      | -                        |
| FCLIP  | SS/CPFF                | AECOM : VA                     | 1.226       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 1.226      | -                        |
| Raid ECP   | SS/CPFF                | Raytheon : Tucson/Louisville   | 79.366      | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 79.366     | -                        |
| FCLIP  | SS/CPFF                | Raytheon : Tucson/Louisville   | 40.563      | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 40.563     | -                        |
| Raid ECP   | SS/CPFF                | JHU/APL : MD                   | 1.115       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 1.115      | -                        |
| FCLIP  | WR                     | China Lake : CA                | 8.735       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 8.735      | -                        |
| Raid ECP   | WR                     | China Lake : CA                | 4.306       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 4.306      | -                        |
| FCLIP  | SS/CPFF                | JHU/APL : MD                   | 0.692       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 0.692      | -                        |
| Raid ECP   | WR                     | PHD : CA                       | 0.050       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 0.050      | -                        |
| Raid ECP   | SS/CPFF                | AECOM : VA                     | 1.960       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 1.960      | -                        |
| FCLIP  | WR                     | PT Mugu : CA                   | 0.025       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 0.025      | -                        |
| FCLIP  | WR                     | NSWC DD : VA                   | 0.844       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 0.844      | -                        |
| Various  | Various                | Various : Various              | 10.334      | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 10.334     | -                        |
| 2B Integration   | SS/CPFF                | Raytheon : Tucson/Louisville   | 0.927       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 0.927      | -                        |
| 2B Integration   | WR                     | China Lake : CA                | 0.638       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 0.638      | -                        |
| 2B Integration   | C/CPIF                 | Lockheed Martin : NJ           | 0.997       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 0.997      | -                        |
| 2B Integration   | WR                     | NSWC DD : VA                   | 1.317       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 1.317      | -                        |
| 2B P3I   | SS/CPFF                | Raytheon : Tucson/Louisville   | 2.080       | 0.000   |            | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 2.080      | -                        |
| Block 2 Test Support                                   | C/CPFF                 | Raytheon : Tucson              | 18.787      | 4.100   | Oct 2022   | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 22.887     | -                        |
| Block 2 Test Support                                   | WR                     | China Lake/PHD : CA            | 13.414      | 1.436   | Dec 2022   | 0.000   |            | 0.000        |                                     | -           |            | 0.000            | 0.000            | 14.850     | -                        |
| RAM Evolutionary Agile                                 | SS/CPFF                | Raytheon : Tucson/Louisville   | 0.000       | 2.237   | Oct 2022   | 2.674   | Oct 2023   | 15.654       | Oct 2024                            | -           |            | 15.654           | Continuing       | Continuing | Continuing               |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy            |                        |                                |             |   |            |         |            |                                     |            |             |            | Date: March 2024 |                  |            |                          |
|---|------------------------|--------------------------------|-------------|---|------------|---------|------------|-------------------------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity                                     |                        |                                |             | R-1 Program Element (Number/Name)               |            |         |            | Project (Number/Name)               |            |             |            |                  |                  |            |                          |
| 1319 / 5  |                        |                                |             | PE 0604756N / Ship Self Def (Engage: Hard Kill) |            |         |            | 0167 / 5in Rolling Airframe Missile |            |             |            |                  |                  |            |                          |
| Product Development (\$ in Millions)                              |                        |                                |             | FY 2023   |            | FY 2024 |            | FY 2025 Base                        |            | FY 2025 OCO |            | FY 2025 Total    |                  |            |                          |
| Cost Category Item  | Contract Method & Type | Performing Activity & Location | Prior Years | Cost  | Award Date | Cost    | Award Date | Cost                                | Award Date | Cost        | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| RAM Evolutionary Agile  | WR                     | China Lake : CA                | 0.000       | 0.680   | Oct 2022   | 0.824   | Nov 2023   | 0.735                               | Nov 2024   | -           |            | 0.735            | Continuing       | Continuing | Continuing               |
| RAM Evolutionary Agile  | SS/CPFF                | Cydecor : VA                   | 0.000       | 0.425   | Oct 2022   | 0.505   | Oct 2023   | 0.750                               | Nov 2024   | -           |            | 0.750            | Continuing       | Continuing | Continuing               |
| RAM Evolutionary Agile  | WR                     | NSWC DD : VA                   | 0.000       | 0.000   |            | 0.000   |            | 0.257                               | Oct 2024   | -           |            | 0.257            | Continuing       | Continuing | Continuing               |
| SSDS BL 12 - RAM Integration                                      | C/CPIF                 | Lockheed Martin : NJ           | 0.000       | 2.140   | Mar 2023   | 0.000   |            | 0.000                               |            | -           |            | 0.000            | 0.000            | 2.140      | -                        |
| SSDS BL 12 - RAM Integration                                      | WR                     | China Lake : CA                | 0.000       | 0.985   | Dec 2022   | 1.916   | Oct 2023   | 0.871                               | Nov 2024   | -           |            | 0.871            | Continuing       | Continuing | Continuing               |
| SSDS BL 12 - RAM Integration                                      | WR                     | NSWC DD : VA                   | 0.000       | 0.975   | Jan 2023   | 0.450   | Oct 2023   | 0.100                               | Nov 2024   | -           |            | 0.100            | Continuing       | Continuing | Continuing               |
| SSDS BL 12 - RAM Integration                                      | SS/CPFF                | Cydecor : VA                   | 0.000       | 0.355   | Oct 2022   | 0.409   | Nov 2023   | 0.250                               | Nov 2024   | -           |            | 0.250            | Continuing       | Continuing | Continuing               |
| SSDS BL 12 - RAM Integration                                      | SS/CPFF                | Raytheon : Tucson/Louisville   | 0.000       | 3.392   | Dec 2022   | 4.308   | Oct 2023   | 0.540                               | Oct 2024   | -           |            | 0.540            | Continuing       | Continuing | Continuing               |
| <b>Subtotal</b>   |                        |                                | 352.884     | 16.725  |            | 11.086  |            | 19.157                              |            | -           |            | 19.157           | Continuing       | Continuing | N/A                      |
| Support (\$ in Millions)  |                        |                                |             | FY 2023   |            | FY 2024 |            | FY 2025 Base                        |            | FY 2025 OCO |            | FY 2025 Total    |                  |            |                          |
| Cost Category Item  | Contract Method & Type | Performing Activity & Location | Prior Years | Cost  | Award Date | Cost    | Award Date | Cost                                | Award Date | Cost        | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Studies and Analysis  | Various                | Various : Various              | 1.810       | 0.000   |            | 0.000   |            | 0.000                               |            | -           |            | 0.000            | 0.000            | 1.810      | -                        |
| <b>Subtotal</b>   |                        |                                | 1.810       | 0.000   |            | 0.000   |            | 0.000                               |            | -           |            | 0.000            | 0.000            | 1.810      | N/A                      |
| Test and Evaluation (\$ in Millions)                              |                        |                                |             | FY 2023   |            | FY 2024 |            | FY 2025 Base                        |            | FY 2025 OCO |            | FY 2025 Total    |                  |            |                          |
| Cost Category Item  | Contract Method & Type | Performing Activity & Location | Prior Years | Cost  | Award Date | Cost    | Award Date | Cost                                | Award Date | Cost        | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E) | WR                     | China Lake : PHD, CA           | 4.701       | 0.000   |            | 0.000   |            | 0.000                               |            | -           |            | 0.000            | 0.000            | 4.701      | -                        |
| <b>Subtotal</b>   |                        |                                | 4.701       | 0.000   |            | 0.000   |            | 0.000                               |            | -           |            | 0.000            | 0.000            | 4.701      | N/A                      |



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| <b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2025 Navy |  | <b>Date:</b> March 2024  |
| <b>Appropriation/Budget Activity</b><br>1319 / 5             | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0167 / <i>5in Rolling Airframe Missile</i> |

| FY 2023 |   |   |   | FY 2024 |   |   |   | FY 2025 |   |   |   | FY 2026 |   |   |   | FY 2027 |   |   |   | FY 2028 |   |   |   | FY 2029 |   |   |   |
|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| 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 |

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| <b>Proj 0167</b>   |  |
| Raid ECP Test Events   |  |
| RAM Integration Ship Self Defense System (SSDS) Baseline 12                            |  |
| Evolutionary Agile - Performance Lab: Development                                      |  |
| Evolutionary Agile - Performance Lab: Prepare for VTDS live fire demo                  |  |
| Evolutionary Agile - Performance Lab: VTDS Demonstration                               |  |
| Evolutionary Agile - Software Factory: Development                                     |  |
| Evolutionary Agile - Software Factory: First incremental software improvement release  |  |
| Evolutionary Agile - Software Factory: Second incremental software improvement release |  |
| Evolutionary Agile - Uplink/Downlink / ESMS: Development                               |  |
| Evolutionary Agile - Uplink/Downlink / ESMS: System Requirements Review                |  |
| Evolutionary Agile - Uplink/Downlink / ESMS: Critical Design Review                    |  |
| Evolutionary Agile - Uplink/Downlink / ESMS: Complete Launcher Software Updates        |  |
| Evolutionary Agile - Uplink/Downlink / ESMS: Complete ECP                              |  |

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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2025 Navy |  | <b>Date:</b> March 2024  |
| <b>Appropriation/Budget Activity</b><br>1319 / 5              | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0167 / <i>5in Rolling Airframe Missile</i> |

Schedule Details

| Events by Sub Project  | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| <b>Proj 0167</b>   |         |      |         |      |
| Raid ECP Test Events   | 1       | 2023 | 1       | 2024 |
| RAM Integration Ship Self Defense System (SSDS) Baseline 12                            | 1       | 2023 | 4       | 2027 |
| Evolutionary Agile - Performance Lab: Development                                      | 1       | 2023 | 4       | 2029 |
| Evolutionary Agile - Performance Lab: Prepare for VTDS live fire demo                  | 1       | 2025 | 2       | 2025 |
| Evolutionary Agile - Performance Lab: VTDS Demonstration                               | 3       | 2025 | 3       | 2025 |
| Evolutionary Agile - Software Factory: Development                                     | 2       | 2023 | 4       | 2029 |
| Evolutionary Agile - Software Factory: First incremental software improvement release  | 4       | 2024 | 4       | 2024 |
| Evolutionary Agile - Software Factory: Second incremental software improvement release | 1       | 2026 | 1       | 2026 |
| Evolutionary Agile - Uplink/Downlink / ESMS: Development                               | 1       | 2024 | 3       | 2027 |
| Evolutionary Agile - Uplink/Downlink / ESMS: System Requirements Review                | 1       | 2025 | 1       | 2025 |
| Evolutionary Agile - Uplink/Downlink / ESMS: Critical Design Review                    | 4       | 2025 | 4       | 2025 |
| Evolutionary Agile - Uplink/Downlink / ESMS: Complete Launcher Software Updates        | 1       | 2025 | 3       | 2026 |
| Evolutionary Agile - Uplink/Downlink / ESMS: Complete ECP                              | 3       | 2027 | 3       | 2027 |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |                    |                |                |                     |  |                      |                |                |   | <b>Date:</b> March 2024 |                         |                   |
|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> |                      |                |                | <b>Project (Number/Name)</b><br>0173 / NATO Sea Sparrow |                         |                         |                   |
| <b>COST (\$ in Millions)</b>                                       | <b>Prior Years</b> | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b>   | <b>FY 2025 Total</b> | <b>FY 2026</b> | <b>FY 2027</b> | <b>FY 2028</b>  | <b>FY 2029</b>          | <b>Cost To Complete</b> | <b>Total Cost</b> |
| 0173: <i>NATO Sea Sparrow</i>                                      | 1,060.855          | 38.164         | 31.206         | 46.372              | -  | 46.372               | 63.082         | 33.659         | 32.862  | 33.501                  | Continuing              | Continuing        |
| Quantity of RDT&E Articles   |                    | -              | -              | -                   | -  | -                    | -              | -              | -   | -                       |                         |                   |

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

This project encompasses eight (8) primary efforts to enhance ship self-defense:

1. ESSM System Integration and Test: Evolved SEASPARROW Missile (ESSM) Blk 1 and Block 2 is a cooperative effort among the 12 NATO SEASPARROW Project Consortium Nations including the U.S. to provide crucial battlespace defense and fire power against the fast, low altitude, highly maneuverable Anti-Ship Cruise Missile (ASCM) threat. Modifications were made to increase capacity by employing a four ESSM QuadPack in a single MK 41 Vertical Launch System (VLS) cell and the NATO SEASPARROW Surface Missile System (NSSMS) fielded onboard CVN 68 and CVN 78 Class Aircraft Carriers, LHD 1 and LHA 7 Class Multipurpose Amphibious Assault Ships, DDG 51 Class Guided Missile Destroyers, and CG 47 Class Guided Missile Cruisers. Major testing campaigns this year includes ESSM Blk 2 IOT&E Phase 2, which will complete the IOT&E phase, leading to the Full Rate Production Decision. Enterprise testing with SSDS BL 12 on the Self Defense Test Ship and lead ships CVN 79 and LHA 8. Both ESSM Block 1 and ESSM Block 2 will be used to support testing.

1.1 Blk 2 Follow-on Test & Evaluation (FOT&E): The ESSM Blk2 FOT&E line has been merged into the above ESSM System Integration and Test line for FY 2025. The ESSM Blk 2 Milestone Decision Authority mandated that ESSM Blk 2 conduct FOT&E on Ship Self-Defense System (SSDS) platform and fully support DDG Flight III operational testing. There will be planning efforts to support US Combat Systems integration testing including but not limited to: AEGIS Baseline 9 and 10 integration, SSDS Baseline 12 integration, and FFG platform integration testing as required. This includes support with appropriate ESSM Blk 2 Missile Simulator Unit (MSU) with operator support.

2. NATO SEASPARROW Technical Direction Agent (TDA): The MK 57 NATO SEASPARROW Surface Missile Systems (NSSMS) provides a rapid response, integrated, self-defense missile capability. Johns Hopkins University Applied Physics Laboratory (JHU/APL) provides systems engineering and technical support for the MK 9 Tracker-Illuminator System (TIS), and MK 29 Guided Missile Launching System (GMLS). JHU/APL is tasked with providing studies, analysis, and evaluations of hardware and software improvements. This task encompasses requirements development and assessment, artifact and document reviews, technical meeting participation, test requirement development, participation in test and system integration events, and post-test analysis. Through this level of support, JHU/APL will assist in the development of a Top-Level Requirements (TLR) document that will inform the acquisition of future capability.

3. ESSM Technology Roadmap & Studies: The ESSM Blk 2 Missile completed development in 2021, achieved Initial Operational Capability in December 2021 and transitioned to in-service. In order to achieve performance not realized during the execution of Engineering and Manufacturing Development (E&MD), pace the threat, and remain a viable weapon system, the ESSM and its supporting combat system components require continual improvements. This effort will perform studies to identify technology candidates, explore new manufacturing techniques, and determine applicability to the NATO SEASPARROW Project Office (NSPO) managed Combat System Elements for future hardware or software improvements to either the Consortium's combat systems or the missile, or both. RDT&E funding represented will

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy  |  | <b>Date:</b> March 2024  |
| <b>Appropriation/Budget Activity</b><br>1319 / 5  | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0173 / <i>NATO Sea Sparrow</i> |
| <p>develop and maintain an ESSM System roadmap and support specific studies to determine candidate combat system and/or missile performance and manufacturing efficiency improvements. Computer simulation updates will be needed to support the performance studies for future improvements.</p> <p>4. Other Development (Blk 2 Obsolescence and Redesign, Combat System Test Bed (CSTB) and Digital Datalink): CSTB is the end-to-end integration of CS element models using Higher Level Architecture (HLA) to help assess a ship's ability to defend itself. CSTB is maximizing the use of tactical code-based models in conjunction with physics-based environmental models to represent at sea performance of ships and their combat systems. Supports a system of systems modeling for multiple use cases including System Development, System Integration, Developmental Test (DT) or Operational Test (OT) for a variety of ships and weapon systems. This effort is to integrate ESSM Blk 2 Tactical Simulation (ETS) model into the CSTB and Enterprise Testbed. This effort also includes improvements required to be made in ETS based on the studies exploring missile launcher and MK 9 Tracker-Illuminator System (TIS) redesign in order to respond to obsolescence issues affecting ESSM systems on all CVN, LHA, and LHD class ships.</p> <p>5. Evolved SEASPARROW Missile (ESSM) Blk 2 Software Upgrades: The ESSM Blk 2 Missile completed development in 2021, achieved IOC in December 2021 and transitioned to in-service. In order to pace the threat, the missile requires software improvements to provide performance updates and fixes. The software updates will be identified as a result of Initial Operational Test and Evaluation (IOT&amp;E) phase 2 and during Runs for the Record (RfR) that will be completed in support of IOC, from performance improvements studies, identified software trouble reports, and during Final Operational Test and Evaluation (FOT&amp;E) flight test results and as a result of new hardware and combat system changes. These changes will form the first opportunity to improve the baseline ESSM Block 2 missile and are intended to represent an approximately annual software update employing agile software management principles, which will allow for correction of deficiencies identified through Initial Operational Test and Evaluation and support the completion of FOT&amp;E objectives.</p> <p>6. C-Band Telemetry Upgrade: Director Operational Test and Evaluation (DOT&amp;E) directed operational testing in Aegis Capability Baseline (ACB)-20 requires multiple missiles in flight simultaneously to assess stream raids by threat systems. Current SM-6 and ESSM Block 2 Telemeters operate in the S-band where Radio Frequency (RF) bandwidths are limited for Telemetry (TM) data collection on the range. The current spectrum allocation and range infrastructure does not support TM collection for the number of missiles simultaneously in flight required to support ACB 20 TEMP (Test and Evaluation Master Plan) on range. The new requirement is due to the large number of missiles to support planned testing. The weapons and range are required to move telemetry into the C-Band where bandwidth exists to support required TM collections.</p> <p>7. NATO SEASPARROW Tracker-Illuminator System (TIS) Development: The MK 57 NATO SEASPARROW Surface Missile System (NSSMS) supports the SPARROW missile family with Semi-Active illumination with a Continuous Wave Tracking Illuminator (CWTI) obsolescence update to the MK 9 Tracker-Illuminator System (TIS). The MK9 also provides fire control tracking data to the SSDS combat system, including against high elevation angle threats. Additional MK9 upgrade Top Level Requirements are being developed to support self-defense mission requirements against near term advanced threats. The OT-234/S CWTI eliminates obsolescence issues and increases the Radio Frequency (RF) power output to provide improved tracking, with uplink, performance, and higher Evolved SEASPARROW Missile (ESSM) probability of guidance (PG) on low RADAR Cross Section (RCS) threats. Additionally, a replacement of 1960's United States Air Force (USAF) Radar Test Set (RTS) adapted for the United States Navy (USN) will be required to fulfill maintenance requirements and enhance additional frequency selections and ensure post-launch RF missile support for noise and uplink requirements.</p> |  |  |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy | <b>Date:</b> March 2024 |
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| <b>Appropriation/Budget Activity</b><br>1319 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0173 / <i>NATO Sea Sparrow</i> |
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7.1 MK 9 Continuous Wave Tracking Illuminator (CWTI) (Transmitter) Replacement: The MK 9 CWTI line has been added to the above NATO SEASPARROW Tracker-Illuminator System (TIS) Development line for FY 2025.

7.2 Next Generation Tracker-Illuminator System (TIS): The Next Generation TIS line has been added to the above NATO SEASPARROW Tracker-Illuminator System (TIS) Development line for FY 2025.

8. Next Generation Launching System (NGLS or ADL): This effort is to be renamed "Adaptable Deck Launcher" (ADL). The purpose of the NGLS (ADL) effort is to develop, qualify, test, and integrate an upgrade/replacement to the 50+ year old legacy MK 29 Guided Missile Launching System (GMLS) for large deck, capital warships including CVNs, LHAs, and LHDs. NGLS (ADL) will double ESSM missile capacity over the current MK 29 GMLS while maintaining current shipboard locations. The new launcher will allow significantly more flexibility for ESSM Block 1 and 2 in any loadout configuration with available inventory. This upgrade/replacement will improve environmental protection for Guided Missile Assemblies (GMA) (reducing corrosion), Grade A Near Miss Shock (NMS) compliance, reduces manning requirements for loading/unloading operations, mitigates long term supportability issues, addresses obsolescence, reduces the life cycle costs for operating and maintaining the MK 132 Launcher, and reduces the cost and time for ESSM in-service refurbishment, or re-certification. This upgrade/replacement contains design margin to allow for growth, where the MK 132 Guided Missile Launcher is maximized today limiting ESSM Block 2 deployment. Initial activities start in Q4 FY 2023 and include shipboard top side design surveys and analyses, NSSMS combat system integration studies, initial hardware prototyping and assembly.

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

|  | FY 2023 | FY 2024 | FY 2025 Base | FY 2025 OCO | FY 2025 Total |
|--|---------|---------|--------------|-------------|---------------|
| <b>Title:</b> ESSM System Integration and Test   | 0.000   | 0.000   | 18.750       | 0.000       | 18.750        |
| <b>Articles:</b>   | -       | -       | -            | -           | -             |
| <b>FY 2024 Plans:</b>  |         |         |              |             |               |
| ESSM Block 2 Follow On Test & Evaluation (FOT&E): Following ESSM Block 2 Initial Operational Capability declaration, flight tests required to support DDG Flight 3 program lead ship, DDG 125, including the refitting of C band telemetry to the Block 2s to support collection of telemetry due to the increased number of simultaneous missiles in flight required to support tests. This will include land based testing as well as Waterfront Integration Testing (WIT) on the lead ship, in addition to supporting multiple flight tests. Testing will continue on DDGs and CGs to verify and validate capabilities within the missile and how the missile is controlled by the combat system. As such, understanding limitations identified during Initial Operational Test & Evaluation (IOT&E) Phase 1 will require additional flight testing. Planning efforts to support ESSM Block 2 optimization in the Aegis system will continue as well as land based testing is planned for FY 2024. Planning for ESSM Block 2 IOT&E Phase 2 execution in FY 2025 and FY 2026 is ongoing. |         |         |              |             |               |
| ESSM Block 1 Testing: Due to Fleet inventory limitations on ESSM Block 1 constraining ability to support SSDS CSSQT  |         |         |              |             |               |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |  | <b>Date:</b> March 2024                                 |
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0173 / NATO Sea Sparrow |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b> | <b>FY 2025 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| <p>live fire testing, WITs must be conducted in lieu of live fire testing to verify and validate Fire Control Loop modifications contained in Combat Systems upgrade. There are two WITs scheduled during FY 2024. ESSM Block 1 also continues to be integrated in newer combat systems and both land-based and waterfront integration testing will be required to support DDG Flight 3 and new SSDS installations/upgrades. There are two such events planned in addition to the two WITs supporting SSDS CSSQTs.</p> <p><b>FY 2025 Base Plans:</b><br/>Starts the execution of ESSM Block 2 IOT&amp;E Phase 2 testing period with Developmental Testing (DT) to include flight tests and WITs on the planned firing ship(s). WIT on firing ship supporting Operational Testing (OT) will also be conducted in this year. All planning and additional integration test support for DT and OT will be conducted in FY 2025 with OT planned early in FY 2026. Enterprise testing also starts in FY 2025 using both ESSM Block 1 and 2. WITs will be planned and conducted on the Self Defense Test Ship, CVN 79, and LHA 8 (using the MK-29 Min Mod configuration) as well as DT/OT live fire events supporting both platform level and combat system level testing. IOT&amp;E Phase 2 are prerequisites to support Full Operational Capability (FOC) and Full Rate Production (FRP) milestones for ESSM Block 2.</p> <p><b>FY 2025 OCO Plans:</b><br/>N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b><br/>Increase of funding required in FY 2025 is due to integration verification and flight testing in support of ESSM Block 2 IOT&amp;E Phase 2 starting in FY 2025, ESSM Block 1 and 2 integration verification and flight testing in support of CVN 79 and LHA 8 class (Enterprise) Developmental Testing and Operational Testing.</p> |                |                |                     |                    |                      |
| <p><b>Title:</b> BLK 2 Follow-on Test &amp; Evaluation (FOT&amp;E)</p> <p align="right"><b>Articles:</b></p>  | 4.717          | 3.647          | 0.000               | 0.000              | 0.000                |
| <p><b>FY 2024 Plans:</b><br/>ESSM Block 2 Follow On Test &amp; Evaluation (FOT&amp;E): Following ESSM Block 2 Initial Operational Capability declaration, flight tests required to support DDG Flight 3 program lead ship, DDG 125, including the refitting of C-Band telemetry to the Block 2s to support the increased number of simultaneous missiles in flight required to support tests. This will include land-based testing as well as Waterfront Integration Testing (WIT) on the lead ship, in addition to supporting multiple flight tests. Testing will continue on DDGs and CGs to verify and validate capabilities within the missile and how the missile is controlled by the combat system. As such, understanding</p>   | -              | -              | -                   | -                  | -                    |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |  | <b>Date:</b> March 2024  |
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0173 / <i>NATO Sea Sparrow</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>  | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b> | <b>FY 2025 Total</b> |
|--|----------------|----------------|---------------------|--------------------|----------------------|
| <p>limitations identified during Initial Operational Test &amp; Evaluation (IOT&amp;E) Phase 1 will require additional flight testing. Planning efforts to support ESSM Block 2 optimization in the Aegis system will continue as well as land-based testing is planned for FY 2024. Planning for ESSM Block 2 IOT&amp;E Phase 2 execution in FY 2025 and FY 2026 is ongoing. ESSM Block 1 Testing: Due to Fleet inventory limitations on ESSM Block 1 constraining ability to support SSDS CSSQT live fire testing, WITs must be conducted in lieu of live fire testing to verify and validate Fire Control Loop modifications contained in Combat Systems upgrade. There are two WITs scheduled during FY 2024. ESSM Block 1 also continues to be integrated in newer combat systems and both land based and waterfront integration testing will be required to support DDG Flight 3 and new SSDS installations/upgrades. There are two such events planned in addition to the two WITs supporting SSDS CSSQTs.</p> <p><b>FY 2025 Base Plans:</b><br/>Added to ESSM System Integration and Test line.</p> <p><b>FY 2025 OCO Plans:</b><br/>N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b><br/>This effort is decreased to zero in FY 2025 as it been added to the above line: ESSM System Integration and Test.</p> |                |                |                     |                    |                      |
| <p><b>Title:</b> NATO Sea Sparrow Combat System Integraton Technical Direction Agent (TDA)</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2024 Plans:</b><br/>The CS TDA will continue to provide support in the form of studies, analysis, and evaluations of hardware and software improvements for the MK 9 Tracker Illuminator System (TIS) and independent analysis and recommendations for emergent issues and engineering changes for deployed systems. These efforts include studies and prototyping for MK 9 receiver upgrades which have the potential for marked improvements in detection and tracking for the ESSM system. The CS TDA will also support artifact and document reviews, technical meetings, test requirement development, participation in test and system integration events, and post test analysis for the OT-234/S transmitter. The TDA will also support studies and analysis for integration of the Next Generation Launching System with the ESSM Block 2 missile to satisfy requirements for deployment fielding concurrence such as safety studies and topside integration.</p> <p><b>FY 2025 Base Plans:</b></p>   | 2.336          | 2.382          | 1.020               | 0.000              | 1.020                |
|  | -              | -              | -                   | -                  | -                    |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |  | <b>Date:</b> March 2024  |
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0173 / <i>NATO Sea Sparrow</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b> | <b>FY 2025 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| <p>The CS TDA will continue to provide support in the form of studies, analysis, and evaluations of hardware and software improvements for the MK 9 Tracker Illuminator System (TIS) and independent analysis and recommendations for emergent issues and engineering changes for deployed systems. These efforts include studies, prototyping and demonstration support for MK 9 receiver upgrades which have the potential for marked improvements in detection and tracking for the ESSM system improving ship survivability. The CS TDA will also support technical meetings, participation in test and system integration events, and post test analysis for the OT-234/S transmitter. The TDA will support studies and analysis for integration of the Next Generation Launching System with the ESSM Block 2 missile to satisfy requirements for deployment fielding concurrence such as safety studies and topside integration.</p> <p><b>FY 2025 OCO Plans:</b><br/>N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b><br/>Decrease of funding required in FY 2025 is due to conclusion of risk reduction studies required for MK 9 receiver upgrades which will provide development roadmap to improve detection and tracking for the ESSM system improving ship survivability.</p>  |                |                |                     |                    |                      |
| <p><b>Title:</b> ESSM Blk 2 Technology Roadmap and Studies</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2024 Plans:</b><br/>The ESSM Block 2 contractors and field activities will continue to perform necessary updates to the Technology Roadmap and conduct specific studies as directed by the Government, support meetings, create Plan Of Actions and Milestones (POA&amp;Ms) for capability improvements and deliver reports as necessary. Prospective updates will include technology assessment with respect to maturity and risk; understanding the specifics of production impacts; assessing the impacts to ship integration impacts; and continuing to take into account the evolution of the threat. Maintenance of the Technology Roadmap must assess all these factors and provide an updated Roadmap periodically as appropriate.</p> <p><b>FY 2025 Base Plans:</b><br/>The ESSM Block 2 contractors and field activities will continue to perform necessary updates to the Technology Roadmap and conduct specific studies as directed by the Government, support meetings, create Plan of Actions and Milestones (POA&amp;Ms) for capability improvements, and deliver reports as necessary. Prospective updates will include technology assessment with respect to maturity and risk; understanding the specifics of production impacts; assessing the impacts to ship integration impacts; and continuing to take into account the evolution</p> | 1.210          | 1.234          | 1.092               | 0.000              | 1.092                |
|   | -              | -              | -                   | -                  | -                    |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy  |       |  |       | <b>Date:</b> March 2024                                 |       |
| <b>Appropriation/Budget Activity</b><br>1319 / 5  |       | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> |       | <b>Project (Number/Name)</b><br>0173 / NATO Sea Sparrow |       |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   |       |  |       |   |       |
|   |       |  |       |   |       |
| of the threat. Maintenance of the Technology Roadmap must assess all these factors and provide an updated Roadmap periodically as appropriate.  |       |  |       |   |       |
| <b>FY 2025 OCO Plans:</b><br>N/A  |       |  |       |   |       |
| <b>FY 2024 to FY 2025 Increase/Decrease Statement:</b><br>Decrease in funding in FY 2025 due to the completion of the Systems Engineering support tasking from NSWC DD.   |       |  |       |   |       |
| <b>Title:</b> Other Development   |       |  |       |   |       |
| <b>Articles:</b>  |       |  |       |   |       |
|   | 2.500 | 3.396  | 1.243 | 0.000   | 1.243 |
|   | -     | -  | -     | -   | -     |
| <b>FY 2024 Plans:</b><br>Complete integration of all NATO SEASPARROW elements into Combat Systems Test Bed (CSTB) and Enterprise Test Bed (ETB). This effort is required to support the verification and validation (V&V) of advanced AEGIS and SSDS baselines employing ESSM Block 2. Complete planning for and initiate risk reduction development of ESSM Block 2 Captive Flight Test (CFT) Pod for the collection of unique ESSM Block 2 performance data, in lieu of more costly tactical flight tests, to support characterization of seeker performance against representative targets and environments. |       |  |       |   |       |
| <b>FY 2025 Base Plans:</b><br>Complete integration of all NATO SEASPARROW elements into CSTB and Enterprise Testbeds. This effort is required to support the verification and validation of advanced AEGIS and SSDS baselines employing the ESSM Block 2 missile. Complete development of ESSM Block 2 Captive Flight Test (CFT) Pod for the collection of unique ESSM Block 2 performance data, in lieu of more costly tactical flight tests, to support characterization of seeker performance against representative targets and environments.   |       |  |       |   |       |
| <b>FY 2025 OCO Plans:</b><br>N/A  |       |  |       |   |       |
| <b>FY 2024 to FY 2025 Increase/Decrease Statement:</b><br>Decrease in funding due to ramp down and completion of FY 2024 test bed integration and development efforts for AEGIS Baseline CP22 and CFT Pod.  |       |  |       |   |       |
| <b>Title:</b> ESSM Blk 2 Software Upgrades  |       |  |       |   |       |
|   | 7.500 | 7.570  | 8.805 | 0.000   | 8.805 |
|   | -     | -  | -     | -   | -     |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |  | <b>Date:</b> March 2024  |
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0173 / <i>NATO Sea Sparrow</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>  | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b> | <b>FY 2025 Total</b> |
|--|----------------|----------------|---------------------|--------------------|----------------------|
| <p><b><i>FY 2024 Plans:</i></b><br/>The ESSM Block 2 Prime Contractor will continue to perform necessary software updates that are resulting from performance improvements studies, from software issues identified in Initial Operational Test and Evaluation (IOT&amp;E) flight test results and as a result of new hardware and combat system changes as prioritized and directed by the Government. Additionally, the contractor will initiate risk reduction for development of Missile Integration Test Equipment Software. The effort will require the Prime Contractor to support meetings, create POA&amp;Ms, develop algorithms, build proof of concepts and estimates for the capability improvements and software fixes, and deliver software reports, test plans/ procedures, and test inspection reports and new tactical software builds and simulations as necessary.</p> <p><b><i>FY 2025 Base Plans:</i></b><br/>The ESSM Block 2 Prime Contractor will continue to perform necessary software updates that are resulting from performance improvements studies, from software issues resulting from Initial Operational Test and Evaluation (IOT&amp;E) flight test results and as a result of new hardware and combat system changes as prioritized and directed by the Government. Additionally, the contractor will complete the development of Missile Integration Test Equipment Software. The effort will require the Prime Contractor to support meetings, create POA&amp;Ms, develop algorithms, build proof of concepts and estimates for the capability improvements and software fixes, and deliver software reports, test plans/ procedures, and test inspection reports and new tactical software builds and simulations as necessary.</p> <p><b><i>FY 2025 OCO Plans:</i></b><br/>N/A</p> <p><b><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i></b><br/>Increase in funding required for FY 2025 is due to additional efforts required to support the future build of the EIS (ESSM International Simulation) program. Due to inability to release ESSM tactical software to non-US nations in the cooperative ESSM Block 2 Consortium, the releasable simulation capability provided by EIS is needed to support allied interoperability for deployment with other navies employing ESSM Block 2.</p> |                |                |                     |                    |                      |
| <p><b><i>Title:</i></b> NATO SEASPARROW Tracker-Illuminator System (TIS) Development</p> <p align="right"><b><i>Articles:</i></b></p> <p><b><i>FY 2024 Plans:</i></b><br/>Continued development efforts for the OT-234/S Transmitter Group including system assembly, manufacturer/ supplier interface, integration and testing. The in-house Engineering Qualification Test (EQT) units will be</p>   | 0.000<br>-     | 0.000<br>-     | 1.135<br>-          | 0.000<br>-         | 1.135<br>-           |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy | <b>Date:</b> March 2024 |
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| <b>Appropriation/Budget Activity</b><br>1319 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0173 / <i>NATO Sea Sparrow</i> |
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**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

|   | FY 2023 | FY 2024 | FY 2025 Base | FY 2025 OCO | FY 2025 Total |
|---|---------|---------|--------------|-------------|---------------|
| <p>subjected to environmental qualification testing, the Engineering Development Model (EDM) units will undergo performance qualification testing and Factory Acceptance Testing (FAT). The RDT&amp;E portion of the contract will conclude when the government takes receipt of the Engineering and Manufacturing Development (EMD) Technical Data Package (TDP), and the EDM units. Government integration testing with the OT-234/S EMD units will then commence at the Surface Warfare Engineering Facility (SWEF) and Wallops Island test sites with support of the In-Service Engineering Agency (ISEA) and field activities. RF System on a Chip (RFSoc) prototyping efforts to improve the detection and tracking capability at JHU/APL, leading to a re-architecture of the Receiver that will pace near and mid-term advanced evolving threats. Studies and industry research to identify technologically mature candidates that will meet NATO SEASPARROW Surface Missile System (NSSMS) Tracker-Illuminator System (TIS) Top Level Requirements (TLR) as the TIS is required to perform tracking of the full spectrum of Air and Missile Defense threat set as well as terminal illumination to support missile guidance in final phase of intercept in a challenged Electromagnetic environment.</p> <p><b>FY 2025 Base Plans:</b><br/>Continued OT-234/S EMD unit testing and Tracker-Illuminator System (TIS) integration efforts at the SWEF with integration testing at Wallops Island with the Combat Management System (CMS), MK 2 Ship Self Defense System (SSDS). Conclusion of prototyping effort and TIS Top Level Requirements (TLR) will be used to inform the acquisition of future capability.</p> <p><b>FY 2025 OCO Plans:</b><br/>N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b><br/>Increase due to continuing OT-234 Transmitter Group development and risk reduction activities for TIS threat tracking capability update(s). Currently reflecting 0 in FY 2024 since the NATO SEASPARROW Tracker-Illuminator System (TIS) Development was created to consolidate the efforts from these previous (FY 2024) lines: 1. Mk 9 CWTI Transmitter Replacement and 2. Next Generation Tracker-Illuminator System (TIS).</p> |         |         |              |             |               |
| <p><b>Title:</b> C-Band Telemetry Upgrades</p> <p align="right"><b>Articles:</b></p>  | 4.334   | 4.616   | 0.000        | 0.000       | 0.000         |
|   | -       | -       | -            | -           | -             |
| <b>FY 2024 Plans:</b>   |         |         |              |             |               |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |  | <b>Date:</b> March 2024                                 |
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0173 / NATO Sea Sparrow |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b> | <b>FY 2025 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| <p>Completes the ESSM Block 2 C-band telemeter qualification efforts, flight test round build-up, and initial flight testing and telemetry verification. Completion of this work in FY 2024 to support DDG Flight III with AEGIS Baseline 10 operational testing schedules.</p> <p><b>FY 2025 Base Plans:</b><br/>The development program will complete in FY 2024 with the delivery of the flight test rounds.</p> <p><b>FY 2025 OCO Plans:</b><br/>N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b><br/>Decrease in funding in FY 2025 due to the development program completion in FY 2024.</p>   |                |                |                     |                    |                      |
| <p><b>Title:</b> MK 9 CWTI (Transmitter) Replacement</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2024 Plans:</b><br/>Continue development efforts for the MK 9 TIS CWTI replacement including system assembly, manufacturer/supplier interface, integration and testing. The in-house EQT units will be subjected to environmental qualification testing, the EDM unit will undergo performance qualification testing and the First Article Unit (FAU) will undergo Factory Acceptance Testing. The RDT&amp;E portion of the contract will conclude when the government takes receipt of the Engineering, Manufacturing and Development (EMD) data, and the EDM &amp; FAU units. Government Integration testing with the MK 9 TIS will then commence at a LBTS with support of the ISEA and field activities.</p> <p><b>FY 2025 Base Plans:</b><br/>This line added to NATO SEASPARROW Tracker Illuminator System (TIS) Development for FY 2025.</p> <p><b>FY 2025 OCO Plans:</b><br/>N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b><br/>Decrease in FY 2025 to zero due to being added to NATO SEASPARROW Tracker Illuminator System (TIS) Development line for FY 2025.</p> | 3.374          | 1.006          | 0.000               | 0.000              | 0.000                |
|   | -              | -              | -                   | -                  | -                    |
| <p><b>Title:</b> Next Generation Tracker- Illuminator System (TIS)</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2024 Plans:</b></p>   | 0.999          | 3.604          | 0.000               | 0.000              | 0.000                |
|   | -              | -              | -                   | -                  | -                    |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |  | <b>Date:</b> March 2024  |
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0173 / <i>NATO Sea Sparrow</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b> | <b>FY 2025 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| <p>Continued development efforts for the OT-234/S including system assembly, manufacturer/supplier interface, integration and testing. The in-house EQT units will be subjected to environmental qualification testing, the Engineering, Manufacturing and Development (EDM) units will undergo performance qualification testing and Factory Acceptance Testing. The RDT&amp;E portion of the contract will conclude when the government takes receipt of the EMD Technical Data Package (TDP), and the EDM units. Government Integration testing with the OT-234/S EMD units will then commence at the SWEF and Wallops test sites with support of the ISEA and field activities. Continue and conclude studies in support of Analysis of Alternatives and industry research to identify technologically mature candidates that will meet existing NATO SEASPARROW Surface Missile System (NSSMS) requirements for a Tracker-Illuminator while also providing capability to pace near and mid-term advanced evolving threats. This system will be required to perform tracking of the full spectrum of Air and Missile Defense threat set as well as terminal illumination to support missile guidance in final phase of intercept in a challenged Electromagnetic environment.</p> <p><b>FY 2025 Base Plans:</b><br/>This line added to NATO SEASPARROW Tracker Illuminator System (TIS) Development for FY25.</p> <p><b>FY 2025 OCO Plans:</b><br/>N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b><br/>Decrease in FY 2025 to zero due to being added to NATO SEASPARROW Tracker Illuminator System (TIS) Development line for FY 2025.</p> |                |                |                     |                    |                      |
| <p><b>Title:</b> Next Generation Launching System</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2024 Plans:</b><br/>Phase 1 will continue with development activities including hardware procurement, prototyping and production planning, shipboard top side design surveys and analyses, NSSMS combat system integration studies, and product sustainment analyses. Phase 1 will come to conclusion with the completion of a prototype technical design package (TDP) design and Phase 2 will begin. Phase 2 consists of design qualification testing, software verification and validation as well as integration testing. A Qty 2. Prototypes, supporting equipment, and missile hardware will be procured to support the qualification effort. Notional test plans include shock, vibration, effects of electromagnetic radiation, transportation and insensitive munition testing.</p> <p><b>FY 2025 Base Plans:</b></p>   | 11.194         | 3.751          | 14.327              | 0.000              | 14.327               |
|   | -              | -              | -                   | -                  | -                    |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |  | <b>Date:</b> March 2024  |
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0173 / <i>NATO Sea Sparrow</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>  | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b> | <b>FY 2025 Total</b> |
|--|----------------|----------------|---------------------|--------------------|----------------------|
| Phase 2 will come to conclusion with the completion of testing, integration, and software verification and validation efforts and Phase 3 will begin. Phase 3 is the report out and delivery of required hardware, software, and documentation to include the final delivery of a level 3 TDP to government.<br><br><b>FY 2025 OCO Plans:</b><br>N/A<br><br><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b><br>Increase of Funding from FY 2024 to FY 2025: Funding to complete and incorporate Lessons Learned into ECP and TDP updates as required. Additionally finalize production activities of Prototype units and support testing efforts throughout the FY. |                |                |                     |                    |                      |
| <b>Accomplishments/Planned Programs Subtotals</b>  | 38.164         | 31.206         | 46.372              | 0.000              | 46.372               |

| <b>C. Other Program Funding Summary (\$ in Millions)</b> |                |                |                     |                    |                      |                |                |                |                |                         |                   |
|--|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| <u>Line Item</u>   | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025 Base</u> | <u>FY 2025 OCO</u> | <u>FY 2025 Total</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>FY 2029</u> | <u>Cost To Complete</u> | <u>Total Cost</u> |
| • WPN 2307: <i>ESSM</i>                                  | 276.335        | 290.129        | 522.391             | -                  | 522.391              | 513.145        | 548.752        | 561.593        | 572.825        | Continuing              | Continuing        |
| • OPN 5231: <i>Ship Missile Defense</i>                  | 45.025         | 33.546         | 49.317              | -                  | 49.317               | 52.162         | 58.148         | 59.691         | 78.885         | Continuing              | Continuing        |
| • OMN 1D4D: <i>NATO Seasparrow</i>                       | 35.154         | 47.029         | 51.058              | -                  | 51.058               | 55.118         | 56.256         | 57.251         | 58.396         | 0.000                   | 473.835           |

**Remarks**  
OMN funding is for ESSM Blk 2, ESSM Blk 1, NSSMS, & RIM-7.  
  
ESSM Blk 2 In-Service Support began in FY 2021.

**D. Acquisition Strategy**  
Competitively awarded MK 9 CWTI.  
Competitively awarded the Next Generation Launching System.  
Plan to competitively award Next Generation TIS.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy** **Date:** March 2024

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| <b>Appropriation/Budget Activity</b><br>1319 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0173 / <i>NATO Sea Sparrow</i> |
|--|--|--|

| <b>Product Development (\$ in Millions)</b> |                        |                                |             | FY 2023 |            | FY 2024 |            | FY 2025 Base |            | FY 2025 OCO |            | FY 2025 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| ESSM Systems Engineering/Firing Spt         | WR                     | Corona : CA                    | 14.290      | 0.000   | Dec 2022   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 14.290     | -                        |
| ESSM Systems Engineering/Firing Spt Blk 2   | WR                     | Corona : CA                    | 0.402       | 0.251   | Dec 2022   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 0.653      | -                        |
| NATO OC System Engineering                  | C/FFPLOE               | Raytheon : RI                  | 1.955       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 1.955      | -                        |
| NATO OC - Software                          | C/FFPLOE               | Raytheon : RI                  | 8.054       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 8.054      | -                        |
| Stalker System Engineering                  | WR                     | NSWC Crane : IN                | 4.782       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 4.782      | -                        |
| Stalker Hardware Engineering                | WR                     | NSWC Crane : IN                | 14.350      | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 14.350     | -                        |
| Stalker Software Engineering                | WR                     | NSWC Crane : IN                | 2.725       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 2.725      | -                        |
| ESSM Primary Hardware Development           | C/CPAF                 | Raytheon : Tuscon              | 193.941     | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 193.941    | -                        |
| ESSM Ancillary Hardware                     | Various                | Various : Various              | 71.324      | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 71.324     | -                        |
| ESSM Blk 2 EMD                              | C/CPIF                 | Raytheon : Tuscon              | 341.816     | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 341.816    | -                        |
| I-Stalker Systems Engineering               | WR                     | NSWC Crane : Crane, IN         | 4.690       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 4.690      | -                        |
| TTP   | SS/FFP                 | Raytheon : Tuscon              | 49.980      | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 49.980     | -                        |
| ESSM Blk 2 Risk reduction                   | SS/FFPLOE              | Raytheon : Tuscon              | 44.150      | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 44.150     | -                        |
| NATO OC Systems Engineering SPT             | WR                     | NSWC PHD : CA                  | 0.700       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 0.700      | -                        |
| Dual Band Tranceiver                        | SS/FFP                 | Raytheon : Tuscon              | 6.155       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 6.155      | -                        |
| Studies/Technology Roadmap                  | TBD                    | Raytheon : Tuscon              | 1.662       | 1.210   | Dec 2022   | 1.234   | Dec 2023   | 0.618        | Dec 2024   | -           |            | 0.618         | 0.000            | 4.724      | -                        |
| Other Development                           | TBD                    | Raytheon : Tucson              | 7.604       | 2.500   | Dec 2022   | 3.396   | Dec 2023   | 0.000        |            | -           |            | 0.000         | 0.000            | 13.500     | -                        |
| Software Upgrades                           | TBD                    | Raytheon : Tucson              | 6.219       | 7.500   | Dec 2022   | 7.570   | Dec 2023   | 8.312        | Dec 2024   | -           |            | 8.312         | 0.000            | 29.601     | -                        |

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy** **Date:** March 2024

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| <b>Appropriation/Budget Activity</b><br>1319 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0173 / <i>NATO Sea Sparrow</i> |
|--|--|--|

| <b>Product Development (\$ in Millions)</b> |                        |                                |             | FY 2023 |            | FY 2024 |            | FY 2025 Base |            | FY 2025 OCO |            | FY 2025 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| C-Band Telemetry upgrade                    | TBD                    | TBD : TBD                      | 16.820      | 4.334   | Nov 2022   | 4.616   | Dec 2023   | 0.000        |            | -           |            | 0.000         | 0.000            | 25.770     | -                        |
| CMBRE Adaptor                               | TBD                    | NG : NA                        | 4.000       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 4.000      | -                        |
| Illuminator System                          | TBD                    | TBD : TBD                      | 1.938       | 0.999   | Jan 2023   | 3.604   | Dec 2023   | 0.000        |            | -           |            | 0.000         | 0.000            | 6.541      | -                        |
| Launching System                            | TBD                    | TBD : TBD                      | 12.777      | 11.194  | Feb 2023   | 3.750   | Dec 2023   | 0.000        |            | -           |            | 0.000         | 0.000            | 27.721     | -                        |
| I-Stalker Systems Engineering               | WR                     | NRL : TBD                      | 0.800       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 0.800      | -                        |
| I-Stalker Systems Engineering               | WR                     | APL : MD                       | 0.525       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 0.525      | -                        |
| MK 9 CWTI Replacment                        | TBD                    | NSWC PHD : CA                  | 0.000       | 0.000   |            | 1.006   | Nov 2023   | 0.000        |            | -           |            | 0.000         | 0.000            | 1.006      | -                        |
| MK 9 CWTI Replacment                        | C/FFP                  | SAAB : NY                      | 21.850      | 3.374   | Jan 2023   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 25.224     | -                        |
| Other Development                           | WR                     | APL : MD                       | 0.000       | 0.000   |            | 0.000   |            | 0.610        | Dec 2024   | -           |            | 0.610         | 0.000            | 0.610      | -                        |
| Other Development                           | WR                     | NAWC China Lake : CA           | 0.000       | 0.000   |            | 0.000   |            | 0.632        | Dec 2024   | -           |            | 0.632         | 0.000            | 0.632      | -                        |
| Software Upgrades                           | WR                     | NAWC China Lake : CA           | 0.000       | 0.000   |            | 0.000   |            | 0.252        | Dec 2024   | -           |            | 0.252         | 0.000            | 0.252      | -                        |
| Software Upgrades                           | WR                     | Dahlgren : VA                  | 0.000       | 0.000   |            | 0.000   |            | 0.109        | Dec 2024   | -           |            | 0.109         | 0.000            | 0.109      | -                        |
| Software Upgrades                           | WR                     | APL : MD                       | 0.000       | 0.000   |            | 0.000   |            | 0.132        | Dec 2024   | -           |            | 0.132         | 0.000            | 0.132      | -                        |
| Studies/Technology Roadmap                  | WR                     | APL : MD                       | 0.000       | 0.000   |            | 0.000   |            | 0.390        | Dec 2024   | -           |            | 0.390         | 0.000            | 0.390      | -                        |
| Studies/Technology Roadmap                  | WR                     | Indian Head : MD               | 0.000       | 0.000   |            | 0.000   |            | 0.013        | Dec 2024   | -           |            | 0.013         | 0.000            | 0.013      | -                        |
| Studies/Technology Roadmap                  | WR                     | NAWC China Lake : CA           | 0.000       | 0.000   |            | 0.000   |            | 0.072        | Dec 2024   | -           |            | 0.072         | 0.000            | 0.072      | -                        |
| Tracker Illuminator (TIS) Development       | WR                     | Dahlgren : VA                  | 0.000       | 0.000   |            | 0.000   |            | 0.185        | Dec 2024   | -           |            | 0.185         | 0.000            | 0.185      | -                        |
| Tracker Illuminator (TIS) Development       | WR                     | NSWC PHD : CA                  | 0.000       | 0.000   |            | 0.000   |            | 0.650        | Dec 2024   | -           |            | 0.650         | 0.000            | 0.650      | -                        |
| Tracker Illuminator (TIS) Development       | WR                     | Corona : CA                    | 0.000       | 0.000   |            | 0.000   |            | 0.050        | Dec 2024   | -           |            | 0.050         | 0.000            | 0.050      | -                        |
| Tracker Illuminator (TIS) Development       | TBD                    | Raytheon : Tucson              | 0.000       | 0.000   |            | 0.000   |            | 0.250        | Dec 2024   | -           |            | 0.250         | 0.000            | 0.250      | -                        |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy |                        |   |             |   |            |         |            |                         |            |             |            | Date: March 2024 |                  |            |                          |
|--|------------------------|---|-------------|---|------------|---------|------------|-------------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity                          |                        |   |             | R-1 Program Element (Number/Name)               |            |         |            | Project (Number/Name)   |            |             |            |                  |                  |            |                          |
| 1319 / 5   |                        |   |             | PE 0604756N / Ship Self Def (Engage: Hard Kill) |            |         |            | 0173 / NATO Sea Sparrow |            |             |            |                  |                  |            |                          |
| Product Development (\$ in Millions)                   |                        |   |             | FY 2023   |            | FY 2024 |            | FY 2025 Base            |            | FY 2025 OCO |            | FY 2025 Total    |                  |            |                          |
| Cost Category Item                                     | Contract Method & Type | Performing Activity & Location              | Prior Years | Cost  | Award Date | Cost    | Award Date | Cost                    | Award Date | Cost        | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Next Generation Launching System                       | WR                     | Dahlgren VLS : VA                           | 0.000       | 0.000   |            | 0.000   |            | 5.467                   | Dec 2024   | -           |            | 5.467            | 0.000            | 5.467      | -                        |
| Next Generation Launching System                       | TBD                    | TBE : TBD                                   | 0.000       | 0.000   |            | 0.000   |            | 8.860                   | Dec 2024   | -           |            | 8.860            | 0.000            | 8.860      | -                        |
| <b>Subtotal</b>  |                        |   | 833.509     | 31.362  |            | 25.176  |            | 26.602                  |            | -           |            | 26.602           | 0.000            | 916.649    | N/A                      |
| Support (\$ in Millions)                               |                        |   |             | FY 2023   |            | FY 2024 |            | FY 2025 Base            |            | FY 2025 OCO |            | FY 2025 Total    |                  |            |                          |
| Cost Category Item                                     | Contract Method & Type | Performing Activity & Location              | Prior Years | Cost  | Award Date | Cost    | Award Date | Cost                    | Award Date | Cost        | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| NATO System TDA  | SS/FP                  | APL : MD                                    | 9.742       | 2.336   | Jan 2023   | 2.382   | Jan 2024   | 1.020                   | Nov 2024   | -           |            | 1.020            | Continuing       | Continuing | Continuing               |
| Stalker -ISEA/TDA/RM&A                                 | SS/FFP                 | various : various                           | 0.750       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 0.750      | -                        |
| ILS/Engineering Support                                | Various                | Various : Various                           | 15.543      | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 15.543     | -                        |
| ESSM Blk 2 EMD   | WR                     | APL : MD                                    | 20.454      | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 20.454     | -                        |
| ESSM Blk 2 EMD   | WR                     | NAWC CL : CA                                | 27.315      | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 27.315     | -                        |
| ESSM Blk 2 EMD   | Various                | Various : Various                           | 11.581      | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 11.581     | -                        |
| I-Stalker Platform Integration                         | WR                     | Norfolk Naval Shipyard (NNSY) : Norfolk, VA | 0.400       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 0.400      | -                        |
| I-Stalker Platform Integration                         | C/BA                   | NSWC Dahlgren : Dahlgren, VA                | 0.847       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 0.847      | -                        |
| I-Stalker Platform Integration                         | C/BA                   | NSWC Crane : Crane, IN                      | 1.124       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 1.124      | -                        |
| I-Stalker Platform Integration                         | WR                     | PSNSY : Puget Sound, WA                     | 0.500       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 0.500      | -                        |
| NATO OC Support  | WR                     | Dahlgren : VA                               | 2.174       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 2.174      | -                        |
| Dual Band Transceiver                                  | WR                     | APL : MD                                    | 0.800       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 0.800      | -                        |
| Dual Band Transceiver                                  | WR                     | NAWC CL : CA                                | 1.600       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 1.600      | -                        |
| <b>Subtotal</b>  |                        |   | 92.830      | 2.336   |            | 2.382   |            | 1.020                   |            | -           |            | 1.020            | Continuing       | Continuing | N/A                      |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy |                        |  |             |   |            |         |            |                         |            |             |            | Date: March 2024 |                  |            |                          |
|--|------------------------|--|-------------|---|------------|---------|------------|-------------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity                          |                        |  |             | R-1 Program Element (Number/Name)               |            |         |            | Project (Number/Name)   |            |             |            |                  |                  |            |                          |
| 1319 / 5   |                        |  |             | PE 0604756N / Ship Self Def (Engage: Hard Kill) |            |         |            | 0173 / NATO Sea Sparrow |            |             |            |                  |                  |            |                          |
| Test and Evaluation (\$ in Millions)                   |                        |  |             | FY 2023   |            | FY 2024 |            | FY 2025 Base            |            | FY 2025 OCO |            | FY 2025 Total    |                  |            |                          |
| Cost Category Item                                     | Contract Method & Type | Performing Activity & Location               | Prior Years | Cost  | Award Date | Cost    | Award Date | Cost                    | Award Date | Cost        | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Operational Test & Evaluation (OT&E)                   | WR                     | NAWC CL : CA                                 | 25.826      | 0.000   | Dec 2022   | 0.000   |            | 0.000                   |            | -           |            | 0.000            | Continuing       | Continuing | Continuing               |
| Live Fire Test & Evaluation (LFT&E)                    | WR                     | NAWC CL : CA                                 | 0.751       | 0.901   | Dec 2022   | 0.921   | Nov 2023   | 0.000                   |            | -           |            | 0.000            | 0.000            | 2.573      | -                        |
| Operational Test & Evaluation (OT&E)                   | WR                     | Corona, IHD, Dahlgren, SNSWC, PHD) : Various | 24.479      | 0.000   | Nov 2022   | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 24.479     | -                        |
| Live Fire Test & Evaluation (LFT&E)                    | WR                     | Corona, IHD, Dahlgren, SNSWC, PHD) : Various | 0.452       | 0.502   | Nov 2022   | 0.560   | Nov 2023   | 0.000                   |            | -           |            | 0.000            | 0.000            | 1.514      | -                        |
| Operational Test & Evaluation (OT&E)                   | SS/FFP                 | APL : MD                                     | 8.237       | 0.000   | Nov 2022   | 0.000   |            | 0.000                   |            | -           |            | 0.000            | Continuing       | Continuing | Continuing               |
| Operational Test & Evaluation (OT&E)                   | C/CPAF                 | Raytheon : Tuscon                            | 31.624      | 0.000   | Dec 2022   | 0.000   |            | 0.000                   |            | -           |            | 0.000            | Continuing       | Continuing | Continuing               |
| Live Fire Test & Evaluation (LFT&E)                    | C/CPAF                 | Raytheon : Tuscon                            | 3.510       | 2.064   | Dec 2022   | 1.064   | Dec 2023   | 0.000                   |            | -           |            | 0.000            | 0.000            | 6.638      | -                        |
| Operational Test & Evaluation (OT&E)                   | WR                     | Dahlgren/PHD : VA/ CA                        | 4.545       | 0.000   | Dec 2022   | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 4.545      | -                        |
| Operational Test & Evaluation (OT&E)                   | WR                     | Dahlgren : VA                                | 0.418       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 0.418      | -                        |
| Operational Test & Evaluation (OT&E)                   | WR                     | NSWC Crane : IN                              | 0.564       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 0.564      | -                        |
| Developmental Test & Evaluation (DT&E)                 | WR                     | NAWC CL : CA                                 | 0.000       | 0.000   |            | 0.000   |            | 0.900                   | Dec 2024   | -           |            | 0.900            | 0.000            | 0.900      | -                        |
| Developmental Test & Evaluation (DT&E)                 | WR                     | Dahlgren : VA                                | 0.000       | 0.000   |            | 0.000   |            | 1.300                   | Dec 2024   | -           |            | 1.300            | 0.000            | 1.300      | -                        |
| Live Fire Test & Evaluation (LFT&E)                    | WR                     | Dahlgren : VA                                | 0.000       | 0.000   |            | 0.000   |            | 1.000                   | Dec 2024   | -           |            | 1.000            | 0.000            | 1.000      | -                        |
| Developmental Test & Evaluation (DT&E)                 | WR                     | PHD-A : CA                                   | 0.000       | 0.000   |            | 0.000   |            | 3.500                   | Dec 2024   | -           |            | 3.500            | 0.000            | 3.500      | -                        |
| Developmental Test & Evaluation (DT&E)                 | WR                     | Corona : CA                                  | 0.000       | 0.000   |            | 0.000   |            | 3.000                   | Dec 2024   | -           |            | 3.000            | 0.000            | 3.000      | -                        |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy          |                        |                                |             |   |            |         |            |                         |            |             |            | Date: March 2024 |                  |            |                          |
|---|------------------------|--------------------------------|-------------|---|------------|---------|------------|-------------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity                                   |                        |                                |             | R-1 Program Element (Number/Name)               |            |         |            | Project (Number/Name)   |            |             |            |                  |                  |            |                          |
| 1319 / 5  |                        |                                |             | PE 0604756N / Ship Self Def (Engage: Hard Kill) |            |         |            | 0173 / NATO Sea Sparrow |            |             |            |                  |                  |            |                          |
| <b>Test and Evaluation (\$ in Millions)</b>                     |                        |                                |             | FY 2023   |            | FY 2024 |            | FY 2025 Base            |            | FY 2025 OCO |            | FY 2025 Total    |                  |            |                          |
| Cost Category Item  | Contract Method & Type | Performing Activity & Location | Prior Years | Cost  | Award Date | Cost    | Award Date | Cost                    | Award Date | Cost        | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Developmental Test & Evaluation (DT&E)                          | WR                     | APL : MD                       | 0.000       | 0.000   |            | 0.000   |            | 1.050                   | Dec 2024   | -           |            | 1.050            | 0.000            | 1.050      | -                        |
| Developmental Test & Evaluation (DT&E)                          | TBD                    | Raytheon : Tuscon              | 0.000       | 0.000   |            | 0.000   |            | 1.900                   | Dec 2024   | -           |            | 1.900            | 0.000            | 1.900      | -                        |
| Developmental Test & Evaluation (DT&E)                          | WR                     | Pt. Mugu : CA                  | 0.000       | 0.000   |            | 0.000   |            | 6.000                   | Dec 2024   | -           |            | 6.000            | 0.000            | 6.000      | -                        |
| <b>Subtotal</b>   |                        |                                | 100.406     | 3.467   |            | 2.545   |            | 18.650                  |            | -           |            | 18.650           | Continuing       | Continuing | N/A                      |
| <b>Management Services (\$ in Millions)</b>                     |                        |                                |             | FY 2023   |            | FY 2024 |            | FY 2025 Base            |            | FY 2025 OCO |            | FY 2025 Total    |                  |            |                          |
| Cost Category Item  | Contract Method & Type | Performing Activity & Location | Prior Years | Cost  | Award Date | Cost    | Award Date | Cost                    | Award Date | Cost        | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| ESSM-Support and Performing Activity                            | Allot                  | PHD/NAWC CL/ APL : CA/MD       | 19.061      | 0.000   | Nov 2022   | 0.000   |            | 0.000                   |            | -           |            | 0.000            | Continuing       | Continuing | Continuing               |
| ESSM-Travel   | Allot                  | Program Office : VA            | 3.927       | 0.100   | Oct 2022   | 0.100   | Oct 2023   | 0.100                   | Nov 2024   | -           |            | 0.100            | Continuing       | Continuing | Continuing               |
| ESSM-Misc   | Various                | various : various              | 2.149       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 2.149      | 2.065                    |
| NATO Travel/Misc  | Various                | Program Office : various       | 2.111       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 2.111      | -                        |
| ESSM-Support and Performing Activity Blk 2                      | Allot                  | PHD/NAWC CL/ APL : CA/MD       | 1.129       | 0.899   | Nov 2022   | 1.003   | Nov 2023   | 0.000                   |            | -           |            | 0.000            | 0.000            | 3.031      | -                        |
| Engineering Support   | Various                | Various : Various              | 5.458       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 5.458      | -                        |
| I-Stalker Engineering Support                                   | Various                | TMB : Various                  | 0.275       | 0.000   |            | 0.000   |            | 0.000                   |            | -           |            | 0.000            | 0.000            | 0.275      | -                        |
| <b>Subtotal</b>   |                        |                                | 34.110      | 0.999   |            | 1.103   |            | 0.100                   |            | -           |            | 0.100            | Continuing       | Continuing | N/A                      |
| <b>Project Cost Totals</b>                                      |                        |                                | 1,060.855   | 38.164  |            | 31.206  |            | 46.372                  |            | -           |            | 46.372           | Continuing       | Continuing | N/A                      |
| <b>Remarks</b>  |                        |                                |             |   |            |         |            |                         |            |             |            |                  |                  |            |                          |
| Various used for multiple vendors and location under threshold. |                        |                                |             |   |            |         |            |                         |            |             |            |                  |                  |            |                          |

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**Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy**

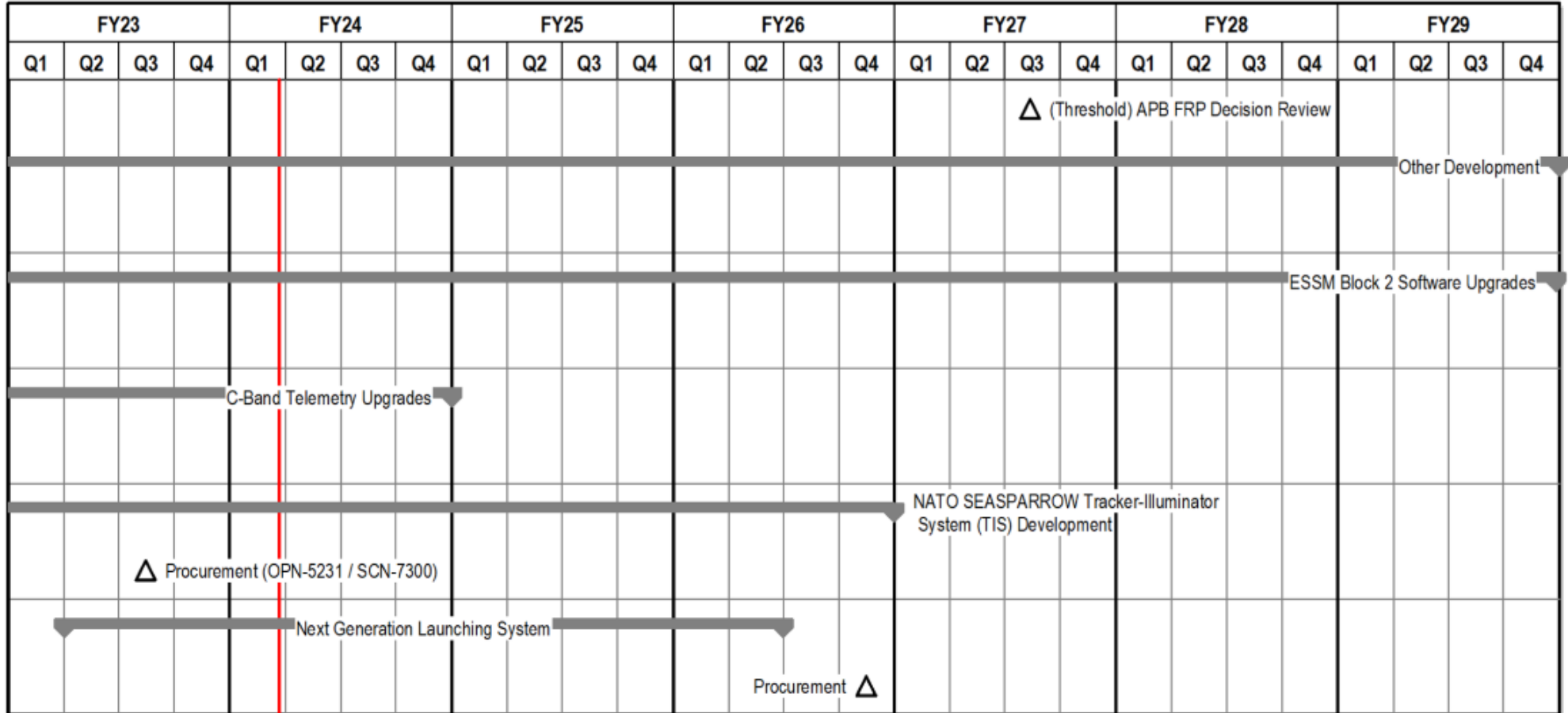
**Date:** March 2024

**Appropriation/Budget Activity**  
1319 / 5

**R-1 Program Element (Number/Name)**  
PE 0604756N / *Ship Self Def (Engage: Hard Kill)*

**Project (Number/Name)**  
0173 / *NATO Sea Sparrow*

12/21/23



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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2025 Navy |  | <b>Date:</b> March 2024  |
| <b>Appropriation/Budget Activity</b><br>1319 / 5              | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>0173 / <i>NATO Sea Sparrow</i> |

Schedule Details

| Events by Sub Project  | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| <b>Proj 0173</b>   |         |      |         |      |
| Other Development  | 1       | 2023 | 2       | 2029 |
| ESSM Blk 2 Software Upgrades                                 | 1       | 2023 | 4       | 2028 |
| C-Band Telemetry Upgrades                                    | 1       | 2023 | 4       | 2024 |
| NATO SEASPARROW Tracker-Illuminator System (TIS) Development | 1       | 2023 | 4       | 2026 |
| Next Generation Launching System                             | 2       | 2023 | 3       | 2026 |

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**Exhibit R-2A, RDT&E Project Justification:** PB 2025 Navy **Date:** March 2024

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>1319 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / Ship Self Def (Engage: Hard Kill) | <b>Project (Number/Name)</b><br>2070 / OTH Missile |
|--|---|--|

| COST (\$ in Millions)      | Prior Years | FY 2023 | FY 2024 | FY 2025 Base | FY 2025 OCO | FY 2025 Total | FY 2026 | FY 2027 | FY 2028 | FY 2029 | Cost To Complete | Total Cost |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| 2070: OTH Missile          | 67.627      | 8.130   | 5.200   | 2.039        | -           | 2.039         | 2.018   | 0.000   | 0.000   | 0.000   | 0.000            | 85.014     |
| Quantity of RDT&E Articles |             | -       | -       | -            | -           | -             | -       | -       | -       | -       |                  |            |

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

Over-The-Horizon (OTH) Missile funds competitive acquisition, testing, integrating and fielding of a modern, technologically mature Over-the-Horizon Missile Launch System (OTH-MLS) surface to surface missile capability will be installed onto commissioned and in-production Littoral Combat Ship Variants/Frigate(LCS/FFG)beginning FY 2019.

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

|   | FY 2023 | FY 2024 | FY 2025 Base | FY 2025 OCO | FY 2025 Total |
|---|---------|---------|--------------|-------------|---------------|
| <b>Title:</b> OTH-MLS Test and Evaluation and Systems Engineering   | 8.130   | 5.200   | 2.039        | 0.000       | 2.039         |
| <b>Articles:</b>  | -       | -       | -            | -           | -             |
| <b>FY 2024 Plans:</b>   |         |         |              |             |               |
| - Continue to provide OTH-MLS missile and fire control subject matter expertise to support the program office with program execution. |         |         |              |             |               |
| - Support Fleet and User evaluation   |         |         |              |             |               |
| - Continue Live Fire Test and Evaluation (LFT&E) program.   |         |         |              |             |               |
| - Continue OT in accordance with the OTH-MLS Test and Evaluation Master Plan (TEMP).  |         |         |              |             |               |
| <b>FY 2025 Base Plans:</b>  |         |         |              |             |               |
| - Continue to provide OTH-MLS missile and fire control subject matter expertise to support the program office with program execution. |         |         |              |             |               |
| - Support Fleet and User evaluation   |         |         |              |             |               |
| - Continue Live Fire Test and Evaluation (LFT&E) program.   |         |         |              |             |               |
| - Continue OT in accordance with the OTH-MLS Test and Evaluation Master Plan (TEMP.)  |         |         |              |             |               |
| <b>FY 2025 OCO Plans:</b>   |         |         |              |             |               |
| N/A   |         |         |              |             |               |
| <b>FY 2024 to FY 2025 Increase/Decrease Statement:</b>  |         |         |              |             |               |
| Decrease due to program being in full rate production leading to reduced development efforts.   |         |         |              |             |               |
| <b>Accomplishments/Planned Programs Subtotals</b>   | 8.130   | 5.200   | 2.039        | 0.000       | 2.039         |

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|--|--|---|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |  | <b>Date:</b> March 2024                                   |
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>2070 / <i>OTH Missile</i> |

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

| Line Item  | FY 2023 | FY 2024 | FY 2025 | FY 2025 | FY 2025 | FY 2026 | FY 2027 | FY 2028 | FY 2029 | Cost To    |            |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|------------|------------|
|  |         |         | Base    | OCO     | Total   |         |         |         |         | Complete   | Total Cost |
| • OPN /5231: <i>Ship Missile Support Equipment/OTH Missile</i> | 13.231  | 6.625   | 8.946   | -       | 8.946   | 8.944   | 4.435   | 4.524   | 4.642   | Continuing | Continuing |
| • WPN 2292: <i>Naval Strike Missile (NSM)</i>                  | 59.034  | 29.925  | 28.719  | -       | 28.719  | 30.208  | 31.736  | 32.604  | 29.343  | Continuing | Continuing |
| • PMC/2292: <i>Naval Strike Missile (NSM)</i>                  | 174.369 | 169.726 | 170.845 | -       | 170.845 | 169.913 | 169.878 | 170.428 | 147.295 | Continuing | Continuing |

**Remarks**

OPN 5231 is a shared BLI - Funding only reflects OTH-MLS cost elements.  
 PMC 2292 is a new LI previously executed out of PMC 2212. LI will procure same NSM configuration as the DON.  
 PMC 2212 only reflects NSMs funded in FY 2022.

**D. Acquisition Strategy**

The OTH-MLS is an Acquisition Category (ACAT) II level weapon system production and sustainment program to provide the current Littoral Combat Ship (LCS) variants and Frigate (FFG) ships with an Over-the-Horizon Surface-To-Surface Missile (SSM) capability. The Navy awarded a seven-year competitive contract awarded to Raytheon May 31, 2018 that procures material, procures test assets, and provides installation support. With the expiration of the competitive contract, the OTH-MLS will be sole source to Original Equipment Manufacturer, Kongsberg Defence and Aerospace.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy** **Date:** March 2024

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>1319 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / Ship Self Def (Engage: Hard Kill) | <b>Project (Number/Name)</b><br>2070 / OTH Missile |
|--|---|--|

| <b>Product Development (\$ in Millions)</b>   |                        |  |             | FY 2023 |            | FY 2024 |            | FY 2025 Base |            | FY 2025 OCO |            | FY 2025 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                            | Contract Method & Type | Performing Activity & Location                     | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| OTH All Up Round (AUR) Technical Design Agent | WR                     | NAWC/WD : China Lake, CA                           | 11.637      | 1.392   | Oct 2022   | 0.400   | Oct 2023   | 0.139        | Dec 2024   | -           |            | 0.139         | 0.000            | 13.568     | -                        |
| OTH Simulation and Analysis                   | WR                     | NSWC/COR : Corona, CA                              | 2.112       | 0.431   | Oct 2022   | 0.200   | Oct 2023   | 0.050        | Dec 2024   | -           |            | 0.050         | 0.000            | 2.793      | -                        |
| OTH Weapon System Design Agent                | WR                     | NSWC/DD : Dahlgren, VA                             | 3.647       | 0.822   | Oct 2022   | 0.100   | Oct 2023   | 0.050        | Dec 2024   | -           |            | 0.050         | 0.000            | 4.619      | -                        |
| OTH Test & Evaluation / ILS                   | WR                     | NSWC/PHD : Port Hueneme, CA                        | 3.729       | 0.800   | Oct 2022   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 4.529      | -                        |
| OTH Weapon System Safety                      | WR                     | NSWC/DD : Dahlgren, VA                             | 1.380       | 0.600   | Oct 2022   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 1.980      | -                        |
| Weapons Systems Engineering Planning          | FFRDC                  | JHU/APL : Laurel, MD                               | 1.027       | 0.000   | Dec 2022   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 1.027      | -                        |
| OEM Engineering Support                       | C/CPFF                 | Raytheon : Tucson, AZ                              | 9.280       | 0.680   | Nov 2022   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 9.960      | -                        |
| Test & Evaluation Assets                      | C/FFP                  | Raytheon : Tucson, AZ                              | 11.339      | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 11.339     | -                        |
| Range & Target                                | WR                     | Pt. Mugu : Pt. Mugu, CA                            | 7.250       | 2.652   | Aug 2023   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 9.902      | -                        |
| Test Asset Procurement                        | C/FFP                  | Raytheon : Tucson, AZ                              | 9.853       | 0.000   | Nov 2022   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 9.853      | -                        |
| OTH WEAPON System safety                      | WR                     | NSWC/IHD : Indian Head, MD                         | 0.130       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 0.130      | -                        |
| Test and Eval                                 | WR                     | OTF : Norfolk, VA                                  | 0.395       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 0.395      | -                        |
| OTH Safety Testing                            | WR                     | White Sands : White Sands, NM                      | 1.233       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 1.233      | -                        |
| Survivability & Functionality Testing         | MIPR                   | AMTC : Redstone Arsenal/ AL                        | 0.800       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 0.800      | -                        |
| OEM Engineering Support                       | C/FFP                  | Kongsberg Defence and Aerospace : Kongberg, Norway | 0.000       | 0.000   |            | 0.200   | Jun 2024   | 0.200        | Dec 2024   | -           |            | 0.200         | 0.000            | 0.400      | -                        |
| <b>Subtotal</b>                               |                        |  | 63.812      | 7.377   |            | 0.900   |            | 0.439        |            | -           |            | 0.439         | 0.000            | 72.528     | N/A                      |

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy** **Date:** March 2024

|  |  |   |
|--|--|---|
| <b>Appropriation/Budget Activity</b><br>1319 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>2070 / <i>OTH Missile</i> |
|--|--|---|

| <b>Product Development (\$ in Millions)</b> |                        |                                |             | FY 2023 |            | FY 2024 |            | FY 2025 Base |            | FY 2025 OCO |            | FY 2025 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |

**Remarks**  
Required procurement of EOD, Safety, and Insensitive Munition Test Assets that support continued deployment and integration efforts.

| <b>Test and Evaluation (\$ in Millions)</b> |                        |                                |             | FY 2023 |            | FY 2024 |            | FY 2025 Base |            | FY 2025 OCO |            | FY 2025 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| Operational Test & Evaluation (OT&E)        | WR                     | NSWC/PHD : Port Hueneme, CA    | 0.000       | 0.000   |            | 0.100   | Oct 2023   | 0.000        |            | -           |            | 0.000         | 0.000            | 0.100      | -                        |
| Live Fire Test & Evaluation (LFT&E)         | WR                     | Pt. Mugu : Pt. Mugu, CA        | 0.000       | 0.000   |            | 2.500   | Aug 2024   | 0.000        |            | -           |            | 0.000         | 0.000            | 2.500      | -                        |
| Operational Test & Evaluation (OT&E)        | WR                     | OTF : Norfolk, VA              | 0.000       | 0.000   |            | 0.100   | Oct 2023   | 0.000        |            | -           |            | 0.000         | 0.000            | 0.100      | -                        |
| Live Fire Test & Evaluation (LFT&E)         | WR                     | NSWC/WD : China Lake, CA       | 0.000       | 0.000   |            | 1.600   | Dec 2023   | 1.600        | Dec 2024   | -           |            | 1.600         | 0.000            | 3.200      | -                        |
| <b>Subtotal</b>                             |                        |                                | 0.000       | 0.000   |            | 4.300   |            | 1.600        |            | -           |            | 1.600         | 0.000            | 5.900      | N/A                      |

**Remarks**  
Range and target funding supports planning and execution of the Naval Strike Missile LFT&E in FY 2025

| <b>Management Services (\$ in Millions)</b> |                        |                                   |             | FY 2023 |            | FY 2024 |            | FY 2025 Base |            | FY 2025 OCO |            | FY 2025 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|-----------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location    | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| OTH Contractor Acquisition Mgt Support      | C/CPIF                 | BAH : Arlington, VA               | 0.721       | 0.150   | Dec 2022   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 0.871      | -                        |
| OTH Program Management Support              | C/CPIF                 | Strategic Insight : Arlington, VA | 0.380       | 0.050   | Dec 2022   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 0.430      | -                        |
| OTH Program Management Support              | WR                     | PEO IWS : Arlington, VA           | 1.165       | 0.178   | Oct 2022   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 1.343      | -                        |
| OTH Contractor Engineering Support          | C/CPIF                 | SERCO : Arlington, VA             | 1.429       | 0.225   | Dec 2022   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 1.654      | -                        |





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| <b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2025 Navy</b> |  | <b>Date:</b> March 2024                                   |
| <b>Appropriation/Budget Activity</b><br>1319 / 5              | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>2070 / <i>OTH Missile</i> |

Schedule Details

| Events by Sub Project  | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| <b><i>Proj 2070</i></b>  |         |      |         |      |
| Limited WSESRB Planning & Execution (SSSTRP, FISTRP, HERO, IM) | 1       | 2023 | 1       | 2023 |
| Major Review - Milestone C Decision                            | 1       | 2023 | 1       | 2023 |
| Full Deployment WSESRB   | 1       | 2023 | 4       | 2024 |
| System Qualification   | 1       | 2023 | 4       | 2023 |
| Full Rate Production (FRP) Decision                            | 1       | 2024 | 1       | 2024 |
| Operational Testing  | 1       | 2023 | 4       | 2024 |
| Live Fire Test and Evaluation                                  | 1       | 2024 | 4       | 2026 |
| Multi-Year Production Contract                                 | 1       | 2024 | 4       | 2028 |

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |                    |                |                |                     |  |                      |                |                |   | <b>Date:</b> March 2024 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> |                      |                |                | <b>Project (Number/Name)</b><br>9081 / <i>Phalanx CIWS SEARAM</i> |                         |                         |                   |
| <b>COST (\$ in Millions)</b>                                       | <b>Prior Years</b> | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b>   | <b>FY 2025 Total</b> | <b>FY 2026</b> | <b>FY 2027</b> | <b>FY 2028</b>  | <b>FY 2029</b>          | <b>Cost To Complete</b> | <b>Total Cost</b> |
| 9081: <i>Phalanx CIWS SEARAM</i>                                   | 0.000              | 0.000          | 0.000          | 6.646               | -  | 6.646                | 7.326          | 3.953          | 0.000   | 0.000                   | 0.000                   | 17.925            |
| Quantity of RDT&E Articles   |                    | -              | -              | -                   | -  | -                    | -              | -              | -   | -                       |                         |                   |

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

The MK 15 MOD 40 Close in Weapon System (CIWS) RAM Defense Capability (CRDC) configuration is fielded aboard Nimitz Class Carriers (CVN). It is a fast reaction, rapid fire, computer-controlled radar system that employs the Rolling Airframe Missile (RAM) as an effector for Anti-Ship Missile (ASM) defense. The MK 15 MOD 40 CIWS (CRDC) configuration was fielded in FY 2020, limited to the RAM BLK 2 missile variant. The purpose of this project is to develop and integrate the latest RAM missile variant (BLK 2B) into the MK 15 MOD 40 baseline. The RAM Block 2B missile defends against highly maneuverable Anti-Ship Cruise Missile (ASCM) threats and emerging complex raid attacks utilizing an advanced infrared (IR) seeker and Missile-to-Missile Link (MML) while maintaining all the proven capabilities of previous RAM variants (BLK 2): accurate terminal guidance, proven lethality, and post-launch fire and forget capability.

Without this effort the Nimitz class carriers will be unable to utilize the latest and most capable RAM Block 2B missile which entered production in FY 2023.

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

|  | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b> | <b>FY 2025 Total</b> |
|--|----------------|----------------|---------------------|--------------------|----------------------|
| <b>Title:</b> MK 15 MOD 40 CIWS (CRDC) configuration   | 0.000          | 0.000          | 6.646               | 0.000              | 6.646                |
| <b>Articles:</b>   | -              | -              | -                   | -                  | -                    |
| <b>FY 2024 Plans:</b><br>N/A   |                |                |                     |                    |                      |
| <b>FY 2025 Base Plans:</b><br>The existing MK 15 MOD 40 CIWS (CRDC) configuration was fielded in FY 2020 and is limited to utilizing the Block 2 variant of the RAM missile. The purpose of this project is to develop and integrate the latest RAM missile variant (Block 2B) into the MK 15 MOD 40 baseline to provide ship self-defense capability against advanced stream raids and emerging threats. FY 2025 efforts will focus on finalizing system requirements and design, developing the operational software and conducting a simulated live fire event. |                |                |                     |                    |                      |
| <b>FY 2025 OCO Plans:</b><br>N/A   |                |                |                     |                    |                      |
| <b>FY 2024 to FY 2025 Increase/Decrease Statement:</b>   |                |                |                     |                    |                      |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy |  | <b>Date:</b> March 2024   |
| <b>Appropriation/Budget Activity</b><br>1319 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>9081 / <i>Phalanx CIWS SEARAM</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025 Base</b> | <b>FY 2025 OCO</b> | <b>FY 2025 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Increase in funding from FY 2024 to FY 2025 required to support MK 15 MOD 40 integration. FY 2025 is the first year of funding for these integration costs. |                |                |                     |                    |                      |
| <b>Accomplishments/Planned Programs Subtotals</b>   | 0.000          | 0.000          | 6.646               | 0.000              | 6.646                |

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

N/A

**Remarks**

**D. Acquisition Strategy**

The MK 15 MOD 40 CIWS (CRDC) configuration uses directed sole source contracts with Raytheon Missile & Defense, Tucson, AZ.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy** **Date:** March 2024

|  |  |   |
|--|--|---|
| <b>Appropriation/Budget Activity</b><br>1319 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>9081 / <i>Phalanx CIWS SEARAM</i> |
|--|--|---|

| <b>Product Development (\$ in Millions)</b> |                        |                                       |             | FY 2023 |            | FY 2024 |            | FY 2025 Base |            | FY 2025 OCO |            | FY 2025 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---------------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location        | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| Development / Integration                   | SS/CPFF                | Raytheon Missile Systems : Tucson, AZ | 0.000       | 0.000   |            | 0.000   |            | 6.596        | Dec 2024   | -           |            | 6.596         | 0.000            | 6.596      | -                        |
| Safety                                      | WR                     | NSWC DD : Dahlgren, VA                | 0.000       | 0.000   |            | 0.000   |            | 0.050        | Nov 2024   | -           |            | 0.050         | 0.000            | 0.050      | -                        |
| <b>Subtotal</b>                             |                        |                                       | 0.000       | 0.000   |            | 0.000   |            | 6.646        |            | -           |            | 6.646         | 0.000            | 6.646      | N/A                      |

**Remarks**  
RMD will provide engineering efforts for developing and integrating the BLK 2B functionality into the MK 15 MOD 40 CIWS (CRDC) configuration baseline. NSWC DD is the programs Principal for Safety (PFS) and will provide safety oversight during the development effort.

|                            | Prior Years | FY 2023 | FY 2024 | FY 2025 Base | FY 2025 OCO | FY 2025 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| <b>Project Cost Totals</b> | 0.000       | 0.000   | 0.000   | 6.646        | -           | 6.646         | 0.000            | 6.646      | N/A                      |

**Remarks**

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| <b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2025 Navy |  | <b>Date:</b> March 2024   |
| <b>Appropriation/Budget Activity</b><br>1319 / 5             | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>9081 / <i>Phalanx CIWS SEARAM</i> |

| FY 2023 |   |   |   | FY 2024 |   |   |   | FY 2025 |   |   |   | FY 2026 |   |   |   | FY 2027 |   |   |   | FY 2028 |   |   |   | FY 2029 |   |   |   |
|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| 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 |

|   |  |
|---|--|
| <b>Proj 9081</b>  |  |
| Development   |  |
| System and software requirements review   |  |
| Conduct simulated live fire event   |  |
| Develop the CIWS D219 operational software and the MK 49 60.xx operational software |  |
| SSDS Integration Test   |  |
| Formal Qualification Test   |  |
| Test and Evaluate   |  |

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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2025 Navy |  | <b>Date:</b> March 2024   |
| <b>Appropriation/Budget Activity</b><br>1319 / 5              | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>9081 / <i>Phalanx CIWS SEARAM</i> |

Schedule Details

| Events by Sub Project   | Start   |      | End     |      |
|---|---------|------|---------|------|
|   | Quarter | Year | Quarter | Year |
| <b><i>Proj 9081</i></b>   |         |      |         |      |
| Development   | 1       | 2025 | 4       | 2027 |
| System and software requirements review   | 1       | 2025 | 1       | 2025 |
| Conduct simulated live fire event   | 1       | 2025 | 1       | 2025 |
| Develop the CIWS D219 operational software and the MK 49 60.xx operational software | 2       | 2025 | 1       | 2026 |
| SSDS Integration Test   | 2       | 2026 | 2       | 2026 |
| Formal Qualification Test   | 3       | 2026 | 3       | 2026 |
| Test and Evaluate   | 1       | 2027 | 4       | 2027 |

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**Exhibit R-2A, RDT&E Project Justification:** PB 2025 Navy **Date:** March 2024

|  |   |   |
|--|---|---|
| <b>Appropriation/Budget Activity</b><br>1319 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / Ship Self Def (Engage: Hard Kill) | <b>Project (Number/Name)</b><br>9999 / Congressional Adds |
|--|---|---|

| COST (\$ in Millions)      | Prior Years | FY 2023 | FY 2024 | FY 2025 Base | FY 2025 OCO | FY 2025 Total | FY 2026 | FY 2027 | FY 2028 | FY 2029 | Cost To Complete | Total Cost |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| 9999: Congressional Adds   | 22.189      | 19.292  | 0.000   | 0.000        | -           | 0.000         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000            | 41.481     |
| Quantity of RDT&E Articles |             | -       | -       | -            | -           | -             | -       | -       | -       | -       |                  |            |

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

The 57mm MK 332 HE-4G Projectile significantly increases MK 110 Gun Mount lethality and effectiveness against Fast Attack Craft and Fast In-Shore Attack Craft (FAC/FIAC). ALaMO Block 1 demonstrates an alternative seeker and guidance technologies, potentially providing improved lethality compared to base ALaMO projectile.

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

|   | FY 2023 | FY 2024 |
|---|---------|---------|
| <b>Congressional Add:</b> ALaMO block 1 projectile  | 19.292  | 0.000   |
| <b>FY 2023 Accomplishments:</b> Award development contract; complete initial design assessment and testing; perform component down select; initiate warhead optimization and guidance, navigation, and control integration. |         |         |
| <b>FY 2024 Plans:</b> N/A   |         |         |
| <b>Congressional Adds Subtotals</b>   | 19.292  | 0.000   |

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

N/A

**Remarks**

**D. Acquisition Strategy**

MK 332 HE-4G Block 1 development and prototype hardware build will be awarded competitively in mid-2023 to support production and test of assets in FY 2023.





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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2025 Navy |  | <b>Date:</b> March 2024  |
| <b>Appropriation/Budget Activity</b><br>1319 / 5              | <b>R-1 Program Element (Number/Name)</b><br>PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i> | <b>Project (Number/Name)</b><br>9999 / <i>Congressional Adds</i> |

Schedule Details

| Events by Sub Project                          | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| <b>Proj 9999</b>                               |         |      |         |      |
| Government Engineering Assessments and Testing | 3       | 2023 | 1       | 2024 |
| Prototype Design Development                   | 3       | 2023 | 4       | 2023 |
| Prototype Hardware Build                       | 3       | 2023 | 4       | 2024 |
| Government Testing                             | 4       | 2023 | 4       | 2024 |